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Public Policy Research Funding Scheme

The Government of the Hong Kong Special Administrative Region

Project Number 2021.A8.105.21A

**Economic Determinants and Implications of the 2019 Hong Kong District
Council election**

2019年香港區議會選舉的經濟因素和政策啟示

Final Report

January 2023

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Executive Summary

1) Abstract of the research

The Hong Kong District Council election held on 24th November 2019 was a watershed in Hong Kong's democratic movement, with the pro-democracy camp capturing 389 of the 452 District Council seats whereas the pro-establishment camp retaining only 59 seats. Much analysis has been focused on explaining the landslide victory of the pro-democracy camp from a political perspective, such as Hong Kong people's national identity, democratic aspiration, and their attitude toward violence. It remains to be understood whether some deeply rooted economic issues in Hong Kong, such as income inequality and lack of social mobility of youths, have influenced the election outcome, and what policy implications it has for the government of the Hong Kong Special Administrative Region. The project is to formally investigate the impacts of some deeply rooted economic issues on the 2019 District Council election outcome while taking into account the differences among candidates on issues of democracy, violence, and mainland relations. The study identifies a number of economic factors for the election outcomes and offer policy recommendations for the HKSAR government to ensure long term prosperity and stability of Hong Kong.

2) Layman summary on policy implications and recommendations

This study has found the importance of deeply rooted economic issues (such as income inequality and lack of social mobility of youths) in explaining the outcome of the 2019 District Council election, while acknowledging the divergent positions taken by the candidates on Hong Kong people's national identity, democracy, and violence. It calls for urgent and drastic government policies to address these economic issues.

行政摘要

1) 研究摘要

2019年11月24日舉行的香港區議會選舉是香港民主運動的一道分水嶺。民主派奪得全港452個區議會議席中的389個，而建制派只保留了59席。許多分析從政治角度來解釋民主派壓倒性的勝利，例如香港人的國民身份認同、民主訴求和對暴力的態度。但是香港的收入不平等和年輕人缺乏社會流動性等深層次經濟因素如何影響是次選舉結果依然值得研究。我們也需要理解這些經濟因素給香港特區政府帶來什麼樣的政策啟示。本研究考慮到候選人在民主、暴力和中港關係等議題的政綱差異的基礎上，深入地研究一些深層次經濟因素對2019年區議會選舉的影響。研究結果發現經濟因素的重要性，這為香港特區政府提供政策建議從而確保香港的長期繁榮與穩定。

2) 關於政策影響和建議的簡明總結

本研究發現，在解釋2019年區議會選舉的結果時，根深蒂固的經濟問題（如收入不平等和年輕人缺乏社會流動性）非常重要。報告呼籲政府採取緊急和嚴厲的政策來解決這些深層次經濟問題。

1. Introduction

The 2019 Hong Kong District Council election attracted global attention as it was the highlight of the 2019 social movement and considered to be a de facto referendum on how effective the HKSAR government was in handling the extradition bill and the subsequent governance crisis. While the trigger of the crisis was the extradition bill, it exposed the divergent views of the society in general and the two major political camps (the pro-establishment camp and the pro-democracy camp) in particular on political issues ranging from democracy, violence, and national identity. It also highlighted the roles of deeply rooted economic issues in Hong Kong, such as severe income inequality and the lack of social mobility of youths. The election outcome, with the pro-democracy camp capturing 389 of the 452 seats whereas the pro-establishment camp retaining only 59 seats, was a debacle of the pro-establishment camp and the HKSAR government (by proxy). Both political factors (democratic aspiration, attitude toward violence, and national identity) and economic factors (such as income inequality and lack of social mobility of youths) have been cited as possible reasons for why the pro-establishment camp failed to win the election. However, there is a lack of rigorous analysis on the 2019 Hong Kong District Council election, especially the role of economic factors while taking into account the political factors. The paper is to fill in the gap by evaluating the role of the economic factors in determining the election outcome.

There is a huge literature about the role of economic factors and ideological biases in determining the outcomes of democratic elections. Nonetheless, there are very few studies focusing on the elections in Hong Kong, presumably because of its relatively short history in democratic elections on

one hand and its inherent limitations on the other hand. Wong and Wan (2018) is one of the few exceptions. It finds that, in the 2016 Legislative Council election, homeowners tend to vote for the pro-establishment camp, but higher-income people are for localist parties (which are a faction in the pro-democracy camp). The authors explain that homeowners prefer status quo as they have benefited from asset appreciation, but people who have high income albeit low assets are against the status quo. The inclusion of both home ownership and income in the regression, however, suggests that given the status of home ownership higher-income people are against the pro-establishment, which poses a challenge to finding an unified explanation about the effects of home ownership and income. Aside from home ownership, this study also examines the role of income inequality as well as the possibly non-linear role of income in determining the district council election outcome.

In another study, Wong et al. (2018) find that mainland Chinese immigrants are more likely to vote for the pro-establishment candidates than the pro-democracy candidates. Their explanation is that of self-selection by mainland Chinese immigration toward the political system in Hong Kong, which is dominated by the pro-establishment camp. Nonetheless, it could also be argued that the same selection may attract those immigrants from the mainland to seek for true democracy in Hong Kong, in which case a higher percentage of immigrants would lead to less support for the pro-establishment camp. In the study, we will employ a variable – the percentage of households in which the most often used language/dialect is mandarin Chinese – to capture the assimilation of the immigrants with the Hong Kong society and by extension their degree of affiliation with the pro-democracy camp.

