

Last Ditch to Defend Democracy? Effects of the 2019 Hong Kong ANTI-ELAB Protest on District Council Elections

Shuo Zhang *

February 24, 2024

Abstract

Will two modes of political participation: protest and voting, affect each other? In this paper I exploit a globally-known event, the 2019 Anti-Extradition Law Amendment Bill Movement (ANTI-ELAB protest) in Hong Kong, and its impacts on the subsequent 2019 Hong Kong District Council Election. I find that in Constituency Areas with higher protest intensities, as measured by the number of events during the ANTI-ELAB protest, there was a greater increase in voter turnout in the 2019 District Council Election compared to 2015. In addition, I propose a set of transportation-based instrument variables to establish causal effects. Additional empirical evidence implies that protest intensity also affects people's political stances, leads to an increase in political polarization, and even has far-reaching effects on people's outflow, especially in previously pro-establishment and urban areas. Altogether, I provide empirical evidence that the 2019 ANTI-ELAB protest has a significant on Hong Kong people's voting behaviors and political stances, and may even affect their long-term migration decisions. These results shed some light on an emerging literature that investigates the interaction between protest and voting and provides new insights into studying within-city-level social unrest.

Keywords: Hong Kong, ANTI-ELAB, Elections, Voting, Protest

JEL Classification: D72, D74, P00

*Shuo Zhang, Department of Economics, Syracuse University, szhang64@syr.edu. I am grateful for all the guidance from my advisors Devashish Mitra and Abdulaziz Shifa. I also thank Kaihua Deng, Alfonso Flores-Lagunes, Haozhe Han, Yang Liang, Yoonseok Lee, Zeyuan (Victor) Xiong, Maria Zhu, and seminar participants at Syracuse University for their fruitful comments and suggestions. All errors are my own.

1 Introduction

During the past decades, the world has witnessed a great amount of protests occurring in both democratic and authoritarian societies (e.g., the Tiananmen Square protests in China in 1989, or the Tea Party movement in the U.S. in 2009). Though researchers in the field of economics and political science have focused on the causes and consequences of social unrest, little research exists regarding the interplay between protest and voting, which are the two most direct forms of political participation (Madestam et al., 2013; Tertychnaya and Lankina, 2020; Anderson et al., 2023). Therefore, in this paper, I exploit a globally-known event, the 2019 Anti-Extradition Law Amendment Bill Movement (ANTI-ELAB protest) in Hong Kong, and its impacts on people's voting behaviors and political stances.

The 2019 Hong Kong ANTI-ELAB protest is by far the largest social unrest in Hong Kong after returning to China in 1997 (Lai et al., 2019; Chow et al., 2023). However, few studies have been conducted on this pivotal event. Thanks to detailed data of events during the ANTI-ELAB protest, the ANTI-ELAB research data archive (HKU Journalism, 2020), and other related datasets, at a finely-grained spatial level, I exploit the within-city level spatial variation in protest intensity, defined as the number of events during the ANTI-ELAB protest, across different Constituency Areas (akin to the neighborhood level) in Hong Kong, and link it to people's changes in voting behaviors and political stances in the subsequent 2019 District Council Election.

Using a long-difference regression specification, my main empirical results suggest that the local protest intensity has a positive and significant effect on voter turnout in the subsequent 2019 District Council Election compared to 2015. The magnitude of this effect is considerable, with a one standard deviation increase in protest intensity leading to a 0.9 percentage point increase in voter turnout, or around 2% compared to the 2015 mean. The result still survives with placebo tests using previous election results, as well as numerous robustness checks.

Why would these protest events lead to people's political changes? A strand of literature focuses on protesters providing information to the candidates and resulting in political changes (Lohmann, 1993, 1994). However, I argue that this might not be the case of Hong Kong, given that the protest eventually led to no changes in policy and responses to protesters' demands, but only the withdrawal of the amendment.

Instead, due to the unique nature of within-city level analysis in Hong Kong, I argue that

the ANTI-ELAB protest primarily affects people's voting behavior by disseminating local information and increasing personal interaction between protesters and local citizens, which can be described as a popular phrase "seeing is believing". In this case, the effects are more likely to coincide with the results of [Madestam et al. \(2013\)](#) and [Tertychnaya and Lankina \(2020\)](#). Since Hong Kong was inundated with an endless amount of news and stories during the protest, individuals may be more attuned to events that occurred near their place of residence. It is these local events and small-scale personal interactions that primarily convey information, elicit people's empathy, and ultimately trigger people's political changes. This argument is reinforced by further empirical evidence that compares the impact of protest intensity in the local area versus in nearby neighborhoods or buffers at varying distances.

One of the biggest concerns regarding my empirical strategy is that these events are not randomly distributed across Hong Kong. They are more likely to occur in economically or politically important areas. To better enhance the causality of the aforementioned relationship, I propose a set of transportation-based instrument variables. The idea is simple: areas with a well-established local public transportation system can lead to higher protest intensity since it is easier for protesters to gather and escape. On the other hand, after controlling for a bunch of local characteristics, the local public transportation development is less likely to correlate with people's unobserved political preferences. Under this assumption, the proposed instruments satisfy both the relevance and exclusion restriction conditions. This further strengthens the validity of the main results, suggesting an even larger magnitude of the effects.

Unlike the classic weather variables that have been widely used in previous studies ([Madestam et al., 2013](#); [Tertychnaya and Lankina, 2020](#); [Beraja et al., 2023](#)), this, to the best of my knowledge, is the first study that introduces local public transportation development as an instrument, and it might be still related to some factors that indirectly affect peoples' political stances, I conduct additional empirical exercises to rule out potential alternative stories. In contrast to other studies conducted at a cross-city or cross-country level, this research focuses on Hong Kong as a city-level region. It is important to note that people protesting in one Constituency Area are not necessarily, and in most cases not, equivalent to the voters in that area. Thus, it is less likely an omitted variable that correlates the protesting behaviors of all Hong Kong people,¹ and the voting behaviors of certain people living in one

¹Throughout the paper, I use "Hong Kong people" and "Hong Kong citizens" interchangeably.

area.

I also perform two heterogeneity tests based on previous political stances: whether pro-democracy candidates won the previous election in a Constituency Area or not; and urban sub-urban status: whether the area has a higher population density or not. The results suggest that the effects in previous non-pro-democracy areas and urban areas are more salient, probably because of higher demands on democracy in these areas.

After conducting a comprehensive empirical analysis of voter turnout, I further investigate the impacts of the ANTI-ELAB protest on people's political stances. IV results suggest that the protest substantially increased political polarization in Hong Kong by decreasing the vote shares of neutral candidates. Moreover, areas with higher protest intensity exhibit a higher increase in pro-democracy votes, while there are negligible changes in pro-establishment votes, which indicates that there is a large proportion of new voters supporting pro-democracy candidates, instead of a pure shift of current voters from pro-establishment to pro-democracy. These new voters, together with those who shift from neutral towards pro-democracy, contribute to the increase in the pro-democracy vote share and thus lead to a more pro-democracy stance in Hong Kong society. Subsample analysis shows that the effects are more significant in previously non-pro-democracy areas, where there may have been a greater divide in opinions after people witnessed the protest. Further comparison reveals that in non-pro-democracy areas, increasing protest intensity significantly shifts people towards pro-democracy, resulting in pro-democracy parties winning over 85% of the seats in the 2019 District Council Election.

Finally, I present suggestive evidence of a relatively long-term impact on people's emigration decisions. Following the implementation of the National Security Law in 2020 and its destruction of democracy in Hong Kong, areas with a higher protest intensity see a lower growth in stayers.

Overall, my research findings suggest that the 2019 Hong Kong ANTI-ELAB Protest has significantly increased Hong Kong people's political engagement, resulting in higher voter turnout in the subsequent District Council Election. Moreover, the protest altered Hong Kong people's political stances, exacerbating the political divide between pro-democracy and pro-establishment factions, while also shifting the whole society towards pro-democracy. These far-reaching consequences also affect people's long-term emigration decisions.

The remainder of the paper is organized as follows. Section 2 provides detailed literature

review. Section 3 provides a brief introduction to the background of the 2019 Hong Kong ANTI-ELAB Protest and the Hong Kong District Council Elections. Section 4 presents the detailed data used in this study. I then present the main empirical results on the impact of protest intensity on the change in people's voting behavior in Section 5, on people's political stances in Sections 6 and 7. I also provide some suggestive evidence of its impact on population outflow in Section 8. I finally conclude the paper in Section 9.

2 Literature Review

This paper contributes to several strands of the literature. First, it contributes to the strand of literature studying the 2019 Hong Kong ANTI-ELAB Protest. Although it received much worldwide attention in 2019, up to now there are very few studies on this event. [Bursztyn et al. \(2021\)](#); [Cantoni et al. \(2019, 2022\)](#) are a series of pioneering papers that firstly focus on this event, but they conduct studies more from individual protesters' perspectives, analyzing the determinants and strategies of individuals participating in a protest. [Bhambhani \(2022\)](#) studies the protest intensity during this period, and how it fluctuates the financial markets by affecting the performance of firms in different ownership. The field of political science has more relevant studies on this topic. For example, [Shen and Yu \(2021\)](#) conducts experiments to study how to mitigate people's hostile relationships due to political polarization. [Lee et al. \(2019\)](#) discusses the distinction between the 2019 ANTI-ELAB Protest compared to other previous movements in Hong Kong; [Tang and Cheng \(2021\)](#) discusses the gradual process that protesters of different ages accept the radicalization of the Protest. One of the biggest contributions of my research is that while most existing studies are illustrative or qualitative ([Lee et al., 2019](#); [Wan Chan and Pun, 2020](#)), my study is among the few that employs rigorous methods to provide some quantitative empirical on the impact of the ANTI-ELAB Protest.

This paper is also related to very few papers studying the District Council Elections in Hong Kong ([Wong, 2014, 2019](#); [Wang and Wong, 2021](#); [Wong and Wong, 2022](#)). The study of [Wang and Wong \(2021\)](#) might be the closest to my research, which uses polling-station-level election data to study another mass event in Hong Kong, the Umbrella Movement in 2014. However, different from my main results, they instead find that the higher protest exposure, measured by proximity to the protest sites, decreases turnouts and the vote share for

the opposition parties. Moreover, [Wong and Wong \(2022\)](#) uses district-level data to study the correlation between income inequality and voter turnout. [Wong \(2019\)](#) is another interesting study analyzing Gerrymandering: the redistribution of the electoral District Council boundaries between 2007 and 2011 and its impacts on several political outcomes.

Moreover, this paper contributes to a broader strand of literature that examines the economic and political consequences of social unrest. To this extent, this paper is closest to [Tertychnaya and Lankina \(2020\)](#), which examines the impact of protests on individuals' political stances in Russia; and [Madestam et al. \(2013\)](#), which studies the Tea Party Movement in the United States and its influence on the subsequent Midterm US Elections. [Wallace et al. \(2014\)](#) is another study that demonstrates how protests can affect people's attitudes toward the government. Certain research emphasizes the effects of violent protests, suggesting that they can have unclear ([Marino et al., 2020](#)) or even adverse effects on people's support for democracy ([Eady et al., 2023](#)). Compared to the existing research that mainly conducts cross-country or cross-regional analyses using survey data, my study employs a much finer spatial unit, the Constituency Area, within a city-level region, and a more direct measure, voting behaviors, to investigate the change in people's political stances. Another unique characteristic of using the 2019 Hong Kong ANTI-ELAB Protest, is that Hong Kong citizens faced substantial political uncertainty and immense threats to democracy during the protest. This could potentially increase the influence of protests on voting behavior than other nominal social unrest in other areas.

Other studies examining the effects of social unrest cover various topics, such as political regime changes ([Acemoglu and Robinson, 2006](#)), financial market performances ([Acemoglu et al., 2018](#); [Barrett et al., 2021](#)), aggregate economic growth ([Collins and Margo, 2007](#); [Hadzi-Vaskov et al., 2023](#)), public policies ([Branton et al., 2015](#)), etc. Readers can also refer to [Cantoni et al. \(Forthcoming\)](#) for a more detailed review.

Finally, this research pertains to previous works on political participation and voting behaviors. However, to date, there have been only a limited number of studies that examine the relationship between social unrest and voting behaviors ([Madestam et al., 2013](#); [Little et al., 2015](#); [Frye and Borisova, 2019](#); [Condra et al., 2018](#); [Tertychnaya and Lankina, 2020](#); [Leon-Ablan and John, 2022](#); [Passarelli and Tabellini, 2017](#); [Anderson et al., 2023](#)), and it is an interesting and important question to investigate whether these two modes of political participation's are either substitutes or complements ([Cantoni et al., Forthcoming](#)). My study

also shed some light on this discussion, discovering a causal relationship that protest can lead to significant change in voting behaviors.

3 Background: the 2019 Hong Kong ANTI-ELAB Protest and District Council Elections

3.1 The 2019 Hong Kong ANTI-ELAB Protest

The 2019 Hong Kong ANTI-ELAB Protest is by far the largest protest in Hong Kong since its “handover” to China in 1997. Approximately 270,000 people participated in one of the largest protest marches (Lai et al., 2019; Chow et al., 2023), and over 10,000 people were arrested during the ANTI-ELAB Protest. The protests began in March 2019, in response to the Hong Kong government’s proposal of the Fugitive Offenders and Mutual Legal Assistance in Criminal Matters Legislation (Amendment) Bill 2019, also known as the Extradition Bill.²

Although Hong Kong still maintains its institutional and judicial independence under the Basic Law and the “One Country, Two Systems” policy, an increasing number of Hong Kong citizens believe that the Chinese Communist Party (CCP) is gradually encroaching on their democratic political rights. This extradition bill poses a greater threat to Hong Kong’s judicial freedom, as it allows the Central government to secretly transfer fugitives, particularly political suspects having dissents against the CCP, from Hong Kong to mainland China.

The protest was initially a relatively peaceful demonstration near the Central Government Offices and the Legislative Council Complex, but later escalated into violence and extended to various locations throughout Hong Kong. As Figure 1 shows, the ANTI-ELAB protest peaked in November 2019 and subsequently declined due to the COVID-19 pandemic. The protest ultimately concluded with the enactment and implementation of the National Security Law on July 1, 2020.

²In 2018, a Hong Kong male named Tong Kai Chan killed his girlfriend in Taiwan and fled back to Hong Kong. At that time Hong Kong and Taiwan did not have bilateral agreements on fugitive extradition, and thus the Hong Kong government proposed an amendment to the current Fugitive Offenders Ordinance, which removes the restriction on the Chinese government requesting extradition from Hong Kong. One can see <https://www.nytimes.com/2019/06/10/world/asia/hong-kong-extradition-bill.html> for more details.

3.2 Hong Kong District Council Elections

The District Councils of Hong Kong, established in 1982, are local organizations that provide daily support to the government. According to the Basic Law, the District Council serves as a bridge between the Hong Kong government and the Hong Kong people by communicating with local citizens, collecting different views, and providing support on district affairs.³ It also helps promote laws and policies by the Hong Kong government. Although it is not an official organ of political power, it recently served as a platform for candidates to convey their political stances. Additionally, it is the only platform where Hong Kong people can directly elect candidates.

There are a total of 18 District Councils and approximately 450 Constituency Areas in Hong Kong. Most members of the Hong Kong District Council are directly elected by citizens, although prior to 2015, a significant number of "appointed members" were chosen by the Chief Executive.⁴ The District Council Elections take place every four years and utilize the "Single-seat, single-vote" system, where candidates with the highest number of votes secure the seat.

Figure 2 plots the aggregate voter turnout in each District Council Election since 1999. The data reveals that the turnout rates were relatively steady, ranging between 40-50%, prior to 2015. However, in 2019, following the ANTI-ELAB protest, there was a steep increase in voter turnout rates, reaching over 71%.