Aside from the economic factors that might affect the outcome of the district council election, we also consider a list of political factors. Ma (2015) gives an excellent analysis on the rise of anti-China sentiment since 2008 and climaxed in the 2012 Legislative Council elections. So (2017) examines the further rise of anti-mainland sentiment, in the form of anti-mainland tourists and immigrants and increasingly in the form of localism, in Hong Kong since 2012. While both economic integration and political intervention are cited as possible reasons behind the anti-China sentiment, it is of critical importance to separate these two different sets of factors by developing variables and including them in a rigorous analysis on their relative roles in determining the outcome of the district council election. In this paper, we formally examine the differences in political platform between pro-establishment candidates and pro-democracy candidates regarding the democratic aspirations (true democracy or not) and (police or all kinds of) violence on top of their position regarding mainland tourists and immigrants.

This study also relates to election studies in other countries. Using survey data, Holian (2011) finds that homeowners are more likely to vote than renters. Furthermore, dissatisfied homeowners are more likely to vote than satisfied homeowners and all renters. Hall and Yoder (2018) also find that home ownership impact the voter turnout in local election and that this effect varies with age, property type, and the price of the home. To be specific, younger homeowners and single-family residence are more likely to vote. Furthermore, owners of valuable housing are motivated to participate in local politics because they want to preserve the value of home. Kriner and Reeves (2012) find that an incumbent president are more likely to obtain increased support in the U.S. election when the incumbent president increases federal spending although voters seem to favor deficit reduction.

Che et al. (2022) find that U.S. counties more exposed to input competition from China are more likely to vote for democrats in the U.S. election, who in turn are more likely to endorse policies that restrict import or provide economic assistance for workers who are affected adversely in the trade competition. Baldwin and Magee (2000) demonstrate that different political groups significantly affect the voting outcome on trade bills in the congress. Feigenbaum and Hall (2015) find that legislators will vote for protectionism when facing economic shocks such as Chinese import competition.

This study has important policy implications. In moving forward, the government of HKSAR and the society in general have an urgent need for understanding the roles played by the economic as well as political factors in determining the outcome of the 2019 District Council election. With a rigorous analysis about the 2019 District Council election, the research results shed light on the policies needed for ensuring the long-term prosperity and stability of Hong Kong. In particular, we find that the economic issues such as income inequality and lack of social mobility are the main factors explaining the decreasing votes received by the pro-establishment camp (a proxy for the HKSAR government). Thus, our study calls for policies to alleviate income inequality through redistributive measures (such as more provision of public housing), and for policies to help Hong Kong youths to have the necessary educational background to move up economically.

We proceed as follows. Section 2 presents objectives of the study. Section 3 provides background on the 2019 Hong Kong District Council Election and data. Section 4 presents econometric specifications. Sections 5 presents our empirical results. And Section 6 provides policy implications and recommendations. And Section 7 concludes.

2. Objectives of the study

This study has two main objectives. The first is to investigate the impacts of deeply rooted economic issues (such as income inequality and lack of social mobility of youths) in explaining the outcome of the 2019 District Council election. And the second is to take into account the possible role of the divergent positions taken by the candidates on Hong Kong people's national identity, democracy, and violence, in explaining the outcome of the 2019 District Council election.

3. Background and data

3.1 Hong Kong District Council Election and political camps

The political parties in Hong Kong can be roughly divided into two camps: the pro-establishment camp and the pro-democracy camp. The non-aligned HK political groups, which neither belong to the pro-establishment camp nor belong to the pro-democracy camp, play a trivial role in the politics of Hong Kong. For example, they only captured 6 of 452 seats in the 2019 Hong Kong District Council Election. Therefore, we drop the non-aligned candidates in the sample and focus on the election outcomes of the pro-establishment candidates vis-à-vis pro-democracy candidates.

Both the pro-establishment camp and the pro-democracy camp consist of several parties and political groups. Each party or political group can nominate one candidate for one constituency. In addition, individuals can also be nominated as independent candidates, although many of them are virtually linked to one of the two main camps. Therefore, many constituencies have more than two candidates. In our analysis, we select candidates who

received the largest number of votes within each political camp and constituency. Then we define the vote share as the number of pro-establishment votes (received by the one who has the most votes if there is more than one pro-establishment candidates) divided by the total votes for the most popular pro-establishment candidate (the one with the most votes) and the most popular pro-democracy candidate (the one with the most votes). We drop 7 out of 452 constituencies which do not have either pro-establishment candidates or pro-democracy candidates in 2019.

3.2 Data

3.2.1 Dataset construction

The main dataset of this study, accessible from the website of the Registration and Electoral Office, covers all candidates' personal information, their political views contained in the election platforms, as well as election results at the constituency level in the District Council election in 2011, 2015, and 2019. We also make use of the 2016 Hong Kong Population By-census data that cover social and economic characteristics of population in the 431 Constituency Areas in 2016 to develop variables about the deeply rooted economic issues and estimate its impacts on the outcome of the 2019 District Council election. Finally, we employ the number of tear gas used within each Constituency area during the anti-extradition bill protest and the number of disqualified legislators at the constituency level to explore the role of protest-related variables in explaining the 2019 District Council election results.

The key dependent variable for our study is the vote share received by the pro-establishment camp in each constituency. There are two camps of political parties in Hong Kong: the pro-establishment camp and the pro-de-

mocracy camp, with the remaining (non-aligned HK political group) playing a really minor role (for instance capturing only 7 of 452 seats in the 2019 District Council election). Moreover, both the pro-establishment camp and the pro-democracy camp consist of several parties and political groups, each of which can nominate one candidate for a constituency. There are also so-called independent candidates, who nonetheless can be linked to one of the two main camps. In our analysis, we drop the non-aligned candidates and focus on the election outcome of the pro-establishment and pro-democracy candidates. Moreover, in each constituency, we focus on the (most popular) candidate who received the largest number of votes within each political camp. We measure the vote share received by the pro-establishment camp as the number of votes received by the most popular pro-establishment candidate of the said constituency divided by the total votes obtained by both the most popular pro-establishment candidate and the most popular pro-democracy candidate. If the seat for a constituency is uncontested, then the vote share of the unique candidate (either pro-establishment or pro-democracy) is one. Another dependent variable is a dummy variable about election winner, which equals one if (the most popular) pro-establishment candidate of a constituency wins the election, and zero otherwise. As the vote share received by the pro-establishment candidate tends to persist over time, we use the vote share in the immediate past election as a control variable. Moreover, we construct yet another dependent variable, which is the change in the vote share received by the pro-establishment candidate between 2019 and 2015, and use the change in the vote share in the past elections (between 2015 and 2011) as a control variable. Boundaries of the District Council Constituency Area (DCCA) changes every four years as population grows across constituency areas.

Therefore, we develop a method to link District Council Districts Boundary changes to population census data. The details are shown in the Appendix 9.1.

We construct measures about the political views taken by the pro-establishment and the pro-democracy candidates by reading their election platforms and paying attention to their views on four issues (Hong Kong-Mainland China relations as proxied by their attitude toward mainland tourists and economic integration between Hong Kong and the mainland, democratic aspirations, attitude toward violence, and politics about economic livelihood issues).

Specifically, if a candidate echoed anti-tourist sentiment in his election platform, then the index for anti-tourists equals one, and zero otherwise. If a candidate stated “Five demands, no one less” or “true democracy”, then the index for democracy equals two; if he simply supported democracy, then the index equals one; and finally the index equals zero if the candidate did not mention democracy at all in his platform. Similarly, if a candidate’s attitude toward violence was against all violence (namely, violence by the protesters as well as violence by the police), then the index for violence equals one; if it is against violence by the police, then the index for violence equals negative one; and the index equals zero if there is no mention at all in the platform about violence. Finally, we develop a measure indicating a candidate’s concern about people’s livelihood issues. Given the limited portfolio of district councilors in Hong Kong, it is really a way of expressing the disgust about the politics that has led to the stalemate in solving people’s livelihood issues. Specifically, the index for livelihood equals one if a candidate declared to improve conditions of residents’ livelihood such as housing conditions, and zero otherwise. As the dependent variable for our analysis is the vote share received by the pro-establishment candidate

in a constituency (which is relative to that received by the pro-democracy camp), we use the difference in candidates' political views as independent variables. For example, if the pro-democracy candidate in a district mentioned anti-tourist sentiment, but his pro-establishment competitor did not, then the value of the difference in their political views on anti-tourists equals -1.

We also control for personal characteristics of candidates (such as gender, whether he was an incumbent district councilor, and whether he is also a member of Hong Kong legislative council) that might impact on the election outcome. Similar to the way we study the impact of political views on election outcome, we use the differences of the candidates in these personal characteristics, as our dependent variable is the share of votes received by the pro-establishment candidate relative to that of the pro-democracy candidate.

We develop several constituency-level variables using the 2016 Hong Kong Population By-census data. They are the share of young people (measured as the percentage of people aged between 15 and 39 years in each constituency, or the percentage of people aged between 15 and 24 years in each constituency for robustness check), percentage of Putonghua spoken (measured as the percentage of households in which the most often used language/dialect is mandarin Chinese, and used to capture the degree of assimilation of the immigrants into Hong Kong society and their possible connections with the pro-establishment camp), percentage of people with graduate degree (measured as the percentage of people having a bachelor's degree among the population aged above 15 years old), percentage of households living in public rental housing, percentage of households living in subsidized home ownership housing, percentage of owner-occupiers (inclusive of households living in either subsidized home ownership

housing or private housing), median ratio of rent to household income, and median ratio of monthly mortgage to income.

One of the deeply rooted economic issues in Hong Kong is income or wealth inequality. While the housing arrangement is one indicator of inequality, the Gini coefficient is a more direct measure, which can be constructed using either 2016 Hong Kong Population By-census data or the micro census data. A related issue of deeply rooted economic issues is the limited opportunity for youths due to high housing price on one hand and limited upward mobility on the other hand. Specifically, we construct a variable for educational mobility of youth at the constituency level by regressing children's percentile rank of education on parents' percentile rank using micro census data. (We focus on changes in percentile rank of inter-generational education because absolute degrees may not be directly comparable. For example, if a father is a post-secondary graduate and his son is a degree holder, it looks like that there is educational mobility but a post-secondary degree may value much more 50 years ago than the same degree in 2016.)

We control for protest-related variables (at the constituency level), including the number of tear gas used during the anti-extradition bill protests, and the number of disqualified legislators in 2016, both of which may affect the results of the 2019 District Council election.

Finally, we have dummies for the five geographical constituencies (Hong Kong Island, Kowloon East, Kowloon West, New Territories East, and New Territories West) in Hong Kong, which absorb any voting pattern differences arising from Hong Kong Legislation Council election among these areas.

Appendix 9.2 reports definitions of all variables. Appendix 9.3 presents source of all data used.