After the 2019 District Council Election, Hong Kong underwent significant institutional changes, including the District Councils. In the 2023 District Council Election, less than 20% of seats are directly elected by Hong Kong citizens. Additionally, all candidates undergo strict scrutiny to ensure that they "love both the country (China) and Hong Kong" (Chan, 2023; Leung, 2023). This scrutiny almost completely rules out the possibility of almost all pro-democracy candidates being elected, resulting in an election with less than 25% voter turnout. To a significant extent, the 2019 District Council Election is the last election that

³The Basic Law concludes nine general functions of District Councils, most of which are related to local district affairs. These functions include, for example, "to be consulted by the Government on the district affairs affecting the livelihood and living environment in the District and well-being of the people in the District", and "to collect the views of the people in the District in respect of an issue specified by the Chairman of the District Council, and to submit to the Government a summary of the views collected and the suggested corresponding measures". One can see https://www.had.gov.hk/en/public_services/district_governance/dbmain.htm for more detailed information.

⁴There are still 27 ex officio members, who are leaders of the Rural Committees, in the 2015 and 2019 District Council Elections.

remains a democratic process, and thus the ANTI-ELAB Protest was Hong Kong people’s “last ditch” to strive for democracy in Hong Kong.

4 Data

In this section, I introduce the data used in my empirical analyses, which mainly includes the Hong Kong District Council election data, the Hong Kong census data, detailed protest data during the 2019 Hong Kong ANTI-ELAB Protest, and finally the data used for instrument construction. Table 1 reports the descriptive statistics of the key variables.

4.1 Election Data

I obtain the detailed results of Hong Kong’s District Council Elections in 2011, 2015, and 2019 from the Registration and Election Office of the Hong Kong government,⁵ which includes the detailed voter turnout data, as well as the campaign information of each candidate. In the 2019 District Council Election, Hong Kong had a total of 18 District Councils and 451 Constituency Areas.⁶

I first collect the voter turnout data for each Constituency Area, then manually collect the campaign information for each candidate, and then use the following procedures to determine whether he or she is pro-establishment, pro-democracy, or neutral. Readers may refer to [Appendix A](#) for more detailed information.

First, I look at which party the candidate belongs to and assign the candidate the same political stance as his or her political affiliation. Different from the United States, where there are two major parties, the Democrats and the Republicans, Hong Kong has more than fifteen parties before 2020. Appendix Table [A.1](#) shows the political stances of most of the major parties in Hong Kong. Suppose the candidate does not declare his or her political affiliation or claims to be an independent candidate, in that case, I then turn to the campaign poster and political platform to determine the candidate’s political stance. I also use Wikipedia as an additional resource in this step. Finally, if the candidate does not have a stance in his or her campaign poster, I classify him or her as a neutral candidate. Appendix Figure [A.1](#)

⁵<https://www.elections.gov.hk/>

⁶The number of Constituency Areas in Hong Kong is slightly different in each District Council Election, for example, 412 in 2011 and 431 in 2015. In the latter analysis, I use only 431 Constituency Areas that appear in both the 2015 and 2019 elections.

shows four examples of different cases and their political attitudes using different primary information.

After assigning each candidate his or her political stance, I finally have 1090 candidates in the 2019 District Council Election, of which 484 are pro-establishment, 548 are pro-democracy, and 48 are neutral; and 936 candidates in the 2015 election, of which 465 are pro-establishment, 354 are pro-democracy, and 116 are neutral.

Of course, this method suffers from measurement errors, especially in the previous elections, where candidates focused more on rudimentary rather than political issues. In this case, there is a concern that I may misclassify the political stance of some candidates as neutral.

4.2 Census Data

The second part of the data is the Hong Kong census data from the Census and Statistics Department of the Hong Kong government.⁷ I collect the 2016 bi-census and the 2021 census data at the Constituency Area level. The bi-census and the census provide detailed demographic information for each Constituency Area, including education, place of birth, employment, income, etc. On average, according to the 2016 bi-census, each Constituency Area has 2.46 square kilometers and 17,019 people, of whom 54% are female, 92% are Chinese, 62% are between 25 and 64 years old, and 29% receive at least some college education.

A major advantage over other regions in China is that Hong Kong provides a comprehensive census at a very fine spatial level, the Constituency Area. Because of the time mismatch between the election and the census, I use the 2016 bi-census data in my main empirical specification to control for pre-period demographic characteristics and to mitigate potential simultaneity bias.

4.3 Protest Data

I collected detailed event data during the 2019 ANTI-ELAB protests from the ANTI-ELAB research data archive organized by HKU Journalism (HKU Journalism, 2020).⁸ They use text mining techniques to extract detailed information from around one hundred Telegram channels, identifying a total of 2,873 events and 3,377 event-location pairs between

⁷<https://www.censtatd.gov.hk/tc/>

⁸<https://antielabdata.jmsc.hku.hk/>

June 12, 2019, and May 31, 2020. The accompanying paper (Teo and Fu, 2021), as well as other parallel research (Urman et al., 2021; Su et al., 2022), illustrates a special and important role of social media, including Telegram, in the dissemination of information among protesters during the 2019 ANTI-ELAB protest. To get a clearer sense of the protest's impact on the election, I narrowed the period to the day before the 2019 District Council Election, November 23, 2019. This ultimately gives me a total of 1,398 events and 1,678 event-location pairs.

I then use ArcGIS Pro to identify the exact Constituency Area that each event (event-location pair) belongs to, and use the logarithm of one plus the number of events in a Constituency Area as my treatment variable, protest intensity, in my empirical analyses.

Another dataset option for protest research is the GDELT project,⁹ which offers expansive data on global events. However, within the context of Hong Kong, the geographical data on the events within GDELT is less accurate. As a result, the ANTI-ELAB research data archive better suits my research needs for a within-city analysis.

4.4 Transportation Data

As illustrated in the latter section, the non-randomness of protests causes potential endogenous concerns. Therefore, I construct the instrument variables for protest intensity by relying on transportation-based information. More specifically, I obtained the location data of all bus stops and minibus stops in Hong Kong from the Transport Department of the Hong Kong government.¹⁰ I then use ArcGIS Pro to identify the exact Constituency Area that each stop belongs to and calculate the number of stops that each Constituency Area has. I also obtain the location data of all Hong Kong subway stations (MTR) from Google Maps API and calculate the minimum distance from the central point of each Constituency Area to its nearest MTR Station. I then create a set of transport-based instrument variables.

The intuition behind this set of instruments is that if an area has a more developed local public transportation system, it is more convenient for protesters to gather and escape from police using public transportation. On the other hand, the public transportation system should be less correlated with changes in people's voting behavior and political attitudes, conditional on a comprehensive set of control variables. I will continue discussing the va-

⁹<https://www.gdeltproject.org/>.

¹⁰<https://www.td.gov.hk/en/home/index.html>

lidity of my instrument variables in Section 5.

5 Main Results on Turnouts

My empirical analyses begin by looking at the effect of the 2019 Hong Kong ANTI-ELAB Protest on people’s voting behaviors. More specifically, I test whether the increase in protest intensity during the 2019 Protest led to an increase in voter turnout in the 2019 Hong Kong District Council Election. I first introduce my empirical specification, then present the OLS results, as well as the placebo test and several robustness checks. I then provide a thorough discussion of my instrument variable strategy, and finally discuss the heterogeneous effects across Constituency Areas.

5.1 Empirical Specification

My empirical analyses mainly rely on the long-difference specification, which allows me to exploit the spatial variation in protest intensities across different Constituency Areas within Hong Kong. I estimate the following model:

$$\Delta Y_{cd,2019-2015} = \alpha + \gamma \text{Protest Intensity}_{cd} + \beta X_{cd,2016} + \eta_d + \varepsilon_{cd} \quad (1)$$

where $\Delta Y_{cd,2019-2015}$ is the change in voter turnout between the 2015 and 2019 District Council Elections in Constituency Area c and District Council d , and $\text{Protest Intensity}_{cd}$ is the main explanatory variable, the protest intensity, proxied by the number of total events between June 12, 2019, and November 23, 2019, the day before the 2019 District Council Election. Because the distribution of the number of total events is extremely right skewed, with around 50% of the areas having zero events, I use the log transformation, $\ln(1 + \text{NumEvents})$ through my analyses. I also control for $X_{cd,2016}$, the pre-protest demographic characteristics using the 2016 bi-census data, which includes the proportion of people who are female, in different age groups, married, born in Hong Kong (mainland China), speaking Cantonese (Mandarin), in different education groups, is in the labor force, and the median household income in Constituency Area c and District Council d .¹¹ District Council fixed

¹¹There is a mismatch on time between the District Council Election and the census in Hong Kong, and I can only get census data for 2011, 2016, and 2021. Therefore, using a long-difference specification and controlling for pre-period demographic characteristics is better than a panel setting when I need to combine the 2019

effects η_d are also included to capture potential spatial unobserved characteristics. Throughout my empirical analyses, I report the heteroskedastic-robust standard errors.

5.2 Main Results

I present the main regression results on voter turnout in Table 2. Column (1) reports the most parsimonious model with the protest intensity as the only explanatory variable. Given the fact that voter turnout is related to a variety of other factors, it is not surprising that the coefficient is less precisely estimated. I then gradually introduce controls for demographic characteristics in Column (2), employment in Column (3), median household income in Column (4), and District Council fixed effects in Column (5). One can see that across different specifications, the estimated coefficient of the protest intensity is significantly positive at the 5% level, indicating that higher protest intensity in one Constituency Area during the 2019 ANTI-ELAB protest led to higher voter turnout in the subsequent District Council Election. The coefficient is both qualitatively and quantitatively similar across different specifications.

In terms of economic significance, if I focus on the estimated coefficient in Column (5), it implies that comparing two Constituency Areas at the 25th and 75th percentile of protest intensity respectively, the voter turnout increases by an additional 1.191 ($1.386 * 0.859 = 1.191$) percentage points in 2019. One can also interpret it as one standard deviation increase in protest intensity leads to an increase in voter turnout by 0.878 ($1.022 * 0.859 = 0.878$) percentage points, or 1.87% relative to the 2015 mean, 46.9%. In Column (6) I use the same specification as Column (5) but weight by 2016 population, to account for the fact that different Constituency Areas have different population sizes, and the results are quantitatively unchanged.

In the remainder of the paper, I use Columns (5) and (6) as my preferred specifications.

Readers might be concerned whether I capture the real impact of the 2019 ANTI-ELAB protest on the 2019 District Council Election, or whether it is merely due to a gradual increase in people's political enthusiasm over time. Unlike a standard Difference-in-Difference (DID) framework where I can perform a rigorous parallel pre-trend test, I instead use the previous outcome as a placebo test. More specifically, I replace the outcome variable with the increase in voter turnout between 2011 and 2015, $\Delta Y_{cd,2015-2011}$. Intuitively, the 2019 ANTI-ELAB protest should only affect the subsequent District Council Election but have no

election data with the 2021 covariates, which might cause a larger potential bias.

impact on the prior ones. Therefore I anticipate an insignificant coefficient in this regression. Table 3 reports the results, where Columns (1) and (2) are the original regression results in Columns (5) and (6) in Table 2, and Columns (3) and (4) use the change in the prior elections between 2011 and 2015. As anticipated, the 2019 ANTI-ELAB protest only affects the 2019 District Council Election, while it does not affect the prior ones, with an insignificant coefficient (even negative) in previous outcomes.

As an additional placebo check, I construct one thousand ‘pseudo protest intensity’ measures by shuffling the actual protest intensity measure and randomly assigning it to each Constituency Area. I then rerun the main regression, only replacing the actual protest intensity with those “pseudo” measures, and test whether they still reveal a significant effect or not. If the protest intensity does have a significant effect on voter turnout, the actual estimate should stand out as an outlier in the distribution. Figure 3 plots the distribution of the estimates of these “pseudo protest intensity” measures, as well as the actual protest intensity in the black solid line. Most of the “pseudo protest intensity” has a coefficient around 0, and the actual coefficient is an outlier of the distribution. Only 0.2% of the estimates are more positive than the actual estimate.

These two placebo tests serve as identification checks to strengthen the validity of the main results that higher protest intensity leads to a larger increase in voter turnout.

5.3 Robustness Checks

Next, I conduct several robustness checks to test the validity of the main results. First, readers might have concerns regarding the measure of protest intensity in a Constituency Area. It is also possible that these extreme outliers are driving the results. Therefore, I use other alternative measures and re-estimate the model. Table 4 reports the results, where Columns (1) and (2) report the results using the same measure of protest intensity but winsorized at the 2nd and 98th percentiles; Columns (3) and (4) use instead the raw number of events, also winsorized at the 2nd and 98th percentiles. Both alternative measures of protest intensity yield similar positive coefficients, although using the raw number the estimate is less precisely estimated. Another alternative measure, reported in Columns (5) and (6) of Table 4, is to use a simple binary variable that equals one if there is at least one event in a Constituency Area and zero otherwise. Note that this can also be viewed as the “extensive margin” of the effect, comparing areas with and without events. I therefore also

report the “intensive margin” by restricting the sample to those areas with at least one event in Columns (7) and (8) for comparison. Readers can compare Columns (5) and (6) with Columns (7) and (8) to distinguish between extensive and intensive margins. The extensive margin dominates.

As an additional check, I follow [Madestam et al. \(2013\)](#) to test whether the results are driven by one specific influential area. More specifically, I rerun the same regression repeatedly, each time dropping one Constituency Area (District Council). [Figure 4](#) ([Appendix Figure B.1](#)) plots the distribution of the estimated coefficients by dropping each Constituency Area (District Council). The estimated coefficients for the majority of the samples are similar to the estimated effect using the full sample, indicating that the main results are not influenced by a single area.

Readers may also be concerned that using the heteroskedastic-robust standard errors cannot capture, for example, potential spatial correlation across different areas. However, given that Hong Kong has only 18 District Councils, using clustered standard errors might result in more biased estimates of standard errors ([Bertrand et al., 2004](#); [Cameron et al., 2008](#)), and thus I use the heteroskedastic-robust standard errors in my main empirical analyses. Despite the potential bias, I repeat the empirical analyses using standard errors clustered at the District Council level in [Appendix Table B.1](#) and other unreported tables, so as to allow for potential spatial correlation within District Councils. The similarity of the results mitigates the concern that I underestimate the standard errors and thus capture a rather insignificant relationship.¹²

Finally, note that the number of observations in my main regression is only 361, compared to a total of 431 Constituency Areas that appeared in both the 2015 and 2019 elections. This is because not all Constituency Areas had two or more candidates in 2015, and thus there were uncontested elections in those areas. However, In 2019, all areas held competitive elections featuring at least two candidates. Although it is impossible to eliminate the concern that areas with and without competitive elections in 2015 may be systematically different, I compare the demographic characteristics as well as the protest intensity between these two groups in [Appendix Table B.2](#). The results reveal that all the characteristics are similar except for the proportion of people aged 55 to 64. Thus there is less reason to believe

¹²To account for the fact that there are few clusters, I also use the wild cluster bootstrapping with Rademacher weights and 999 replications ([Roodman et al., 2019](#)), the results are basically unchanged.

that excluding those areas without competitive elections in 2015 will bias my main results.

Overall, the main results that areas with higher protest intensity during the 2019 Hong Kong ANTI-ELAB protest led to a higher increase in voter turnout in the 2019 District Council Election are robust to various alternative measures, not driven by one particular area, and less likely due to systematic differences between areas that have competitive elections versus those that do not.

5.4 What Story Am I Telling? Seeing is Believing

Previous discussions suggest that if there is a higher protest intensity in one Constituency Area during the 2019 Hong Kong ANTI-ELAB protest, there will be an increased turnout in the subsequent 2019 District Council Election compared to 2015. But it is unclear how these protest events led to people's political changes. There is a strand of literature suggesting that these events can help protesters provide private information to the candidates and eventually lead to political changes (Lohmann, 1993, 1994). However, I argue that in the case of Hong Kong, the protests did not result in any changes in policy or responses to protesters' demands, but only to the withdrawal of the amendment. Therefore, this theory may not fully explain the situation in Hong Kong.

Another potential channel suggests that media coverage might play a significant role. Wasow (2020); Anderson et al. (2023), for example, studied the Poor People's Campaign in the United States and discovered that newspaper coverage with varying attitudes towards protesters resulted in heterogeneous effects on election outcomes across different regions. Other well-known papers also highlighted the importance of media during a mass protest (Qin et al., 2017; Enikolopov et al., 2020). However, this might also not be able to fully explain the case of Hong Kong. Recall that in the main empirical specification, I rely on the spatial variation of protest intensity across different Constituency Areas within Hong Kong. Unlike previous studies that compare different countries or regions, people living in different neighborhoods within Hong Kong should receive almost identical media exposure, which, to the extreme, should give me a zero estimated coefficient of protest intensity.¹³ Therefore, media coverage alone cannot fully explain the effects of the protest.

¹³One might argue that people in different neighborhoods may have preferences for different media, which could result in heterogeneous media exposure. While it is not possible to eliminate this possibility, it is less likely to occur in the case of Hong Kong when conducting a within-city analysis, compared to studies focusing on different regions or countries.

Instead, due to the unique nature of within-city level analysis in Hong Kong, I argue that the ANTI-ELAB protest primarily affects people’s voting behavior by disseminating local information and increasing personal interaction between protesters and local citizens. The 2019 Hong Kong ANTI-ELAB protest had a wide impact on the Hong Kong population, yet the extent of participation, and the protest intensity varied across different Constituency Areas. Residents might have a distinct impression of protests that occurred closer to their homes, thus triggering changes in their voting behavior and political stances. In other words, this coincides with a popular phrase that “seeing is believing”: people are more sensitive to those local events instead of protests in other places. The case of Hong Kong and the 2019 Hong Kong protest are more likely to in line with the explanations in [Madestam et al. \(2013\)](#) and [Tertytchnaya and Lankina \(2020\)](#), supporting the story that these local events and small-scale personal interactions primarily convey information, elicit people’s empathy, and ultimately trigger people’s political changes.

To empirically test the aforementioned narrative, [Table 5](#) reports the results that investigate the effect of protest intensity in both the local and neighboring areas, measured by the log transformation of the total number of events in adjacent Constituency Areas. Across all specifications, the local protest intensity dominates and remains positively significant, implying that it is those local events that lead to the change in people’s voting behaviors. On the other hand, the protest intensity in neighboring Constituency Areas has insignificant and even minor adverse effects, and the magnitude is small compared to the coefficient of local protest intensity.

5.5 Instrument Variables

A key threat to the main results discussed in the previous section is that protests are not randomly distributed across Hong Kong. [Figure 5](#) plots the spatial distribution of all events in Hong Kong between June 12, 2019, and November 23, 2019, the day before the 2019 District Council Election. Most of the events occur in the urban areas of Hong Kong, such as Mong Kok and Tsim Sha Tsui, or areas close to the Hong Kong Central Government Offices and the Legislative Council complex, such as Central and Admiralty. [Appendix Table B.3](#) further compares the characteristics between areas with and without events, and it can be seen that areas with events have significantly higher proportions of the population who are female, college graduates, employed; and higher median household income.

Therefore, the non-randomness of these events might severely affect the main results. In this case, a simple OLS regression might capture a potential bias where protesters strategically choose areas where even in the absence of the protest, people are more likely to change their voting behaviors and political stances. Another potential source of bias might be from reverse causality. For example, there are certain Constituency Areas with higher political enthusiasm and thus higher voter turnout in the elections; and it is higher political enthusiasm that leads to higher protest intensity in these areas. To mitigate the above concerns, I further introduce another empirical strategy by instrumenting the local protest intensity.

To construct an appropriate set of instrument variables for protest intensity, one must overcome several challenges. The first challenge is to ensure that, conditional on all the demographic characteristics and the District Council fixed effects, the proposed instruments should solely affect the voter turnout through protest intensity, but not other variables. Several seminal papers on protests have proposed possible directions for dealing with this problem. For example, [Madestam et al. \(2013\)](#); [Beraja et al. \(2023\)](#) introduces local weather conditions as instruments and the idea is that these bad weather conditions reduce people's willingness to participate in a protest, thus decreasing the protest intensity in an area. [Miao et al. \(2021\)](#) uses eclipses as a natural shock and finds that it can predict the protest intensity across different counties in ancient China. However, my second, and arguably the largest challenge, is that the aforementioned papers exploit the variation across prefectures or counties, whereas in this paper, under the framework of Hong Kong, there is no variation if I use those variables. More specifically, as Hong Kong is a city-level region, the empirical analyses in this paper are more closely aligned to a neighborhood-level analysis. Therefore I require an instrument variable that exploits the variation across blocks. A final challenge, based on the second one, is that the data for constructing instrument variables requires to be detailed and accurate in the spatial dimension.

Taking these challenges into consideration, I propose a set of transportation-based instrument variables and argue that it satisfies the exclusion restriction, as well as providing a block-level variation that enables me to conduct IV analysis. The intuition is the following: if a Constituency Area has a more advanced public transportation system, it is easier for protesters to gather and escape from the police, thus decreasing the cost of protesting. On the other hand, it is rather hard to imagine that the development of the public transportation

system is related to the political enthusiasm and stances in one area.¹⁴ In this way, my instrument variables should tease out a causal relationship between the protest intensity and the change in voter turnout in subsequent District Council Election.

With the aforementioned logic in mind, I further collect the detailed geographical data of all the bus stops and minibus stops and calculate the logarithm of one plus the number of bus stops and minibus stops within each Constituency Area as two instrument variables. I also collect the geographical data for all the Hong Kong Mass Transit Railway (MTR) stations, and the Hong Kong Metro system. I calculate the logarithm of the distance from the central point of each Constituency Area to its nearest MTR Station.¹⁵ I thus acquire a set of transportation-based instruments consisting of the aforementioned three variables. I then estimate the following two stage least square (2SLS) equations:

$$\begin{aligned}
 \text{Protest Intensity}_{cd} &= \mu + \rho_1 \ln(1 + \text{Num. Bus Stops}) \\
 &\quad + \rho_2 \ln(1 + \text{Num. Minibus Stops}) + \rho_3 \ln(1 + \text{Min. Dist. to the MTR}) \\
 &\quad + \beta X_{cd,2016} + \eta_d + v_{cd} \\
 \Delta Y_{cd,2019-2015} &= \alpha + \gamma \widehat{\text{Protest Intensity}}_{cd} + \beta X_{cd,2016} + \eta_d + \varepsilon_{cd}
 \end{aligned} \tag{2}$$

Intuitively, conditional on demographic characteristics, an area with a more advanced public transportation system is more convenient for protesters to gather, and escape from being arrested by police. Like most of the developed western cities, Hong Kong largely relies on public transportation as the main way to commute, among which buses and MTR are the two most important commute methods. In 2019, there were around 12.5 million daily public transportation patronage, and nearly 90% were from different types of buses and MTR ([Transport Department, 2020](#)). In the field of transport, two relevant studies also discuss the importance of public transportation, especially MTR, for protesters during the 2019 Hong Kong ANTI-ELAB protest, and find that in surrounding areas of certain important MTR stations, there are more large-scale protests ([Chan et al., 2022](#); [Zhou et al., 2022](#)). This all provides evidence that protesters use buses and MTRs as a main commute method, indi-

¹⁴Readers might worry that the development of public transportation system might capture the urban status of an area, and people in urban areas might have different political behaviors compared with people in suburban areas. I discuss this issue in later paragraphs.

¹⁵I also use the centroid of each Constituency Area instead of the central point as a robustness check, which yields a quantitatively similar result.

cating that my transportation-based instruments are strongly related to the protest intensity. On the other hand, the validity of my IV approach depends on the crucial assumption that conditional on a large set of demographic characteristics, public transportation does not correlate with people's voting behaviors and political stances in other ways. This is a plausible assumption at first glance, and I will continue further discussions on the validity of this assumption at the end of this section.

Table 6 reports the first-stage regression results of the protest intensity on the set of instrument variables. Not surprisingly, all three variables are statistically significant at the 1% level in all specifications, and the first-stage F-statistics are between 20 and 27, suggesting that they are strongly correlated with the protest intensity. Coinciding with intuitions, if the Constituency Area is more accessible with a more advanced public transportation system, defined by more bus and minibus stops, and closer to the MTR station, the protest intensity there is higher.

Next, I turn to the second stage regression results in Table 7. Columns (1) and (2) report the OLS regression results, which are from Columns (5) and (6) of Table 2; and Columns (3) and (4) report the IV results. The results show that the estimated coefficients are both positive and significant at the 5% level, providing further evidence of the validity of my main findings. In terms of magnitude, the IV estimates are larger than the OLS estimates, suggesting that the OLS estimate might underestimate the effects of the ANTI-ELAB protest on voter turnout. Although I am unable to clearly identify the source of underestimation, the results imply that my main analysis yields a conservative estimate of the effect to some extent.

While the first-stage F-statistic is relatively high, the possibility of a weak instrument issue cannot be entirely ruled out. Therefore I further estimate the limited information maximum likelihood (LIML) IV regressions in Columns (5) and (6). The results are largely consistent with the IV results in Columns (3) and (4), suggesting that a weak instrument issue is less likely to result in a bias.

Some may be concerned that the raw number of bus and minibus stops does not provide a clear picture of the development of the public transportation system across different Constituency Areas, due to the significant variation in population density and size among these areas. Therefore, I provide additional robustness checks of the instruments by suggesting alternative measures. Specifically, I normalize the number of bus and minibus stops based

on population or area. Figure 6 presents the second-stage coefficient of the protest intensity on voter turnout using different instrument variables, following the same specification as Column (3) in Table 7. The second-stage estimated coefficients remain largely robust, ranging between 1 and 2, regardless of whether I combine two measures into one total stop count or normalize the number of stops by 2016 population or area, although in some cases they are less precisely estimated. The results alleviate concerns that the proposed instruments are inadequate in describing the development of the local public transportation system. Additionally, the results support the idea that the proposed instruments only affect people's political behaviors by making protest participation easier, resulting in an increase in local protest intensity.

In the final part of the IV estimation, I return to the previous key assumption of my identification, that conditional on a large set of demographic characteristics, public transportation only correlates with people's voting behaviors and political stances through the protest intensity. Readers might still be concerned that this does not hold. Although I cannot eliminate all the alternative stories, I provide two additional tests to mitigate certain concerns.

The first possibility comes from the potential heterogeneity across people in urban and suburban areas. Despite controlling for a variety of demographic characteristics, one could still argue that people in different areas exhibit different political behaviors. For instance, it is possible that people in urban areas have different political enthusiasm compared to those in suburban areas since they have a higher demand for democracy, and my proposed instrument variables thus capture some of the unobserved heterogeneity since urban areas have more advanced public transportation systems than suburban areas. To mitigate this concern, I further control whether an area is an urban or suburban area, proxied by its population density, and repeat all the previous regressions. Table B.5 reports the results, where the urban area dummy is insignificant across all specifications, and the coefficient of the protest intensity remains positively significant. This implies that the potential differences in political enthusiasm between urban and suburban areas do not affect my main results.¹⁶

¹⁶A confusion might occur if readers compare the results here with the latter results of comparing heterogeneous effects between urban and suburban areas. I argue that while they are all related to urban and suburban areas, the analysis in this paragraph is to mitigate the concern that there are innate differences in political stances and voting behaviors between people in different areas, while the latter analysis is to show that the effects of the protest intensity have different effects in different areas. The two analyses serve different purposes and are not contradictory.

Another potential alternative story might be that my proposed transportation-based instruments are related to both the ease of protesting and voting. That is, urban areas with advanced public transportation systems reduce both protest and voting costs, resulting in higher protest intensity and voter turnout. In this situation the instruments are also related to the dependent variable directly, thus resulting in potential bias. To mitigate this concern, I further control the distance between the central point of each Constituency Area to the nearest polling station,¹⁷ and report the results in Table B.6. After controlling for demographic characteristics, the distance to the nearest polling station remains statistically insignificant, regardless of whether it is used as the solely explanatory variable (Columns (1) and (2)), or together with the protest intensity (Columns (3) and (4)), or with the instrumented version (Columns (5) and (6)).

Finally, while it is difficult to rule out this possibility completely, I argue that unlike other studies examining the relationship between protests and voter turnout on a broader geographic level, in the case of Hong Kong, voters in one Constituency Area are not necessarily, and in most cases not, the protesters in that area. Since protesters typically gather in one area from different places in Hong Kong, there is thus less likely an unobserved factor that is related to both the political attitudes of universal protesters and the voting behaviors of local voters. Moreover, by incorporating District Council fixed effects, I indeed compare Constituency Areas within one District Council, which by design, should be relatively more similar. Therefore, the findings in my main results are less likely to be influenced by omitted variables.

Taken altogether, the proposed transportation-based instruments help me strengthen the validity of the main findings, and establish a causal relationship between the protest intensity during the 2019 Hong Kong ANTI-ELAB protest and the subsequent increase in voter turnout in the 2019 District Council Election.

5.6 Heterogeneity Tests

In the last part of the main results, I investigate whether there is notable heterogeneity in the effects of protest intensity across different Constituency Areas. I conduct two heterogeneity tests according to urban-suburban status and past political stances.

¹⁷I again use the centroid of each Constituency Area instead of the central point as a robustness check, which yields a quantitatively similar result.

Table 8 reports the results from two subsamples categorized by the previous political stances of the winning candidate in the 2015 District Council Election - pro-democracy or not. The estimated coefficients in both subsamples are positively significant at the 10% level, suggesting an overall increase in voter turnout due to the ANTI-ELAB protest. In terms of magnitude, the estimated coefficients of previous non-democracy areas, reported in Columns (1) and (2) are larger than those of previous democracy areas. One possible explanation, shown in the latter section, is that the intensified protest substantially increased the political polarization in the previous non-democracy areas, inducing people supporting both political stances more eager to vote.

Another heterogeneity test focuses on the difference between urban and suburban areas. People residing in urban areas may have higher demands on political perspectives, and thus pay more attention to political issues, which can be traced back to Maslow's theory of human motivation (Maslow, 1943). In such areas, the local protest intensity should have a large impact on people's voting behaviors. Table 9 reports the results on two subsamples of urban and suburban areas. Here I use population density to the status of a Constituency Area. More precisely, I calculate the average population density using the 2016 population data and define a Constituency Area as urban if its population density is above the mean, and suburban vice versa.¹⁸ The estimated coefficients of the protest intensity are positive in both subsamples, but urban areas have a much larger estimate in terms of magnitude. This is consistent with the conjecture that individuals residing in urban areas are more responsive to protests.

5.7 Review

To sum up, in this section, I exploit the spatial variation of the protest intensity across different Constituency Areas during the 2019 Hong Kong ANTI-ELAB protest. The results demonstrate that higher protest intensity leads to a higher increase in voter turnout in the subsequent 2019 District Council Election compared to 2015. These findings highlight the impact of protest intensity on voter turnout, a most direct method of political participation. I conduct robustness checks to explore alternative explanations and propose instrument variables to address concerns about the non-random spatial distribution of protests. Further

¹⁸In the Appendix Table B.7, I test the robustness by comparing the population density with the 2016 median, the results are qualitatively the same.

empirical tests show that it is those local protests that elicit greater responsiveness, and individuals residing in previous pro-democracy and urban areas exhibit a higher increase in voter turnout after being exposed to heightened local protest intensity.