3.2.2 Summary statistics

Table 1 reports summary statistics for election outcomes and characteristics of the candidates. The average vote share for pro-Establishment camp (PE) decreased from 0.631 in year 2011 to 0.62 in 2015, and then 0.430 in year 2019. In 2015 the average PE vote share slightly reduced by 0.010. However, in 2019, the loss is 0.197 for PE vote share compared to the PE vote share in 2015. In 2015 and 2011, the uncontested rate is 0.16 and 0.183 respectively, but there was no candidate elected uncontested in 2019. For the differences in political statements between PE and Pro-Democratic camp (PD), the level of support for democracy is 1.031 higher for PD than that of PE on average; But PE support anti-violence is 0.472 more than PD. For the livelihood and elderly issues PE mentioned slightly more than PD, but PD mentioned anti-tourists more. For comparison in candidates' individual characteristics between two parties, PE on average has more female candidates, older candidates, and more incumbent candidates.

Table 2 reports summary statistics for population census results in 2016 and protest related variables. The percentage of people aged between 15 and 39 is 33%. 30.629% of households live in public rental housing and median ratio of monthly mortgage to income is 15.874. As for protest-related variables, average number of tear gas used is 1.144 and average number of DQ legislator is 0.948 in a constituency.

Figures 1a and 1b show that the pro-establishment candidates won in most of constituencies 2007 and 2011, and that a large number of pro-establishment candidates were elected uncontested.

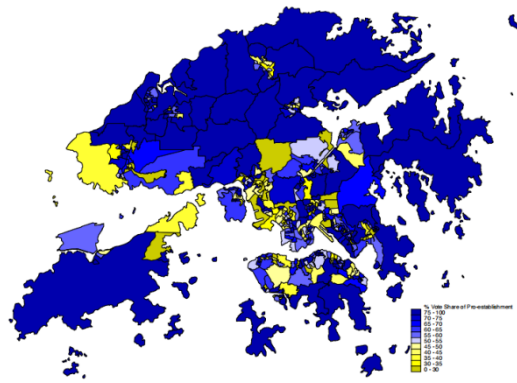
Figure 1c shows that election results in 2015 are similar to those in 2007 and 2011 with pro-establishment candidates winning in most constituencies while figure 1d presents the majority of pro-establishment candidates' vote share is less than their counterparts in pro-democracy camp in 2019.

Table 1 Summary statistics for election outcomes and characteristics of candidates

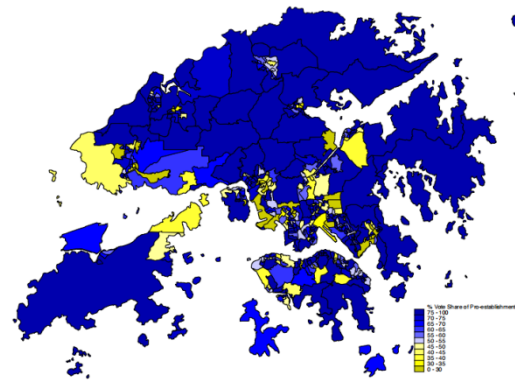
	Mean	SD	Min	10th pct.	Median	90th pct.	Max
A PE vote share (2015 minus 2011)	-0.022	0.215	-0.786	-0.318	0.000	0.231	1.000
A PE vote share (2011 minus 2007)	0.045	0.200	-0.602	-0.182	0.021	0.315	0.808
A PE vote share (2007 minus 2003)	0.039	0.242	-0.691	-0.293	0.048	0.308	1.000
A PE vote share (2003 minus 1999)	-0.027	0.297	-1.000	-0.391	-0.005	0.341	1.000
Uncontested (2015)	0.165	0.369	0.000	0.000	0.000	1.000	1.000
Uncontested (2011)	0.185	0.375	0.000	0.000	0.000	1.000	1.000
Uncontested (2007)	0.107	0.299	0.000	0.000	0.000	0.557	1.000
Uncontested (2003)	0.176	0.359	0.000	0.000	0.000	0.997	1.000
Uncontested (1999)	0.224	0.378	0.000	0.000	0.000	0.999	1.000
Strongly anti democracy	0.416	0.494	0.000	0.000	0.000	1.000	1.000
Anti- democracy	0.202	0.402	0.000	0.000	0.000	1.000	1.000
Indifference	0.382	0.486	0.000	0.000	0.000	1.000	1.000
Mention livelihood by counterpart	0.078	0.268	0.000	0.000	0.000	0.000	1.000
Indifference	0.815	0.389	0.000	0.000	1.000	1.000	1.000
Mention livelihood	0.107	0.310	0.000	0.000	0.000	1.000	1.000
Mention elderly by counterpart	0.163	0.370	0.000	0.000	0.000	1.000	1.000
Indifference	0.679	0.467	0.000	0.000	1.000	1.000	1.000
Mention elderly	0.158	0.365	0.000	0.000	0.000	1.000	1.000
Mention youth by counterpart	0.012	0.110	0.000	0.000	0.000	0.000	1.000
Indifference	0.946	0.225	0.000	1.000	1.000	1.000	1.000
Mention youth	0.041	0.199	0.000	0.000	0.000	0.000	1.000
Mention women by counterpart	0.017	0.130	0.000	0.000	0.000	0.000	1.000
Indifference	0.961	0.194	0.000	1.000	1.000	1.000	1.000
Mention women	0.022	0.147	0.000	0.000	0.000	0.000	1.000
Indifference	0.564	0.496	0.000	0.000	1.000	1.000	1.000
Anti- violence	0.401	0.491	0.000	0.000	0.000	1.000	1.000
Strongly anti violence	0.034	0.182	0.000	0.000	0.000	0.000	1.000
Anti- tourists by counterpart	0.024	0.154	0.000	0.000	0.000	0.000	1.000
Indifference	0.964	0.188	0.000	1.000	1.000	1.000	1.000
Anti- tourists	0.012	0.110	0.000	0.000	0.000	0.000	1.000
Incumbent counterpart	0.253	0.435	0.000	0.000	0.000	1.000	1.000
Indifference	0.175	0.381	0.000	0.000	0.000	1.000	1.000
Incumbent	0.572	0.495	0.000	0.000	1.000	1.000	1.000
Competitor is a legislator	0.019	0.138	0.000	0.000	0.000	0.000	1.000
Indifference	0.951	0.215	0.000	1.000	1.000	1.000	1.000
Legislator	0.029	0.169	0.000	0.000	0.000	0.000	1.000
Age	6.637	19.768	-49.000	-19.000	8.000	33.000	48.000