6 Second Results on Polarization

Having looked at the effect of the 2019 Hong Kong ANTI-ELAB protest on voter turnout in the subsequent District Council Election, it is also interesting what candidates will benefit from the increase in turnout. Therefore, I next wonder whether and how it influences people's political stances, inferred by the change in vote shares of candidates in different stances. Two salient changes stand out in the 2019 District Council Election, compared with previous ones. On the one hand, there is a huge increase in political polarization. On the other hand, there is also a large shift towards pro-democracy. I mainly discuss the effect of the protest on political polarization in this section and the shift in political stances in the next section.

Figure 7 plots the political polarization index in Hong Kong and other regions (Mainland China and Taiwan), as well as the worldwide average, from the Varieties of Democracy¹⁹ between 1997 and 2020. According to V-DEM, the higher this measure is, people with different political stances are more reluctant to communicate peacefully, leading to a more polarized society. Anecdotal evidence also revealed that during the ANTI-ELAB protest, there was a drastically huge social cleavage among Hong Kong citizens, where people supporting the pro-establishment (Blue Ribbons) and the pro-democracy (Yellow Ribbons) became increasingly hostile and tore (Ge, 2019; Beech, 2020)..

Therefore in this section, I conduct a similar empirical analysis but instead look at the change in support for neutral candidates. More specifically, I again estimate Equation 2, where the only change is the outcome variable, $\Delta Y_{cd,2019-2015}$ to the total votes (divided by voters) and the vote share of neutral candidates. I follow the same specifications of Columns (3) and (4) in Table 7 and report the IV results in Table 10.

Columns (1) and (2) report the results of protest intensity on the change of total votes (divided by registered voters), and Columns (3) and (4) report the results of the change of vote share, obtained by the neutral candidates. Areas with higher protest intensity exhibited both

¹⁹<https://v-dem.net/>.

fewer neutral votes and lower neutral vote share in the 2019 District Council Election compared to 2015. Although less precisely estimated compared to the main regression results, the coefficients are all marginally significant,²⁰ and the coefficient of vote share is significant at the 10% level. In terms of magnitude, a standard deviation increase in protest intensity leads to a 1.52 ($1.022 * 1.485 = 1.52$) percentage point decrease in neutral votes of registered voters and a 3.98 ($1.022 * 3.890 = 3.98$) percentage point decrease in neutral vote share, respectively.

This effect is relatively large compared to the 2015 mean, which is 2.954 and 6.758, respectively, because it reflects both decreasing neutral voters and possibly fewer neutral candidates after the protest. To some degree, these numbers might be interpreted as the upper bound of the real effect of the 2019 ANTI-ELAB protest on polarization. But with that caveat in mind, the results in Table 10 provide direct evidence that the ANTI-ELAB protest catalyzes the polarization of people's political stances, either supporting pro-democracy or pro-establishment.

I also exploit the heterogeneity across different Constituency Areas. Appendix Table B.8 reports the results if I divide the sample by their previous political stances. The IV results reveal that the decrease in the vote share of neutral candidates mainly comes from previous non-pro-democracy areas, while in previous pro-democracy areas, the coefficients are insignificant and small in magnitude. Together with the results below on vote shares of pro-democracy candidates, they indicate that people in previous non-pro-democracy areas exhibit a higher divide in political stances, from a relatively neutral stance to either pro-democracy or pro-establishment. Previous pro-democracy areas, on the other hand, have already a higher level of supporting pro-democracy, and thus I observe a relatively stable move.

7 Third Results on Pro-Democracy Vote Share

In this section, I provide further evidence of the change in people's political stances. As Figure 8 shows, there was a huge shift from pro-establishment to pro-democracy from 2015 to 2019. However, given the previous findings that there is an increase in voter turnout and a decrease in neutral vote shares, readers might wonder what eventually causes an

²⁰For example, the p-value of the estimated coefficient of protest intensity in Column (1) is 0.118.

aggregate change in political stances. Is it because a large proportion of new voters support pro-democracy candidates? Or are there even some current voters who shift drastically from pro-establishment towards pro-democracy? In this section, I further analyze the vote shares of different stances.

Table 11 reports the results of protest intensity on the change in total votes (divided by registered voters) obtained by pro-democracy and pro-establishment candidates, respectively, as well as the change in pro-democracy vote share. Columns (1) and (2) exhibit positive and marginally significant coefficients,²¹ indicating that areas with higher protest intensity exhibited a higher increase in pro-democracy votes in the 2019 District Council Election, compared with 2015. In terms of magnitude, a standard deviation increase in protest intensity leads to a 2.39 ($1.022 * 2.337 = 2.39$) percentage point increase in pro-democracy votes, compared to the 2015 mean, of 18.66. The increase in the total votes obtained by the pro-democracy candidates may be attributed to a huge proportion of new pro-democracy voters, which can be seen from a significant increase in voter turnout, and also due to a large number of people shifting from neutral towards pro-democracy, which can be seen from a significant decrease in neutral votes.

It is also possible that a considerable number of people shifting their political stances from pro-establishment to pro-democracy. If this is the case, there should be a significant decrease in the total votes obtained by the pro-establishment candidates. However, the results in Columns (3) and (4) are in contrast to this possibility, suggesting a very imprecisely estimated and even somewhat positive coefficient. This further suggests that the ANTI-ELAB protest did not lead to a pure shift from pro-establishment to pro-democracy, but instead a more complicated polarized change, making people less likely to be neutral. The results also indicate that the significant increase in voter turnout benefits pro-democracy candidates more, which can be seen from a positive and, again, marginally significant coefficient in the pro-democracy total vote share. It also explains why the pro-democracy won the 2019 election by a landslide, which is shown in Figure 8.

The results are in contrast to the findings in Wang and Wong (2021), which focuses on the 2014 Umbrella Movement, where higher protest exposure, measured by proximity to the protest location, leads to lower voter turnout and the vote share for the opposition (pro-democracy) parties. This is probably because back in 2014, the Umbrella Movement was

²¹For example, the p-value of the estimated coefficient of protest intensity in Column (1) is 0.106.

a relatively small-scale event that occurred in a few areas, and most Hong Kong people at that time were still less empathetic about protesters' demands, but more concerned about the inconvenience these events led to. However, the 2019 ANTI-ELAB protest spread across Hong Kong and gained more public support (Lin, 2019). Therefore, it is unsurprising that two mass events had different impacts on people's political changes, and ultimately led to different results in the subsequent elections.

To further test my hypothesis and leverage the variations across Constituency Areas, I again conducted subsample analyses based on previous political stances, and Appendix Table B.9 reports the results. In previous non-pro-democracy areas, the impact of protest intensity is marginally significant and positive, while in areas that were previously pro-democracy, the effect is insignificant. I finally compare the effects on total vote share among three political stances in Figure 9, and it reveals that there are insignificant effects in previous pro-democracy areas, possibly due to already a large proportion of people supporting pro-democracy candidates. In contrast, in previous non-pro-democracy areas, a significant decrease in neutral votes led to a substantial increase in pro-democracy votes and a modest increase in pro-establishment votes. While the results still coincide with the fact that pro-establishment candidates lost the 2019 District Council Election in several previous winning areas in 2015, it also echoes the findings from the previous section, indicating that the ANTI-ELAB protest in 2019 also resulted in a rise in political polarization among the people in Hong Kong.

8 Fourth Results (Suggestive) on People's Emigration

In the very final section, I provide some suggestive evidence of people's outflow. After the implementation of the National Security Law in 2020, a significant number of Hong Kong people decided to emigrate to other countries, such as Australia or the United Kingdom, to avoid potential political uncertainty. It is possible that if people living in areas with higher protest intensity either received more information or had stronger impressions about the erosion of democracy in Hong Kong, then they decided to migrate out of Hong Kong after 2020.

I, therefore, use the same specification as in the previous analyses, except for the outcome variable, the change in stayers, which represents the proportional change in the number of

people who stay in the same Constituency Area.²² I use the information in the 2016 bi-census and the 2021 census and calculate it as follows:

$$\text{Stayers Growth}\%_{2021-2016} = \frac{\text{Total Stayers}_{2021} - \text{Total Stayers}_{2016}}{(\text{Total Stayers}_{2021} + \text{Total Stayers}_{2016}) / 2} \quad (3)$$

Table 12 reports the results, where the IV results in Columns (3) and (4) exhibit a negative and significant coefficient of the protest intensity. This suggests that if a Constituency Area has a higher protest intensity during the ANTI-ELAB protest, the growth of the proportion of total stayers decreases in 2021 as compared to 2016. Although the magnitude might look relatively high at first glance, given that there is a large variation in the stayer growth across Constituency Areas (the interquartile range is $(9.78 - (-14.05)) = 23.83$ percentage points), the effect still falls in a reasonable range. Further, due to data limitation, I cannot distinguish between people who leave Hong Kong and those who move to other places within Hong Kong.²⁴ This leads to the estimate from the regression as only an upper bound but still provides valuable insights into the effect. I perform additional heterogeneity tests to look at where experiences the largest decrease in stayers. Appendix Tables B.10 and B.11 report the results of subsample analyses based on previous political stances and urban-suburban areas, respectively. The greatest decline of the total stayer growth comes from the previous non-pro-democracy areas, where the people have a greater incentive to migrate out due to unfavorable political conditions, and urban areas, where people might have higher demands on democracy.

Altogether, this section provides suggestive evidence that the 2019 Hong Kong ANTI-ELAB Protest affects not only individuals' voting behaviors and political stances in the short term but also their confidence in the future of Hong Kong, influencing long-term migration choices.

²²These stayers are calculated as the sum of people who (1) moved home within the same area of residence and (2) remained at the same address.

²³The denominator is to mitigate the effects of outliers with small number of total stayers in 2016. I use alternative measures of total stayer's growth by changing the denominator to only the number of total stayers in 2021, the results are qualitatively unchanged.

²⁴According to the 2021 census, the ratio between the number of people having internal migration versus total stayers is 0.13, making it a relatively small proportion.

9 Conclusion

This paper examines the impact of the 2019 Hong Kong ANTI-ELAB protest on the subsequent District Council Election. The findings indicate that the protest significantly influenced people's voting behaviors and political stances. Specifically, there was an increase in voter turnout, a decrease in neutral vote share, and a shift from pro-establishment towards pro-democracy. The protest may also have long-term effects on people's emigration choices. Additional empirical results confirm that individuals are more cognizant of local events that have a greater impact on conveying information and evoking empathy, ultimately leading to shifts in political perspectives. Considering the significant changes observed before and after the protest, it is undeniable that this protest, also known as the "last ditch to defend democracy," had a profound influence in changing Hong Kong's political environment.

References

- Acemoglu, Daron, Tarek A Hassan, and Ahmed Tahoun (2018) "The power of the street: Evidence from Egypt's Arab Spring," *The Review of Financial Studies*, 31 (1), 1–42.
- Acemoglu, Daron and James A Robinson (2006) *Economic origins of dictatorship and democracy*: Cambridge University Press.
- Anderson, D Mark, Kerwin Charles, Krzysztof Karbownik, Daniel I Rees, and Camila Stef-fens (2023) "Civil Rights Protests and Election Outcomes: Exploring the Effects of the Poor People's Campaign," *NBER Working Paper*.
- Barrett, Philip, Sophia Chen, Mali Chivakul, and Deniz O Igan (2021) "Pricing protest: the response of financial markets to social unrest," *IMF Working Papers*, 2021 (079).
- Beech, Hannah (2020) "Yellow or Blue? In Hong Kong, Businesses Choose Political Sides," *The New York Times*, 19 January.
- Beraja, Martin, Andrew Kao, David Y Yang, and Noam Yuchtman (2023) "AI-tocracy," *The Quarterly Journal of Economics*, 138 (3), 1349–1402.
- Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan (2004) "How much should we trust differences-in-differences estimates?" *The Quarterly Journal of Economics*, 119 (1), 249–275.
- Bhambhwani, Siddharth M (2022) "Disruption and stock markets: Evidence from Hong Kong," *International Review of Financial Analysis*, 81, 102109.
- Branton, Regina, Valerie Martinez-Ebers, Tony E Carey Jr, and Tetsuya Matsubayashi (2015) "Social protest and policy attitudes: The case of the 2006 immigrant rallies," *American Journal of Political Science*, 59 (2), 390–402.
- Bursztyn, Leonardo, Davide Cantoni, David Y Yang, Noam Yuchtman, and Y Jane Zhang (2021) "Persistent political engagement: Social interactions and the dynamics of protest movements," *American Economic Review: Insights*, 3 (2), 233–50.
- Cameron, A Colin, Jonah B Gelbach, and Douglas L Miller (2008) "Bootstrap-based improve-ments for inference with clustered errors," *The Review of Economics and Statistics*, 90 (3), 414–427.

- Cantoni, Davide, Louis-Jonas Heizlsperger, David Y Yang, Noam Yuchtman, and Y Jane Zhang (2022) "The fundamental determinants of protest participation: Evidence from Hong Kong's antiauthoritarian movement," *Journal of Public Economics*, 211, 104667.
- Cantoni, Davide, Andrew Kao, David Y. Yang, and Noam Yuchtman (Forthcoming) "Protests," *Annual Review of Economics*.
- Cantoni, Davide, David Y Yang, Noam Yuchtman, and Y Jane Zhang (2019) "Protests as strategic games: experimental evidence from Hong Kong's antiauthoritarian movement," *The Quarterly Journal of Economics*, 134 (2), 1021–1077.
- Chan, Ho-Yin, Hanxi Ma, and Jiangping Zhou (2022) "Public transportation and social movements: Learning from the Hong Kong anti-extradition bill protests," *Transportation Research Record*, 2676 (2), 553–566.
- Chan, Irene (2023) "'Patriots-only' District Council hopefuls who fail to get nominated should consider why, Hong Kong's John Lee says," *Hong Kong Free Press*, 24 October.
- Chow, T Edwin, Paul SF Yip, and Kwan-Po Wong (2023) "An integrated framework of mobile crowd estimation for the 2019, July 1st rally in Hong Kong," *Multimedia Tools and Applications*, 1–18.
- Collins, William J and Robert A Margo (2007) "The economic aftermath of the 1960s riots in American cities: Evidence from property values," *The Journal of Economic History*, 67 (4), 849–883.
- Condra, Luke N, James D Long, Andrew C Shaver, and Austin L Wright (2018) "The logic of insurgent electoral violence," *American Economic Review*, 108 (11), 3199–3231.
- Eady, Gregory, Frederik Hjorth, and Peter Thisted Dinesen (2023) "Do violent protests affect expressions of party identity? Evidence from the capitol insurrection," *American Political Science Review*, 117 (3), 1151–1157.
- Enikolopov, Ruben, Alexey Makarin, and Maria Petrova (2020) "Social media and protest participation: Evidence from Russia," *Econometrica*, 88 (4), 1479–1514.
- Frye, Timothy and Ekaterina Borisova (2019) "Elections, protest, and trust in government: A natural experiment from Russia," *The Journal of Politics*, 81 (3), 820–832.

- Ge, Yunfei (2019) "Blue vs. Yellow: Divide is ripping families in Hong Kong," *CGTN*, 03 September.
- Hadzi-Vaskov, Metodij, Samuel Pienknagura, and Luca Antonio Ricci (2023) "The macroeconomic impact of social unrest," *The B.E. Journal of Macroeconomics*, 23 (2), 917–958.
- HKU Journalism (2020) "ANTI-ELAB Research Data Archive."
- Lai, Rebecca, Jin Wu, and Lingdong Huang (2019) "How A.I. Helped Improve Crowd Counting in Hong Kong Protests," *The New York Times*, 3 July.
- Lee, Francis LF, Samson Yuen, Gary Tang, and Edmund W Cheng (2019) "Hong Kong's summer of uprising," *China Review*, 19 (4), 1–32.
- Leon-Ablan, Gabriel and Peter John (2022) "How urban riots influence political behavior: vote choices after the 2011 London riots," *Political Science Research and Methods*, 1–8.
- Leung, Kanis (2023) "Hong Kong leader defends new election rules even though biggest pro-democracy party can't join race," *The AP News*, 31 October.
- Lin, Zuwei (2019) "The 5th Anniversary of Hong Kong's Occupation: From the Umbrella Movement's "Wo Li Fei" to the "Courageousness" of the ANTI-ELAB Movement," *The BBC News*, 27 September.
- Little, Andrew T, Joshua A Tucker, and Tom LaGatta (2015) "Elections, protest, and alternation of power," *The Journal of Politics*, 77 (4), 1142–1156.
- Lohmann, Susanne (1993) "A signaling model of informative and manipulative political action," *American Political Science Review*, 87 (2), 319–333.
- (1994) "Information aggregation through costly political action," *The American Economic Review*, 518–530.
- Madestam, Andreas, Daniel Shoag, Stan Veuger, and David Yanagizawa-Drott (2013) "Do political protests matter? evidence from the tea party movement," *The Quarterly Journal of Economics*, 128 (4), 1633–1685.
- Marino, Maria, Paolo Li Donni, Sebastiano Bavetta, and Marco Cellini (2020) "The democratization process: An empirical appraisal of the role of political protest," *European Journal of Political Economy*, 63, 101881.

- Maslow, A. Harold (1943) "A Dynamic Theory of Human Motivation," *Psychological Review*, 50 (4), 370—396.
- Miao, Meng, Jacopo Ponticelli, and Yi Shao (2021) "Eclipses and the Memory of Revolutions: Evidence from China," *NBER Working Paper*.
- Passarelli, Francesco and Guido Tabellini (2017) "Emotions and political unrest," *Journal of Political Economy*, 125 (3), 903–946.
- Qin, Bei, David Strömberg, and Yanhui Wu (2017) "Why does China allow freer social media? Protests versus surveillance and propaganda," *Journal of Economic Perspectives*, 31 (1), 117–140.
- Roodman, David, Morten Ørregaard Nielsen, James G MacKinnon, and Matthew D Webb (2019) "Fast and wild: Bootstrap inference in Stata using boottest," *The Stata Journal*, 19 (1), 4–60.
- Shen, Fei and Wenting Yu (2021) "Reducing political polarization in Hong Kong: a pilot experiment of deliberation," *Japanese Journal of Political Science*, 22 (4), 233–247.
- Su, Chris Chao, Michael Chan, and Sejin Paik (2022) "Telegram and the anti-ELAB movement in Hong Kong: reshaping networked social movements through symbolic participation and spontaneous interaction," *Chinese Journal of Communication*, 15 (3), 431–448.
- Tang, Gary and Edmund W Cheng (2021) "Affective solidarity: how guilt enables cross-generational support for political radicalization in Hong Kong," *Japanese Journal of Political Science*, 22 (4), 198–214.
- Teo, Elgar and King-wa Fu (2021) "A novel systematic approach of constructing protests repertoires from social media: comparing the roles of organizational and non-organizational actors in social movement," *Journal of Computational Social Science*, 4 (2), 787–812.
- Tertychnaya, Katerina and Tomila Lankina (2020) "Electoral protests and political attitudes under electoral authoritarianism," *The Journal of Politics*, 82 (1), 285–299.
- Transport Department (2020) "Monthly Traffic and Transport Digest, January 2020."

- Urman, Aleksandra, Justin Chun-ting Ho, and Stefan Katz (2021) "Analyzing protest mobilization on Telegram: The case of 2019 anti-extradition bill movement in Hong Kong," *Plos one*, 16 (10), e0256675.
- Wallace, Sophia J, Chris Zepeda-Millán, and Michael Jones-Correa (2014) "Spatial and temporal proximity: Examining the effects of protests on political attitudes," *American Journal of Political Science*, 58 (2), 433–448.
- Wan Chan, Debby Sze and Ngai Pun (2020) "Economic power of the politically powerless in the 2019 Hong Kong pro-democracy movement," *Critical Asian Studies*, 52 (1), 33–43.
- Wang, Ye and Stan Hok-Wui Wong (2021) "Electoral impacts of a failed uprising: Evidence from Hong Kong's Umbrella Movement," *Electoral Studies*, 71, 102336.
- Wasow, Omar (2020) "Agenda seeding: How 1960s black protests moved elites, public opinion and voting," *American Political Science Review*, 114 (3), 638–659.
- Wong, Mathew YH and Stan Hok-Wui Wong (2022) "Income inequality and political participation: a district-level analysis of Hong Kong elections," *Social Indicators Research*, 162 (3), 959–977.
- Wong, Stan Hok-Wui (2014) "Resource disparity and multi-level elections in competitive authoritarian regimes: Regression discontinuity evidence from Hong Kong," *Electoral Studies*, 33, 200–219.
- (2019) "Gerrymandering in electoral autocracies: Evidence from Hong Kong," *British Journal of Political Science*, 49 (2), 579–610.
- Zhou, Jiangping, Yuling Yang, and Hanxi Ma (2022) "Significance of metro stations and their surroundings: Hong Kong in the anti-extradition protests," *Journal of Transport Geography*, 98, 103273.

Figures and Tables

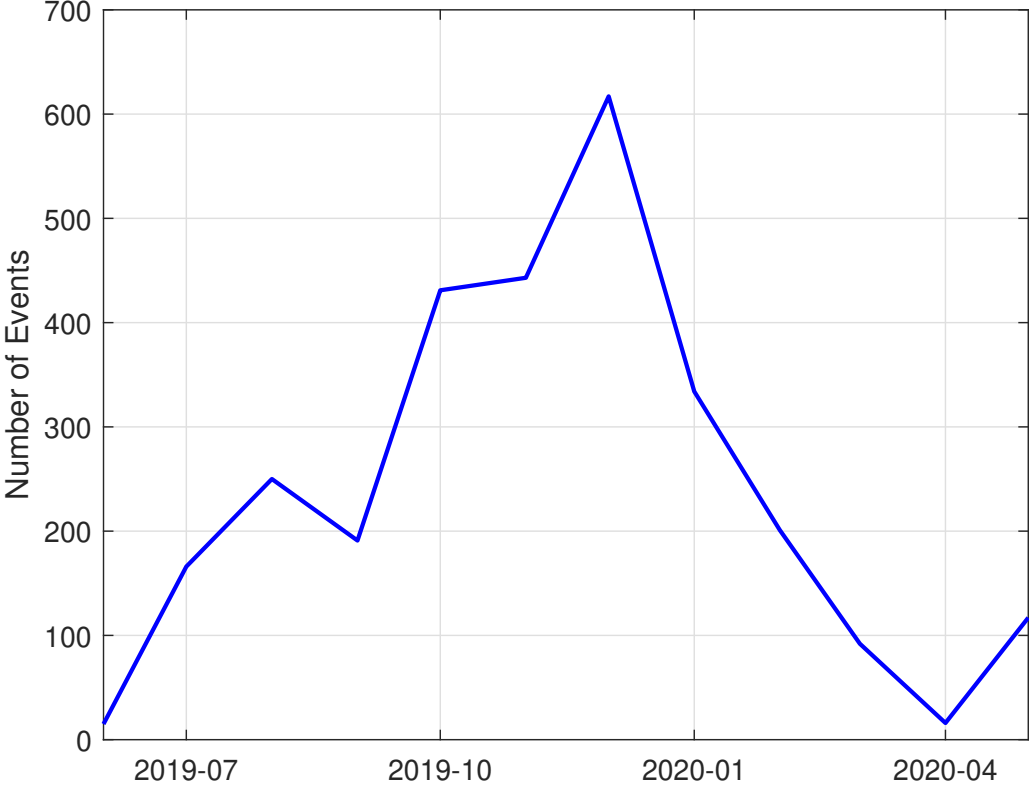


Figure 1: Number of Events During the 2019 Hong Kong ANTI-ELAB per Month

Notes: This figure plots the number of events per month during the 2019 Hong Kong ANTI-ELAB Protest. The data source is the ANTI-ELAB research data archive.

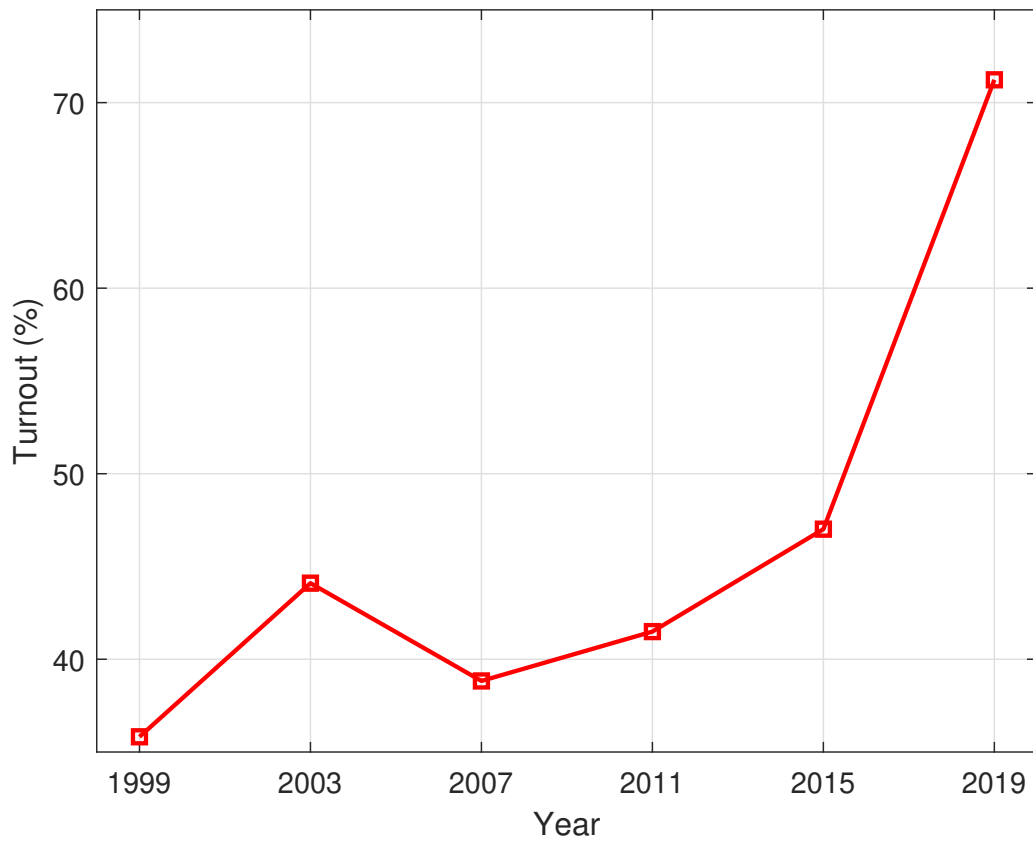


Figure 2: Overall Voter Turnout of Hong Kong District Council Elections from 1999 to 2019

Notes: This figure plots the aggregate voter turnout in each Hong Kong Council Election, from 1999 to 2019. The data source is the Registration and Election Office of the Hong Kong government.

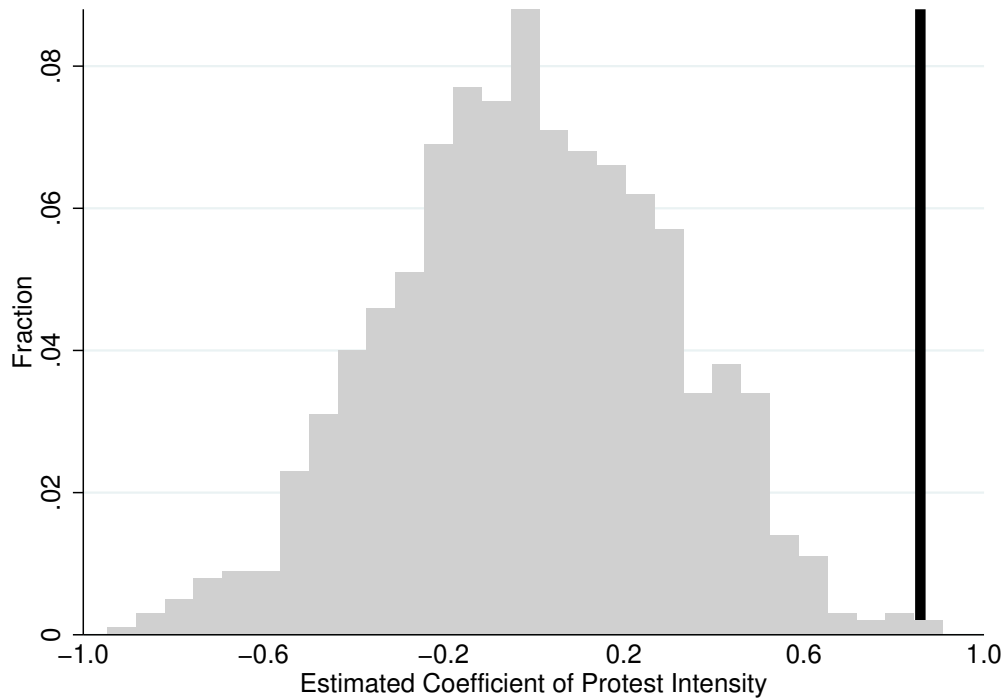


Figure 3: Estimated Coefficient of Placebo Protest Intensity on Voter Turnout

Notes: This figure shows the distribution of the estimated coefficients of the placebo protest intensity on voter turnout, based on Equation 1 and the specification of Column (5) in Table 2. I run one thousand regressions of “pseudo” protests, where for each regression, I shuffle the actual protest intensity and randomly assign it to each Constituency Area to construct the “pseudo” protest intensity measure. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Elections. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The black solid line represents the actual estimated coefficient using the real protest intensity measure.

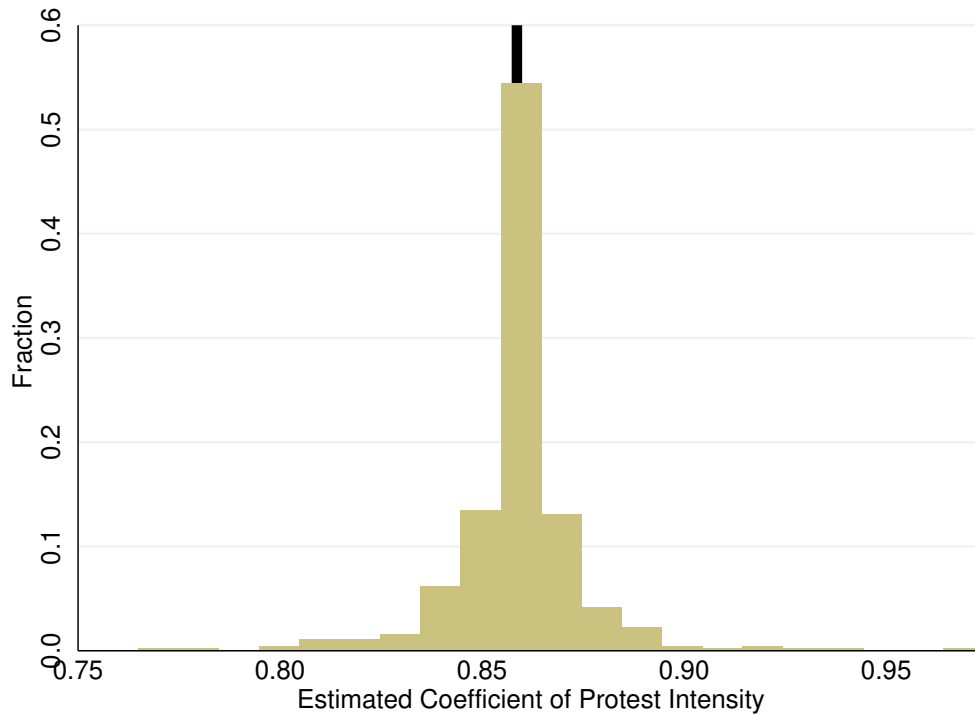


Figure 4: Estimated Coefficient of Protest Intensity on Voter Turnout, Dropping One Constituency Area

Notes: This figure shows the distribution of the estimated coefficients of the protest intensity on voter turnout, based on Equation 1 and the specification of Column (5) in Table 2. For each regression, I drop one Constituency Area from all the observations. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Elections. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The black solid line represents the actual estimated coefficient using the full sample.