Table 2 Summary statistics for the census variables

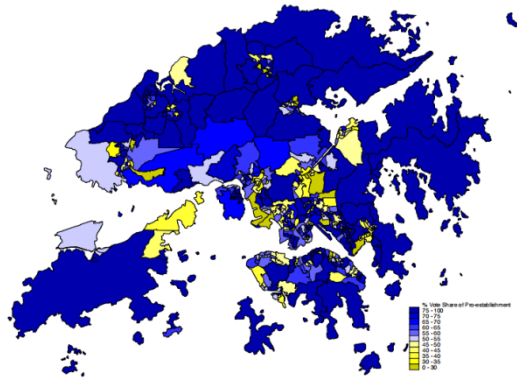
	Mean	SD	Min	10th pct.	Median	90th pct.	Max
Percentage of people aged between 15 and 44	40.995	3.526	30.966	36.498	40.948	45.397	52.101
Sex ratio	0.857	0.074	0.611	0.767	0.862	0.945	1.044
Percentage of Putonghua spoken	4.789	3.102	0.000	2.034	4.040	8.189	22.274
Percentage of immigrants	7.864	4.285	0.141	2.443	7.437	13.575	25.791
Percentage of people with graduate degree	19.436	9.910	5.187	9.023	16.566	34.654	49.970
Labor participation rate	60.762	4.993	46.700	54.200	60.600	67.170	74.000
Financing and insurance	0.062	0.037	0.012	0.027	0.051	0.116	0.252
Manufacturing	0.038	0.013	0.006	0.020	0.039	0.054	0.079
Import/ export, wholesale and retail trades	0.190	0.026	0.105	0.159	0.188	0.223	0.298
Real estate, professional and business services	0.144	0.026	0.056	0.112	0.143	0.179	0.225
Log Median household income)	10.175	0.433	9.210	9.680	10.092	10.774	11.792
Percentage of households living in public rental housing	30.882	37.313	0.000	0.000	10.706	98.916	100.000
Percentage of owner-occupiers	48.327	27.624	0.000	0.260	54.680	80.751	96.843
Median mortgage payment amount (2016 minus 2011)	9734	5764	17	4300	8300	16000	48000
Median mortgage payment amount	9734	5764	17	4300	8300	16000	48000
Median rents (2016 minus 2011)	1857	3176	-9721	90	1000	4900	37000
Median monthly household rent	7663	8356	670	1250	5302	16800	71000
Median rent to income ratio	19.610	10.340	4.700	7.800	18.137	33.200	48.800
Median rent to income ratio (2016 minus 2011)	15.939	7.087	0.000	0.000	18.000	22.000	31.300



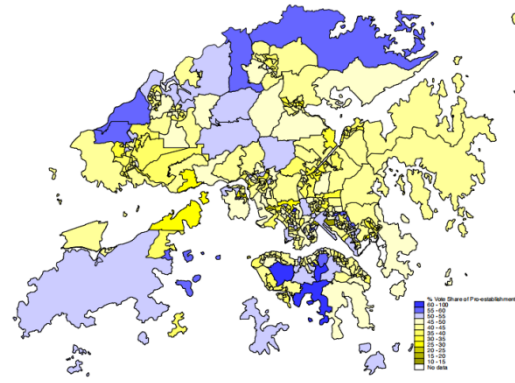
a. Pro-establishment vote share in 2007



b. Pro-establishment vote share in 2011



c. Pro-establishment vote share in 2015



d. Pro-establishment vote share in 2019

Figure 1 Pro-establishment vote share in 2007-2019

4. Regression specifications

We mainly use the Ordinary Least Squares (OLS) method to investigate the impacts of the deeply rooted economic issues and divergence of political views of candidates of the two major political camps on the outcome of the 2019 Hong Kong District Council election. The method could help us to reveal which factors impact the election results significantly and which factors impact the election results more significantly if both sets of factors (political or economic) are statistically significant. Following Blanchard et al. (2019), which investigate how the US-China trade war impacts the 2018 congressional election, we use the following regression specification:

$$\begin{aligned} \Delta VS_c^{19,15} = & \beta_0 + \beta_1 PV_c + \beta_2 CD_c + \beta_3 DEM_c^{16} + \beta_4 \Delta DEM_c^{16,11} + \\ & \beta_5 HC_c^{16} + \beta_6 \Delta HC_c^{16,11} + \delta_1 \Delta VS_c^{11,07} + \delta_2 \Delta VS_c^{07,03} + \delta_3 \Delta VS_c^{03,99} + \\ & \delta_4 U_c + \epsilon_c \end{aligned}$$

where $\Delta VS_c^{19,15}$ is the vote share received by the pro-establishment candidate in constituency c in the 2019 election minus the corresponding share in the 2015 election. PV_c contains variables on the divergence in political views taken by the pro-establishment candidate and the pro-democracy candidate in constituency c on democracy, livelihood (youth, elderly, and women), anti-violence, and anti-tourists.