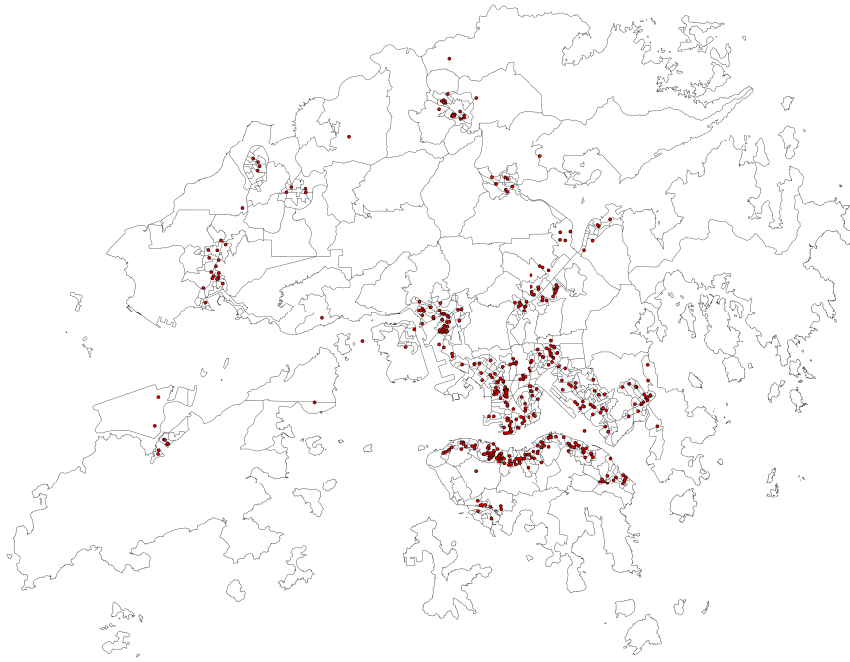


Figure 5: Spatial Distribution of Events in Hong Kong, 2019

Notes: This figure plots the spatial distribution of all the events during the 2019 Hong Kong ANTI-ELAB Protest. I constrain the period from June 12, 2019, to November 23, 2019, one day before the 2019 Hong Kong District Election. 1 The data source is the ANTI-ELAB research data archive.

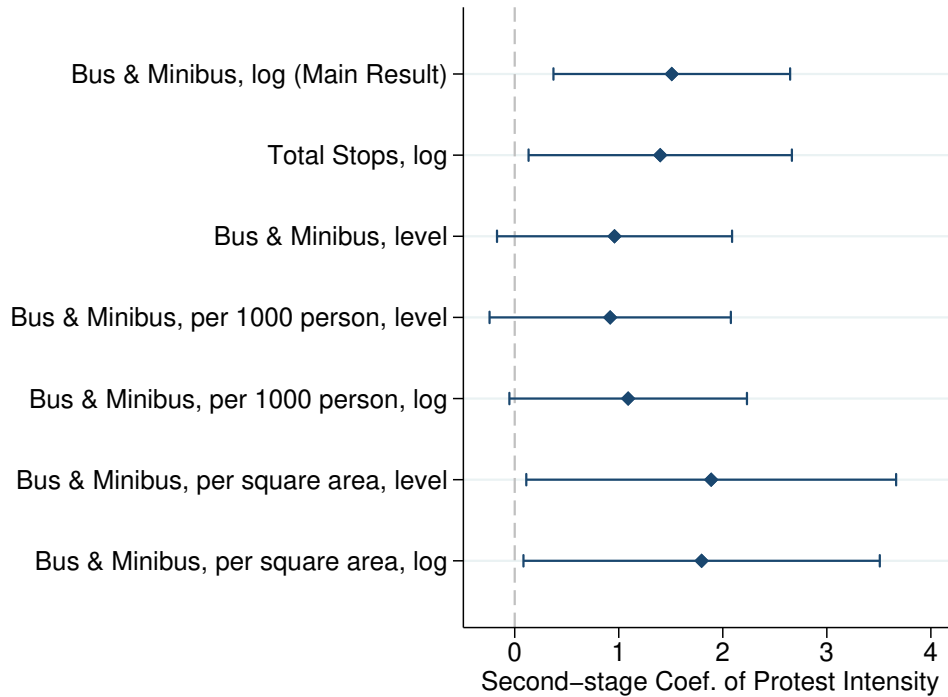
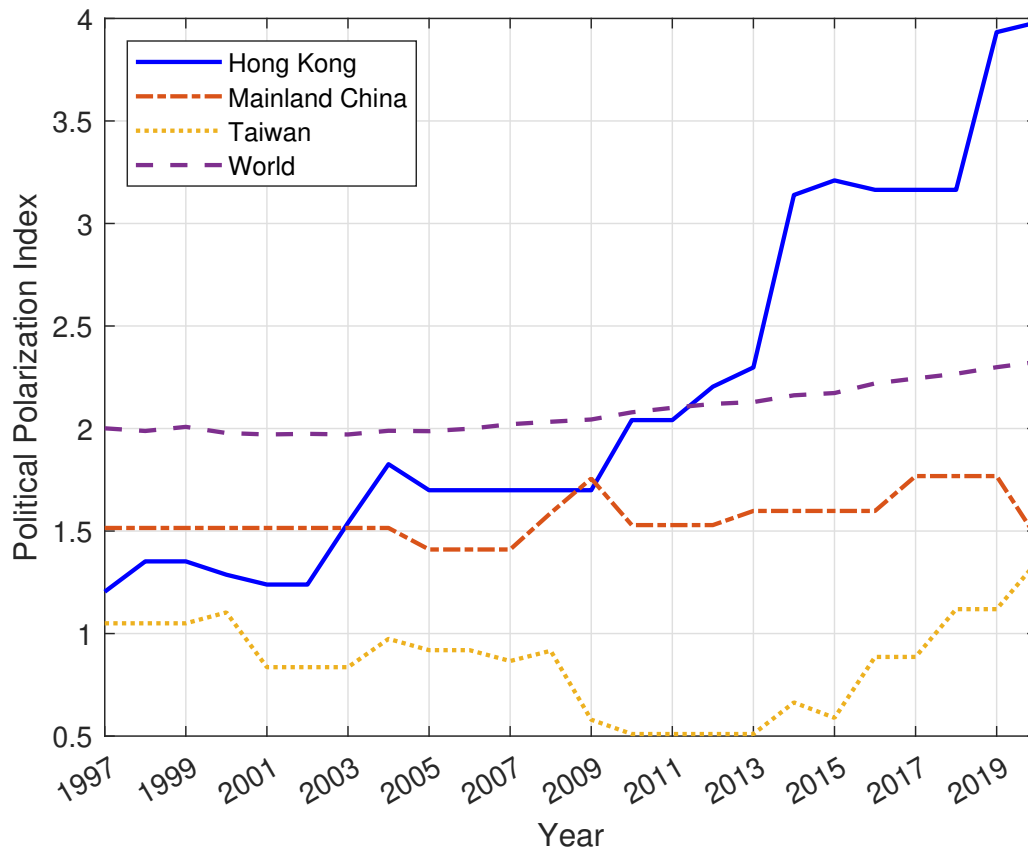


Figure 6: Second-stage Estimated Coefficient of Protest Intensity, Using Different Instruments

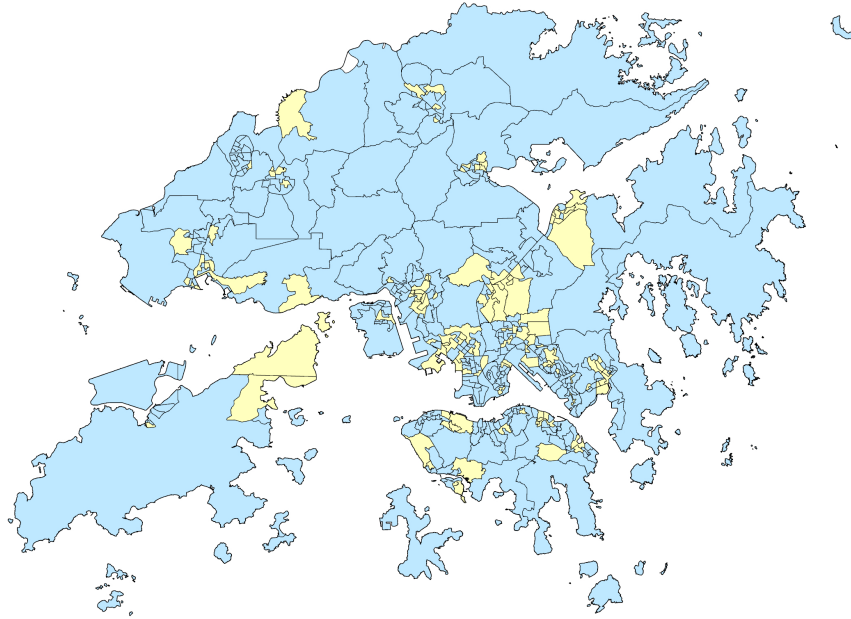
Notes: This figure plots the second-stage estimated coefficient of the protest intensity on voter turnout, using different instruments. All regressions use the same specification as Column (3) in Table 7, controlling for demographics, employment, income-related variables, as well as council district fixed effects. Standard Errors are robust to heteroskedasticity, and 90% confidence intervals are in navy solid line. **Total stops** represent the total number of bus and minibus stops; **per 1000 person** represents the number of bus (minibus) stops divided by the Constituency Area population in 2016, and **per square area** represents the number of bus (minibus) stops divided by the area of the Constituency Area. Instruments in **level** are all in their raw numbers, and in **log** are all measured by the log of one plus the number.



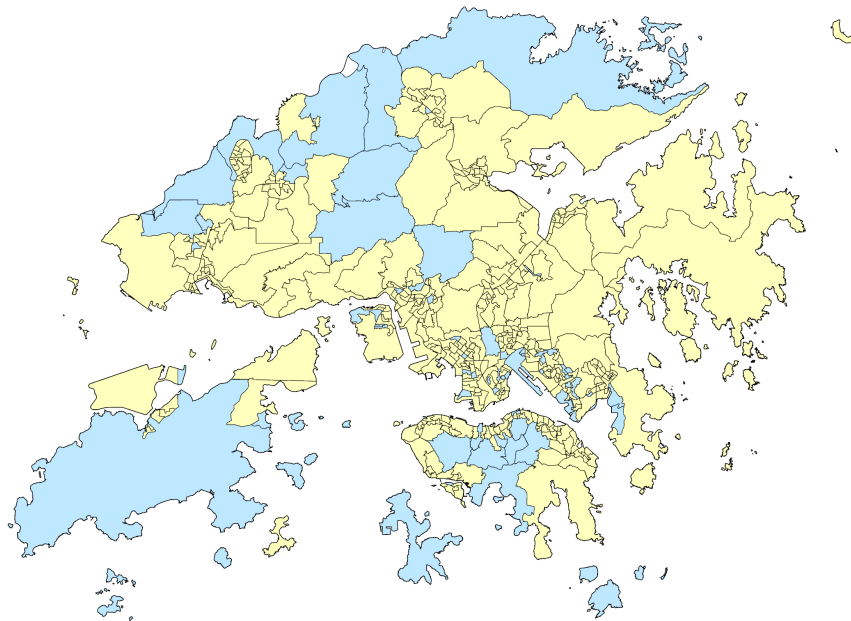
Source: Varieties of Democracy (V-Dem)

Figure 7: Time Series of Political Polarization Score in Hong Kong, 1997 to 2020

Notes: This figure plots the measure of the political polarization index in Hong Kong, Mainland China, Taiwan, and the world average, from 1997 to 2020. The data source is the Varieties of Democracy.



(a) 2015 District Council Election Results



(b) 2019 District Council Election Results

Figure 8: Hong Kong District Council Election Results, 2015 and 2019

Notes: This figure plots the results of the Hong Kong District Council Election in 2015 and 2019. Blue represents that a non-pro-democracy candidate wins the Constituency Area, and yellow represents that a pro-democracy candidate wins the Constituency Area. The data source is the Registration and Election Office of the Hong Kong government.

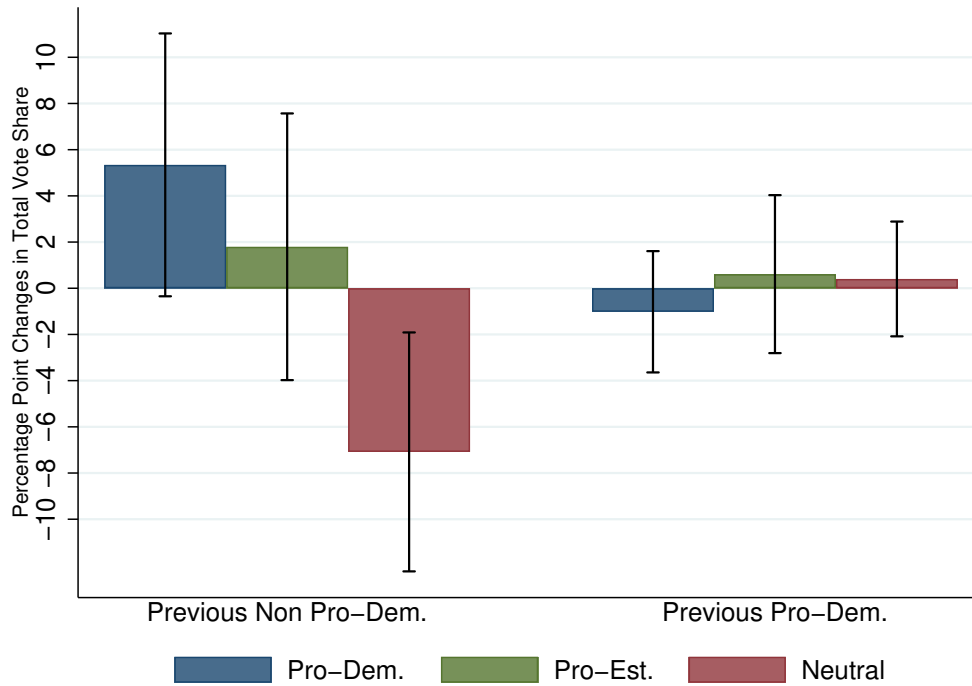


Figure 9: Estimated Change in Vote Shares of Different Candidates, based on Previous Political Stances

Notes: This figure plots the estimated coefficients of results total vote share of different candidates in the 2019 Hong Kong District Council Election, using the specification of Columns (3) in Table 7, using subsamples based on whether pro-democracy candidates won in the 2015 Election. The outcome variable is the percentage point change of the total vote share of candidates with different political stances in each Constituency Area between the 2019 and 2015 Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Standard Errors are robust to heteroskedasticity, and 90% confidence intervals are in black solid line.

Table 1: Summary Statistics of Key Variables

	Mean	SD	Min	p25	p50	p75	Max	Obs
<i>Panel A: Treatments</i>								
Num. of Events	7.471	23.139	0	0	2	7	398	452
Num. of Events before Nov. 24	3.712	12.333	0	0	0	3	212	452
<i>Panel B: Instruments</i>								
Num. of Bus Stops	9.588	11.935	0	4	6	11	140	452
Num. of Minibus Stops	1.613	2.169	0	0	1	2	13	452
Num. of Total Stops	11.201	12.920	0	4	8	13	140	452
Min. Dist. to the MTR (km)	1.014	1.316	0.04	0.35	0.57	1.15	12.88	452
<i>Panel C: Control Variables</i>								
Female %	53.978	2.220	48.81	52.51	53.77	55.28	62.08	431
Age Under 15 %	11.107	2.870	4.97	8.84	11.08	13.07	20.01	431
Age 15 - 24 %	10.611	2.877	4.23	8.79	10.19	12.05	24.82	431
Age 25 - 44 %	30.321	4.009	19.93	27.46	29.83	32.72	44.46	431
Age 45 - 64 %	31.840	3.047	23.78	29.91	31.87	33.98	42.11	431
Age Over 65 %	16.121	4.734	6.66	12.56	15.92	19.23	36.46	431
Married %	51.671	4.231	39.81	48.48	51.86	55.08	60.40	431
Born in Hong Kong %	60.872	9.036	37.63	54.27	61.07	67.64	79.48	431
Born in Mainland China %	30.833	11.096	9.31	21.64	30.76	38.80	58.27	431
Speak Cantonese %	85.582	9.067	35.38	83.46	88.18	91.35	96.91	431
Speak Mandarin %	1.778	1.665	0.03	0.74	1.26	2.26	13.24	429
With Diploma or Certificate %	5.147	1.072	2.54	4.37	5.04	5.83	8.86	431
With Sub-degree Course %	4.172	0.824	1.81	3.63	4.13	4.68	6.43	431
With Degree course %	19.581	10.086	5.19	11.51	16.66	25.91	49.97	431
Working population %	51.246	4.495	37.30	48.17	51.44	54.22	65.87	431
Median Household Income	35248.631	19194.026	15000	24000	29200	40000	174460	431

Notes: This table reports the summary statistics of all Key variables in my empirical analyses. The data source is the Census and Statistics Department of the Hong Kong government, the ANTI-ELAB research data archive, and the Transport Department of the Hong Kong government. Panel A is the main treatment variable, the number of events during the 2019 Hong Kong ANTI-ELAB Protest in each Constituency Area. Panel B is the set of instrument variables, including the number of bus stops, minibus stops and total stops in each Constituency Area, and the distance from the central point of each Constituency Area to its nearest MTR station. Panel C are demographic characteristics, employment, and income control variables of each Constituency Area in 2016. Female through working population refer to the proportion of population with noted attribute. Median household income refers to the median monthly household income in 2016 Hong Kong Dollar.

Table 2: Main Results: OLS Regression Results of Protest Intensity on Voter Turnout

	(1)	(2)	(3)	(4)	(5)	(6)
Protest Intensity	0.308 (0.316)	0.737** (0.320)	0.705** (0.325)	0.710** (0.333)	0.859*** (0.331)	0.893*** (0.340)
Demographics		Y	Y	Y	Y	Y
Employment			Y	Y	Y	Y
Income				Y	Y	Y
District FE					Y	Y
Weighted	N	N	N	N	N	2016 pop
R^2	0.003	0.129	0.130	0.130	0.241	0.247
Observations	363	361	361	361	361	361

Notes: This table reports the OLS regression results of protest intensity on voter turnout, based on Equation 1. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. Column (1) reports the bi-variate regression results. Column (2) controls for demographic characteristics at the 2016 level. Column (3) adds employment controls at the 2016 level. Column (4) adds the median household income at the 2016 level. Column (5) includes district council fixed effects. Column (6) weights by Constituency Area's total population in 2016 level. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 3: Placebo Test: OLS Regression Results on Previous Voter Turnout

	$\Delta\text{Turnout}_{2019-2015}$		$\Delta\text{Turnout}_{2015-2011}$	
	(1)	(2)	(3)	(4)
Protest Intensity	0.859*** (0.331)	0.893*** (0.340)	-0.333 (0.390)	-0.431 (0.393)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
R^2	0.241	0.247	0.165	0.176
Observations	361	361	287	287

Notes: This table reports the OLS regression results of protest intensity on voter turnout, using the specification of Columns (5) and (6) in Table 2. The outcome variables are the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election in Columns (1) and (2), and the percentage point change of the voter turnout between the 2015 and 2011 elections in (3) and (4), respectively. The main explanatory variable is the protest intensity, measured by log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 4: Robustness Check: OLS Regression Results on Voter Turnout Using Alternative Measures

	Winsorized		Levels		Extensive Margin		Intensive Margin	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Winsorized _{2,98}	0.910*** (0.345)	0.940*** (0.354)						
NumEvents _{2,98}			0.085 (0.056)	0.090 (0.057)				
Events Dummy					1.466** (0.684)	1.518** (0.712)		
Protest Intensity							0.716 (0.567)	0.767 (0.579)
Demographics	Y	Y	Y	Y	Y	Y	Y	Y
Employment	Y	Y	Y	Y	Y	Y	Y	Y
Income	Y	Y	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop	N	2016 pop	N	2016 pop
R ²	0.242	0.247	0.231	0.236	0.236	0.241	0.284	0.284
Observations	361	361	361	361	361	361	173	173

Notes: This table reports the OLS regression results of protest intensity on voter turnout, using alternative measures of protest intensity and the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. Columns (1) and (2) use the original protest intensity measure, but winsorized at the 2 and 98% percentile. Columns (3) and (4) use the level number of events, winsorized at the 2 and 98% percentile. Columns (5) and (6) use a dummy variable equal to 0 if the Constituency Area has at least one event, and zero otherwise. Columns (7) and (8) use the original measure of protest intensity, but restricting the sample to areas with at least one event during the 2019 Hong Kong ANTI-ELAB Protest. Standard Errors are robust to heteroskedasticity and reported in parenthesis.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 5: Local Information: Regression Results Controlling Protest Intensity in Neighborhood Areas

	(1)	(2)	(3)	(4)
Neighborhood Protest Intensity	-0.271 (0.322)	-0.279 (0.342)	-0.342 (0.316)	-0.349 (0.333)
Local Protest Intensity			0.891*** (0.331)	0.924*** (0.340)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
R^2	0.227	0.231	0.244	0.250
Observations	361	361	361	361

Notes: This table reports the regression results of protest intensity on voter turnout using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. Columns (1) and (2) report the results using only the neighborhood protest intensity, measured by log of one plus the number of events in adjacent Constituency Areas during the 2019 Hong Kong ANTI-ELAB Protest. Columns (3) and (4) further include the local protest intensity, measured by log of one plus the number of events within the Constituency Area during the 2019 Hong Kong ANTI-ELAB Protest. Standard Errors are robust to heteroskedasticity and reported in parenthesis.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 6: IV Regression: First Stage Regression Results on Protest Intensity

	(1)	(2)	(3)	(4)	(5)	(6)
ln(1 + Num. Bus Stops)	0.337*** (0.074)	0.282*** (0.071)	0.275*** (0.071)	0.258*** (0.071)	0.273*** (0.078)	0.270*** (0.080)
ln(1 + Num. Minibus Stops)	0.305*** (0.080)	0.354*** (0.083)	0.359*** (0.083)	0.374*** (0.083)	0.426*** (0.087)	0.438*** (0.090)
ln(Min. Dist. to the MTR)	-0.415*** (0.051)	-0.380*** (0.052)	-0.362*** (0.055)	-0.340*** (0.057)	-0.385*** (0.064)	-0.412*** (0.065)
Demographics		Y	Y	Y	Y	Y
Employment			Y	Y	Y	Y
Income				Y	Y	Y
District FE					Y	Y
Weighted	N	N	N	N	N	2016 pop
F-stat	27.718	25.568	22.487	20.723	21.26	21.687
R ²	0.237	0.291	0.297	0.305	0.370	0.365
Observations	363	361	361	361	361	361

Notes: This table reports the first stage IV regression results of the instrument variables on protest intensity, based on Equation 2. The outcome variable is the protest intensity in each Constituency Area, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Column (1) uses the most parsimonious regression specification. Column (2) controls for demographic characteristics at 2016 level. Column (3) adds employment controls at the 2016 level. Column (4) adds the median household income in 2016 level. Column (5) includes district council fixed effects. Column (6) weights by Constituency Area's total population in 2016 level. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 7: IV Regression: Second Stage Regression Results on Voter Turnout

	OLS Results		IV Results		LIML IV Results	
	(1)	(2)	(3)	(4)	(5)	(6)
Protest Intensity	0.859*** (0.331)	0.893*** (0.340)	1.510** (0.692)	1.567** (0.697)	1.513** (0.694)	1.568** (0.698)
Demographics	Y	Y	Y	Y	Y	Y
Employment	Y	Y	Y	Y	Y	Y
Income	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop	N	2016 pop
Kleibergen-Paap F			21.260	21.687	21.260	21.687
R^2	0.241	0.247	0.232	0.237	0.232	0.237
Observations	361	361	361	361	361	361

Notes: This table reports the second stage IV regression results of protest intensity on voter turnout, based on Equation 2 and the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. Columns (1) and (2) report the original OLS results, and Columns (3) and (4) report the IV Results, where the instrument variables are the log of one plus the number of bus stops, the log of one plus the number of minibuses, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Columns (5) and (6) report the Limited Information Maximum Likelihood (LIML) IV results. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 8: Regression Results of Protest Intensity on Voter Turnout, Subsample of Previous Political Stances

	Previous Non-Pro-Dem.		Previous Pro-Dem.	
	(1)	(2)	(3)	(4)
Protest Intensity	1.775*	1.823*	1.270*	1.152
	(1.010)	(1.015)	(0.706)	(0.706)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
Method	IV	IV	IV	IV
R^2	0.311	0.329	0.365	0.355
Observations	239	239	122	122

Notes: This table reports the IV regression results of protest intensity on voter turnout, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Columns (1) and (2) report the results using the subsample that non-pro-democracy candidates won in the 2015 District Council Election, and Columns (3) and (4) report the results using the subsample that pro-democracy candidates won in the 2015 District Council Election. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 9: Regression Results of Protest Intensity on Voter Turnout, Subsample of Urban versus Sub-urban Areas

	> Mean Pop. Density		< Mean Pop. Density	
	(1)	(2)	(3)	(4)
Protest Intensity	2.629 (1.720)	2.362 (1.839)	1.486* (0.779)	1.649** (0.752)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
Method	IV	IV	IV	IV
R^2	0.292	0.304	0.258	0.273
Observations	168	168	193	193

Notes: This table reports the IV regression results of protest intensity on voter turnout, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Columns (1) and (2) report the results using the subsample that the Constituency Area has a population density higher than the mean at the 2016 level, and Columns (3) and (4) report the results using the subsample that the Constituency Area has a population density lower than the mean at the 2016 level. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 10: Regression Results on Votes and Vote Shares of Neutral Candidates

	Δ Neutral Votes, of registered voters %		Δ Neutral Total Vote Share %	
	(1)	(2)	(3)	(4)
Protest Intensity	-1.485 (0.950)	-1.256 (0.992)	-3.890* (2.094)	-3.499 (2.165)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
Method	IV	IV	IV	IV
R^2	0.097	0.103	0.094	0.096
Observations	361	361	361	361

Notes: This table reports the IV regression results of protest intensity on the votes and vote shares of neutral candidates, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of votes (divided by registered voters) in Columns (1) and (2) and is the percentage point change of the total vote share in Columns (3) and (4), obtained by neutral candidates in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 11: Regression Results on Votes and Vote Shares of Pro-Establishment and Pro-Democracy Candidates

	Δ Pro-Dem. Votes, of registered voters %		Δ Pro-Est. Votes, of registered voters %		Δ Pro-Dem Total Vote Share %	
	(1)	(2)	(3)	(4)	(5)	(6)
Protest Intensity	2.337 (1.434)	2.160 (1.471)	0.744 (1.251)	0.761 (1.253)	3.814 (2.645)	3.432 (2.671)
Demographics	Y	Y	Y	Y	Y	Y
Employment	Y	Y	Y	Y	Y	Y
Income	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop	N	2016 pop
Method	IV	IV	IV	IV	IV	IV
R^2	0.144	0.138	0.084	0.095	0.135	0.130
Observations	361	361	361	361	361	361

Notes: This table reports the IV regression results of protest intensity on the votes and pro-establishment and pro-democracy candidates, as well as the vote shares of pro-democracy candidates, using the specification of Columns (5) and (6) in Table 2. The outcome variables are the percentage point change of votes (divided by registered voters) obtained by pro-democracy candidates in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election in Columns (1) and (2), by pro-establishment candidates in Columns (3) and (4), and the percentage point change of the total vote share in Columns (5) and (6), respectively. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 12: Regression Results of Protest Intensity on Growth of Total Stayers

	OLS Results		IV Results	
	(1)	(2)	(3)	(4)
Protest Intensity	-0.946 (1.158)	-0.742 (1.146)	-7.317** (2.955)	-7.383*** (2.825)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
Kleibergen-Paap F			23.846	23.068
R^2	0.186	0.189	0.137	0.135
Observations	429	429	429	429

Notes: This table reports the regression results of protest intensity on the growth of total stayers, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the growth of total stayers defined by the sum of people who stay in the same Constituency Area between 2016 and 2021 and calculated using Equation 3. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. Columns (1) and (2) report the OLS results, and Columns (3) and (4) report the IV results, where the instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

APPENDIX

Appendix A Identifying The political stance of Candidates

候選人編號 Candidate Number **1** 選舉信息 Electoral Message:

	姓名: 楊開永	
	Name: Yeung Hoi Wing	
	年齡 Age: 35	
	職業: 區議員	
	Occupation: District Councillor	
	政治聯繫: 民建聯	
	Political Affiliation: DAB	
	電郵地址/網址: hoivingyeung@gmail.com	
E-mail Address/Website:		

(a) An Example of Pro-Establishment Candidate Using Party Affiliation Information

候選人編號 Candidate Number **1** 選舉信息 Electoral Message:

	姓名: 鄭麗琼	
	Name: CHENG Lai King	
	年齡 Age:	
	職業: 中西區區議員/註冊社會工作者	
	Occupation: C & W District Councillor/Registered Social Worker	
	政治聯繫: 民主黨	
	Political Affiliation: The Democratic Party	
	電郵地址/網址: chenglaiking@gmail.com	
E-mail Address/Website:		


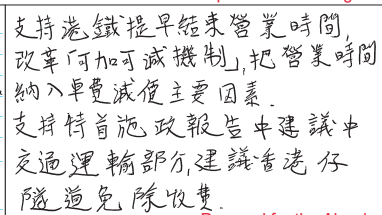
(b) An Example of Pro-Democracy Candidate Using Party Affiliation Information

候選人編號 Candidate Number **2** 選舉信息 Electoral Message:

	姓名: 梁柏堅	
	Name: Leung Pak Kin	
	年齡 Age: 39	
	職業: 攝影師及特約記者	
	Occupation: Photographer & Photo Journalist	
	政治聯繫: N/A	
	Political Affiliation: N/A	
	電郵地址/網址: pakkin@wanchaicommons.com	
E-mail Address/Website:		

(c) An Example of Pro-Democracy Candidate Using Slogan Information

候選人編號 Candidate Number **3** 選舉信息 Electoral Message:

	姓名: 李建成	
	Name: Lee Kin Shing	
	年齡 Age:	
	職業: Automobile repairman	
	Occupation:	
	政治聯繫:	
	Political Affiliation:	
	電郵地址/網址: lks2019dc@gmail.com	
E-mail Address/Website:		

(d) An Example of Neutral Candidate Using Slogan Information

Figure A.1: Examples of Identifying Political Stances of Candidates

Notes: This figure shows four examples of identifying the political stances of candidates, using different information. The data source is the Registration and Election Office of the Hong Kong government. Panel (a) and (b) show two examples in which candidates claim their political affiliation explicitly. I assign them the same political stance as their belonged affiliation. Panel (c) and (d) show two examples in which the candidate does not claim their political affiliation. In this situation, I refer to their political platform and slogan for information.