CD_c captures other differences of the two candidates, including age difference, gender difference, whether one of them was an incumbent, whether the election was an uncontested one, and whether one or both candidates also served as members of Hong Kong Legislative Council. DEM_c^{16} denotes demographic variables at the constituency level extracted from the 2016 census survey, including the share of young people, and percentage

of Putonghua spoken at home, percentage of immigrants, and percentage of people with bachelor's degree.

In order to capture the pre-trends of demographic characteristics at the constituency level, we also control for demographic changes between 2016 and 2011, which is denoted by $\Delta DEM_c^{16,11}$.

To investigate the role of housing characteristics on the vote share, we control for both housing variables in level and changes, which is denoted by HC_c^{16} and $\Delta HC_c^{16,11}$ respectively. Specifically, we control for Log mortgage payment, log rent, the share of public housing, the share of housing ownership in levels and changes.

In addition, we have geographic dummies Geographic Dummy, which absorb any voting pattern differences arising from Hong Kong district level. In order to capture the pre-trends in support for pro-establishment camp, we also control for changes in vote share of the pro-establishment camp in constituency c in preceding Hong Kong district council election cycles, which is represented by $\Delta VS_c^{11,07}$, $\Delta VS_c^{07,03}$ and $\Delta VS_c^{03,99}$ respectively. Moreover, we control for whether the constituency is uncontested in 2015, 2011, 2007, 2003 and 1999 to alleviate the measurement error brought by the method to deal with the District Council District boundary changes. We assume the error term follows normal distribution.

Our focal variables are the ones related to political and personal characteristics of candidates as well as housing characteristics.

5. Empirical Analysis

Table 3 presents the main regression results when the vote share changes of pro-establishment camp between 2019 and 2015 is the dependent variable. We find that income inequality measured by log Gini coefficient has negative and significant impacts on the vote share change between 2019 and 2015. Specifically, when the Gini coefficient at the constituency level increases by 1%, the vote share gained by PE will decrease by from 2.4 to 2.9 percentage points, which means that income inequality will push people vote against the incumbent government. Consistent with the finding, we also find that the anti-incumbency sentiment is popular in Hong Kong, as the results show that the vote share change of PE between 2019 and 2015 will increase significant if the competitor is a legislator. The variable incumbent has negative although insignificant effects on the dependent variable.

We also find that demographic variables at the constituency level can affect the vote share change in 2019 and 2015. For example, the percentage of people aged between 15 and 39 has a negative and statistically significant impact on the vote share change between 2019 and 2015 after we control for occupation information in the regression. This means that young people are more likely to vote for pro-democracy candidates instead of pro-establishment candidates in 2019 HK District Council Election. There are two possible reasons. First of all, young people in Hong Kong need to seek jobs, and purchase property after graduation so they pay more attention on government's performance compared to middle-aged people and old people. In more recent years, young people are discontented with the government due to unemployment, high property price, and so on. Therefore, they are reluctant to vote for pro-establishment candidates given that pro-establishment camps have been considered as representatives of the government for

a long time, or endorsing the government to a great extent. Second, compared to middle-age and old age group, young people focus more on democracy, specifically, universal suffrage in Legislative Council Election and Chief Executive Election. And pro-establishment candidates tend not to lend their support to universal suffrage whereas pro-democracy candidates take similar positions on this issue as do young people. Therefore, young people in return prefer pro-democracy candidates.

We also find that the percentage change of immigrants between 2016 and 2011 has a positive and significant impact on vote share in change between 2019 and 2015. One possible reason is that immigrants are usually from mainland China. They have experienced significant income improvement on the mainland and placed more trust in government. Thus, they are more likely to vote for pro-establishment candidates who are considered as representatives of government. It is also possible that immigrants enjoy the benefits from greater integration between the mainland and Hong Kong, hence their support for status quo.

In addition, we find that pro-establishment candidates are more likely to win in constituencies with more managers and administrators, and more professionals, although the latter is not significant. We also find that they are more likely to win in consistencies with more people working in financing and insurance industry. These occupations and industries greatly benefit from the integration of Hong Kong and the mainland during the past 40 years, therefore it is not surprising that they vote for pro-establishment candidates.

In addition, we find that housing characteristics such as mortgage payment have mixed results on the vote share of pro-establishment. In particular,

mortgage payment in level has positive impacts but one in change has negative impacts on the dependent variable. While homeowners may benefit from asset appreciation, they definitely worry about the rising mortgage payment costs.

More interestingly, when we add the candidate-related variables and political statement into the regression step by step, the above results on the importance of the economic factors remain robust, and the variables on candidates' characteristics and political statement have insignificant impacts on the vote share in change themselves. (Table 4) It implies that the variables about the political differences and candidates' personal characteristics have little impact on the 2019 district council election.

One possible explanation lies in the factor that even members of the legislative council (like the congress in the United States) have little role to play in the legislation in Hong Kong, because it is usually the government that takes the initiative to proposing new legislation and the legislators have only the option of supporting or opposing the legislation. Individual members could propose some legislation only when they have enough support among the legislators, which mean the importance of the parties, rather than the members of the parties determines the passage of a legislation. The situation for district councils is even more so. As a result, individual characteristics do not matter at all.

While the statistical analysis seems to suggest the relative importance of the economic factors over the political factors in determining the 2019 election outcome, we acknowledge the difficulty in developing variables to fully measure the political factors for the election outcomes. Future work

will be directed at understanding the political parties in Hong Kong in general and specific candidates in particular which is the first step in fully capturing the political factors for the election outcomes.

To make sure the robustness of the estimation results, we conduct two additional analysis. First, Table 5 shows that the main results still remain robust after drop uncontested constituencies in 2015 or drop uncontested constituencies in 2015 and 2011. Second, we add an interaction term between the percentage of managers, administrators and the share of people working in the financing and insurance industry into the main specification. The results show that pro-establishment candidates will more likely to win in constituencies with both more managers and administrators as well as more people working in the financial and insurance industry.

Table 3: Main regression results for vote share in change between 2019 and 2015

	(1)		(2)		(3)	
Lagged vote share variables						
A PE vote share (2015 minus 2011)	−0.470***	(0.067)	−0.449***	(0.065)	−0.454***	(0.067)
A PE vote share (2011 minus 2007)	−0.263***	(0.054)	−0.286***	(0.052)	−0.289***	(0.052)
A PE vote share (2007 minus 2003)	−0.115*	(0.042)	−0.127**	(0.035)	−0.132**	(0.034)
A PE vote share (2003 minus 1999)	−0.087*	(0.034)	−0.088**	(0.027)	−0.091**	(0.027)
Uncontested (2015)	−0.155***	(0.025)	−0.166***	(0.028)	−0.164***	(0.028)
Uncontested (2011)	−0.099**	(0.022)	−0.086**	(0.025)	−0.085**	(0.024)
Uncontested (2007)	−0.091**	(0.020)	−0.103**	(0.030)	−0.102**	(0.030)
Uncontested (2003)	−0.024	(0.019)	−0.038**	(0.013)	−0.038*	(0.014)
Uncontested (1999)	0.004	(0.020)	0.017	(0.024)	0.017	(0.024)
Incumbency						
Incumbent counterpart	0.070	(0.040)	0.061	(0.040)	0.060	(0.040)
Incumbent	−0.007	(0.027)	−0.006	(0.025)	−0.005	(0.025)
Competitor is a legislator	0.093** *	(0.013)	0.101** *	(0.015)	0.097***	(0.017)
Legislator	0.005	(0.042)	−0.004	(0.037)	−0.002	(0.037)
Candidates' characteristics						
A Candidates' age	−0.002**	(0.001)	−0.001**	(0.000)	−0.002**	(0.000)
Housing characteristics						
A Log Mortgage payment			0.000	(0.002)	−0.002	(0.002)
A Log Mortgage payment (2016 minus 2011)	−0.016*	(0.006)	−0.013**	(0.004)	−0.012**	(0.004)
Log Rent					−0.024	(0.015)
A Log Rent (2016 minus 2011)	−0.004	(0.009)			0.010	(0.005)

% Public housing			0.002	(0.001)	0.001	(0.001)
A Public housing (2016 minus 2011)	0.000	(0.001)	-0.002**	(0.001)	-0.002**	(0.001)
% Housing ownership			0.001	(0.001)	0.001	(0.002)
A % Housing ownership (2016 minus 2011)	0.002	(0.001)	-0.001**	(0.000)	-0.001**	(0.000)
Demographic characteristics						
% Young people			-0.006	(0.004)	-0.006	(0.004)
A % Young (2016 minus 2011)	0.003	(0.003)	0.005**	(0.001)	0.005**	(0.002)
% Putonghua spoken			0.004**	(0.002)	0.005**	(0.002)
A % Putonghua spoken (2016 minus 2011)	0.003	(0.005)	0.002	(0.006)	0.001	(0.006)
% Immigrants			-0.006	(0.005)	-0.006	(0.005)
A % Immigrants (2016 minus 2011)	0.004	(0.002)	0.009*	(0.004)	0.009*	(0.004)
% Educated			0.003	(0.003)	0.004	(0.003)
A % Educated (2016 minus 2011)	-0.000	(0.003)	0.002	(0.003)	0.002	(0.003)
Turnout rate (2019)	0.255**	(0.042)	0.061	(0.102)	0.087	(0.110)
	*					
Constant	-0.314*	(0.053)	0.696	(0.698)	0.716	(0.678)
District FEs	Yes		Yes		Yes	
Characteristics of candidates	Yes		Yes		Yes	
Political statements	Yes		Yes		Yes	
Observations	411		411		411	
R2	0.660		0.705		0.707	

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Note: Control variables contain whether uncontested in 2015, 2011, 2007, 2003, 1999 and vote share change (2011-2015) Protest-related variables contain number of tear gas and DQ legislators. Candidate related variables contain the difference in gender and difference in incumbent status. Political statement variables contain the difference in whether mention democracy, livelihood and anti-violence. Robust standard errors are clustered by districts.