Table A.1: Political Stances of Major Parties in Hong Kong

Pro-Establishment Parties	Pro-Democracy Parties
Democratic Alliance for the Betterment and Progress of Hong Kong	Democratic Party
Hong Kong Federation of Trade Unions	Civic Party
Business and Professionals Alliance for Hong Kong	Labour Party
Liberal Party	Neighbourhood and Worker's Service Centre
New People's Party	Hong Kong Association for Democracy and People's Livelihood
New Century Forum	League of Social Democrats
Federation of Hong Kong and Kowloon Labour Unions	People Power
New Territories Association of Societies	2047 Hong Kong Monitor
Hong Kong Island Federation	Democratic Coalition for DC Election

Notes: This table reports the political stances of the major parties in Hong Kong. Pro-Establishment parties represent those that are closer to the Chinese Communist Party (CPC), and Pro-Democracy parties represent those that are supportive of democratic system.

Appendix B Supplemental Figures and Tables for Empirical Analyses

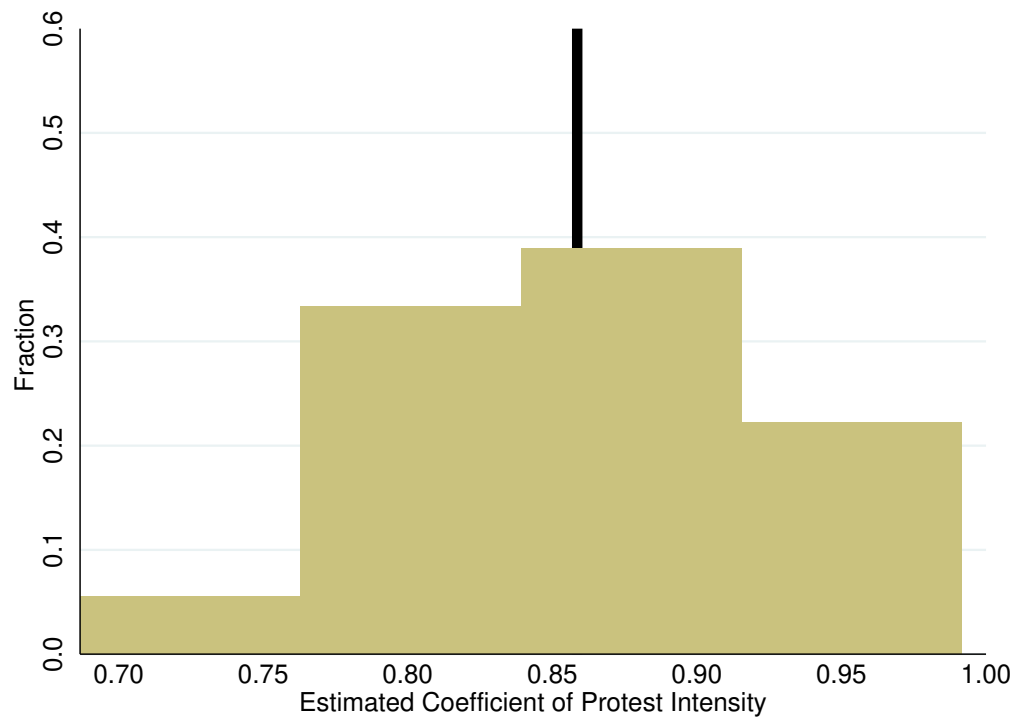


Figure B.1: Estimated Coefficient of Protest Intensity on Voter Turnout, Dropping One District Council

Notes: This figure shows the distribution of the estimated coefficients of the protest intensity on voter turnout, based on Equation 1 and the specification of Column (5) in Table 2. For each regression, I drop one District Council from all the observations. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The black solid line represents the actual estimated coefficient using the full sample.

Table B.1: OLS Regression Results of Protest Intensity on Voter Turnout, Cluster at District Councils

	(1)	(2)	(3)	(4)	(5)	(6)
Protest Intensity	0.308 (0.297)	0.737*** (0.251)	0.705** (0.280)	0.710** (0.288)	0.859** (0.306)	0.893** (0.333)
Demographics		Y	Y	Y	Y	Y
Employment			Y	Y	Y	Y
Income				Y	Y	Y
District FE					Y	Y
Weighted	N	N	N	N	N	2016 pop
R^2	0.003	0.129	0.130	0.130	0.241	0.247
Observations	363	361	361	361	361	361

Notes: This table reports the OLS regression results of protest intensity on voter turnout, based on Equation 1. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. Column (1) reports the bi-variate regression results. Column (2) controls for demographic characteristics at the 2016 level. Column (3) adds employment controls at the 2016 level. Column (4) adds the median household income in 2016 level. Column (5) includes district council fixed effects. Column (6) weights by Constituency Area's total population in 2016 level. Standard Errors are clustered at the district council level and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.2: Summary Statistics of Key Variables by Whether Having Elections in 2015

	Has No 2015 Elections	Has 2015 Elections	Differences
Num. of Events before Nov. 24	3.829	3.603	0.226
Female %	53.935	54.207	-0.272
Age Under 15 %	11.057	11.376	-0.319
Age 15 - 24 %	10.613	10.595	0.018
Age 25 - 44 %	30.265	30.622	-0.357
Age 45 - 64 %	32.048	30.729	1.320***
Age Over 65 %	16.017	16.679	-0.662
Married %	51.715	51.436	0.279
Born in Hong Kong %	61.123	59.531	1.592
Born in Mainland China %	30.556	32.308	-1.752
Speak Cantonese %	85.626	85.350	0.276
Speak Mandarin %	1.789	1.723	0.066
With Diploma or Certificate %	5.160	5.072	0.088
With Sub-degree Course %	4.183	4.109	0.074
With Degree course %	19.727	18.801	0.926
Working population %	51.386	50.495	0.892
Median Household Income	35471.405	34059.412	1411.993
Observations	68	363	

Notes: This table reports the summary statistics of the key treatment variable, and control variables and their differences in Constituency Areas with and without competitive elections in the 2015 District Council Election. The data source is the Census and Statistics Department of the Hong Kong government, and the ANTI-ELAB research data archive. Control variables include demographic characteristics, employment, and income control variables of each Constituency Area in 2016. Female through working population refer to the proportion of population with noted attribute. Median household income refers to the median monthly household income in 2016 Hong Kong Dollar. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.3: Summary Statistics of Control Variables by Whether There is an Event

	<i>Events = 0</i>	<i>Events > 0</i>	Differences
Female %	53.774	54.195	-0.421**
Age Under 15 %	11.175	11.035	0.140
Age 15 - 24 %	10.650	10.568	0.082
Age 25 - 44 %	30.151	30.501	-0.350
Age 45 - 64 %	31.822	31.860	-0.038
Age Over 65 %	16.201	16.036	0.166
Married %	51.584	51.764	-0.180
Born in Hong Kong %	61.198	60.526	0.672
Born in Mainland China %	31.445	30.182	1.263
Speak Cantonese %	87.013	84.062	2.951***
Speak Mandarin %	1.458	2.115	-0.658***
With Diploma or Certificate %	5.098	5.198	-0.100
With Sub-degree Course %	4.149	4.196	-0.047
With Degree course %	17.794	21.479	-3.685***
Working population %	50.391	52.154	-1.763***
Median Household Income	33246.351	37375.455	-4129.103**
Observations	222	209	

Notes: This table reports the summary statistics of control variables and their differences in Constituency Areas with and without events during the 2019 Hong Kong ANTI-ELAB protest. The data source is the Census and Statistics Department of the Hong Kong government. Control variables include demographic characteristics, employment, and income control variables of each Constituency Area in 2016. Female through working population refer to the proportion of population with noted attribute. Median household income refers to the median monthly household income in 2016 Hong Kong Dollar. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.4: Local Information: Regression Results Controlling Protest Intensity in Different Buffers

	(1)	(2)	(3)	(4)	(5)	(6)
Protest Intensity 0 - 500m	0.004 (0.354)	0.011 (0.371)			-0.030 (0.359)	-0.050 (0.375)
Protest Intensity 500 - 1000m			-0.280 (0.346)	-0.181 (0.358)	-0.265 (0.356)	-0.153 (0.370)
Local Protest Intensity					0.860** (0.332)	0.897*** (0.342)
Demographics	Y	Y	Y	Y	Y	Y
Employment	Y	Y	Y	Y	Y	Y
Income	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
Weighted	N	N	N	N	N	2016 pop
R^2	0.019	0.135	0.137	0.137	0.243	0.247
Observations	363	361	361	361	361	361

Notes: This table reports the regression results of protest intensity on voter turnout using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variables are the local protest intensity, protest intensity 0 - 500m, and protest intensity 500 - 1000m, measured by log of one plus the number of events within the Constituency Area, within a 0 - 500m buffer outside the area, and a 500 - 1000m buffer outside the area during the 2019 Hong Kong ANTI-ELAB Protest. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.5: IV Regression: Regression Results Controlling Urban Suburban Area Status

	OLS Results		OLS Results		IV Results	
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbf{1}_{\text{Urban Area}}$	-1.002 (0.689)	-0.951 (0.717)	-0.670 (0.700)	-0.595 (0.722)	-0.390 (0.716)	-0.293 (0.729)
Protest Intensity			0.790** (0.338)	0.833** (0.345)	1.458** (0.742)	1.539** (0.739)
Demographics	Y	Y	Y	Y	Y	Y
Employment	Y	Y	Y	Y	Y	Y
Income	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop	N	2016 pop
R^2	0.230	0.234	0.243	0.248	0.234	0.238
Observations	361	361	361	361	361	361

Notes: This table reports the regression results of protest intensity on voter turnout, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. Columns (1) and (2) report the results using only the urban dummy, equal 1 if the area is defined as an urban area and zero otherwise, as the main explanatory variable. Columns (3) and (4) further include the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. Columns (5) and (6) use instead the instrumented protest intensity, where the instruments are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.6: IV Regression: Regression Results Controlling Distance to the Polling Stations

	OLS Results		OLS Results		IV Results	
	(1)	(2)	(3)	(4)	(5)	(6)
ln(Dist. To Nearest Polling Sta.)	0.018 (0.361)	-0.012 (0.376)	0.041 (0.360)	0.012 (0.373)	0.058 (0.347)	0.030 (0.359)
Protest Intensity			0.859*** (0.331)	0.894*** (0.340)	1.501** (0.691)	1.558** (0.698)
Demographics	Y	Y	Y	Y	Y	Y
Employment	Y	Y	Y	Y	Y	Y
Income	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop	N	2016 pop
R^2	0.225	0.230	0.241	0.247	0.235	0.237
Observations	361	361	361	361	361	361

Notes: This table reports the regression results of protest intensity on voter turnout, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. Columns (1) and (2) report the results using only the log of the distance from the central point of the Constituency Area to the nearest polling Station as the main explanatory variable. Columns (3) and (4) further include the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. Columns (5) and (6) use instead the instrumented protest intensity, where the instruments are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.7: Regression Results of Protest Intensity on Voter Turnout, Subsample of Urban versus Suburban Areas

	> Median Pop. Density		< Median Pop. Density	
	(1)	(2)	(3)	(4)
Protest Intensity	4.363*** (1.531)	4.322*** (1.604)	1.161 (0.770)	1.304* (0.750)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
Method	IV	IV	IV	IV
R ²	0.182	0.193	0.289	0.306
Observations	186	186	175	175

Notes: This table reports the IV regression results of protest intensity on voter turnout, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the voter turnout in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Columns (1) and (2) report the results using the subsample that the Constituency Area has a population density higher than the median at the 2016 level, and Columns (3) and (4) report the results using the subsample that the Constituency Area has a population density lower than the median at the 2016 level. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.8: Regression Results of Protest Intensity on Vote Shares of Neutral Candidates, Subsample of Previous Political Stances

	Previous Non-Pro-Dem.		Previous Pro-Dem.	
	(1)	(2)	(3)	(4)
Protest Intensity	-6.883** (3.049)	-6.650** (2.990)	0.423 (1.472)	0.817 (1.518)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
Method	IV	IV	IV	IV
R ²	0.133	0.125	0.316	0.363
Observations	239	239	122	122

Notes: This table reports the IV regression results of protest intensity on neutral vote share, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the total vote share of candidates that are neutral in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest, where the instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Columns (1) and (2) report the results using the subsample that non pro-democracy candidates won in the 2015 District Council Election, and Columns (3) and (4) report the results using the subsample that pro-democracy candidates won in the 2015 District Council Election. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.9: Regression Results of Protest Intensity on Vote Shares of Pro-Democracy Candidates, Sub-sample of Previous Political Stances

	Previous Non-Pro-Dem.		Previous Pro-Dem.	
	(1)	(2)	(3)	(4)
Protest Intensity	5.116 (3.299)	4.769 (3.322)	-1.034 (1.573)	-1.325 (1.568)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
Method	IV	IV	IV	IV
R^2	0.255	0.244	0.286	0.278
Observations	239	239	122	122

Notes: This table reports the IV regression results of protest intensity on pro-democracy vote share, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the percentage point change of the total vote share of candidates that are pro-democracy in each Constituency Area between the 2019 and 2015 Hong Kong District Council Election. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Columns (1) and (2) report the results using the subsample that non pro-democracy candidates won in the 2015 District Council Election, and Columns (3) and (4) report the results using the subsample that pro-democracy candidates won in the 2015 District Council Election. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.10: Regression Results of Protest Intensity on Growth of Total Stayers, Subsample of Previous Political Stances

	Previous Non-Pro-Democracy		Previous Pro-Democracy	
	(1)	(2)	(3)	(4)
Protest Intensity	-10.134** (4.369)	-9.837** (4.204)	-0.617 (2.690)	-0.828 (2.766)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
Method	IV	IV	IV	IV
R^2	0.116	0.119	0.428	0.449
Observations	305	305	124	124

Notes: This table reports the IV regression results of protest intensity on the growth of total stayers, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the growth of total stayers defined by the sum of people who stay in the same Constituency Area between 2016 and 2021 and calculated using Equation 3. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Columns (1) and (2) report the results using the subsample that non pro-democracy candidates won in the 2015 District Council Election, and Columns (3) and (4) report the results using the subsample that pro-democracy candidates won in the 2015 District Council Election. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.11: Regression Results of Protest Intensity on Pro-Democracy Candidates, Subsample of Urban versus Suburban Areas

	> Mean Pop. Density		< Mean Pop. Density	
	(1)	(2)	(3)	(4)
Protest Intensity	-18.187** (9.149)	-18.658* (9.867)	-7.310** (2.923)	-7.428*** (2.783)
Demographics	Y	Y	Y	Y
Employment	Y	Y	Y	Y
Income	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Weighted	N	2016 pop	N	2016 pop
Method	IV	IV	IV	IV
R ²	0.060	0.033	0.222	0.232
Observations	196	196	233	233

Notes: This table reports the IV regression results of protest intensity on the growth of total stayers, using the specification of Columns (5) and (6) in Table 2. The outcome variable is the growth of total stayers defined by the sum of people who stay in the same Constituency Area between 2016 and 2021 and calculated using Equation 3. The main explanatory variable is the protest intensity, measured by the log of one plus the number of events during the 2019 Hong Kong ANTI-ELAB Protest. The instrument variables are the log of one plus the number of bus stops, log of one plus the number of minibus stops, and the log of the distance from the central point of the Constituency Area to its nearest MTR Station. Columns (1) and (2) report the results using the subsample that the Constituency Area has a population density higher than the mean at the 2016 level, and Columns (3) and (4) report the results using the subsample that the Constituency Area has a population density lower than the mean at the 2016 level. Standard Errors are robust to heteroskedasticity and reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.