Table 3 Robustness results for vote share in change between 2019 and 2015:
Different sample restrictions

	Drop boundary changed (1)		Drop uncontested in 2015 (2)		Drop uncontested in 2015 and 2011	
					(3)	
Lagged vote share variables						
A PE vote share (2015 minus 2011)	-0.462***	(0.088)	-0.441***	(0.059)	-0.368**	(0.109)
A PE vote share (2011 minus 2007)	-0.268**	(0.083)	-0.266** *	(0.040)	-0.249***	(0.044)
A PE vote share (2007 minus 2003)	-0.134**	(0.047)	-0.128	(0.065)	-0.109	(0.076)
A PE vote share (2003 minus 1999)	-0.118** *	(0.023)	-0.076*	(0.033)	-0.067	(0.045)
Uncontested (2015)	-0.165**	(0.055)	0.000	(.)	0.000	(.)
Uncontested (2011)	-0.071**	(0.020)	-0.120***	(0.013)	0.000	()
Uncontested (2007)	-0.106**	(0.034)	-0.099*	(0.043)	-0.121	(0.059)
Uncontested (2003)	-0.036	(0.019)	-0.055	(0.029)	-0.037	(0.039)
Uncontested (1999)	0.013	(0.018)	0.018	(0.012)	0.028***	(0.006)
Incumbency						
Incumbent counterpart	0.068	(0.050)	0.040	(0.033)	0.029	(0.033)
Incumbent	-0.005	(0.054)	-0.005	(0.021)	-0.038	(0.026)
Competitor is a legislator	0.113	(0.059)	0.090** *	(0.016)	0.074*	(0.027)
Legislator	-0.004	(0.041)	0.036	(0.062)	0.043	(0.073)
Candidates' characteristics						
A Candidates' age	-0.002*	(0.001)	-0.002**	(0.000)	-0.002**	(0.001)
Housing characteristics						
A Log Mortgage payment	0.003	(0.002)	-0.008**	(0.002)	-0.006***	(0.000)
A Log Mortgage payment (2016 minus 2011)	-0.013	(0.006)	-0.010	(0.009)	-0.014	(0.009)
Log Rent	0.003	(0.024)	-0.018	(0.011)	-0.011	(0.014)
A Log Rent (2016 minus 2011)	0.010	(0.007)	0.006**	(0.002)	0.009	(0.005)
% Public housing	0.001	(0.002)	0.002	(0.002)	0.003	(0.002)
A Public housing (2016 minus 2011)	-0.002	(0.001)	-0.003	(0.002)	-0.004*	(0.002)
% Housing ownership	0.001	(0.002)	0.002	(0.002)	0.002	(0.002)
A % Housing ownership (2016 minus 2011)	-0.000	(0.001)	-0.002	(0.001)	-0.003**	(0.001)

Demographic characteristics						
% Young people	-0.006	(0.004)	-0.005	(0.004)	-0.005	(0.005)
A % Young (2016 minus 2011)	0.009**	(0.002)	0.004	(0.003)	0.000	(0.004)
% Putonghua spoken	0.003	(0.002)	0.006	(0.003)	0.004	(0.004)
A % Putonghua spoken (2016 minus 2011)	0.001	(0.004)	0.003	(0.006)	0.004	(0.008)
% Immigrants	-0.007	(0.004)	-0.002	(0.004)	0.001	(0.007)
A % Immigrants (2016 minus 2011)	0.008*	(0.004)	0.007	(0.004)	0.005	(0.005)
% Educated	0.003	(0.007)	0.003	(0.001)	0.004	(0.004)
A % Educated (2016 minus 2011)	0.001	(0.002)	0.002	(0.004)	0.004	(0.005)
Constant	0.758	(1.202)	0.925	(0.704)	0.794	(0.704)
District FEs	Yes		Yes		Yes	
Characteristics of candidates	Yes		Yes		Yes	
Political statements	Yes		Yes		Yes	
Observations	276		334		264	
R2	0.714		0.630		0.564	

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

* *Note*: Control variables contain whether uncontested in 2015, 2011, 2007, 2003, 1999 and vote share change (2011-2015) Protest-related variables contain number of tear gas and DQ legislators. Candidate related variables contain the difference in gender and difference in incumbent status. Political statement variables contain the difference in whether mention democracy, livelihood and anti-violence. Robust standard errors are clustered by districts.

Table 4 Robustness results for vote share in change between 2019 and 2015: Different sample restrictions

	Interact with rich		Interact with poor	
	(1)		(2)	
Lagged vote share variables				
A PE vote share (2015 minus 2011)	-0.454***	(0.060)	-0.448***	(0.061)
A PE vote share (2011 minus 2007)	-0.288***	(0.051)	-0.287***	(0.056)
A PE vote share (2007 minus 2003)	-0.135***	(0.029)	-0.127**	(0.031)
A PE vote share (2003 minus 1999)	-0.088**	(0.024)	-0.087**	(0.024)
Uncontested (2015)	-0.167***	(0.026)	-0.167***	(0.026)
Uncontested (2011)	-0.083**	(0.023)	-0.087**	(0.024)
Uncontested (2007)	-0.102**	(0.030)	-0.101**	(0.031)
Uncontested (2003)	-0.041*	(0.015)	-0.038*	(0.014)
Uncontested (1999)	0.018	(0.023)	0.014	(0.021)
Incumbency				
Incumbent counterpart	0.054	(0.037)	0.065	(0.036)
Incumbent	-0.005	(0.027)	-0.003	(0.025)
Competitor is a legislator	0.094***	(0.020)	0.082**	(0.025)
Legislator	0.001	(0.040)	-0.001	(0.036)
Candidates' characteristics				
A Candidates' age	-0.002**	(0.000)	-0.002**	(0.000)
Housing characteristics				
A Log Mortgage payment	-0.005	(0.003)	0.064**	(0.017)
A Log Mortgage payment (2016 minus 2011)	-0.012*	(0.005)	-0.143**	(0.049)
Log Rent	-0.010	(0.016)	-0.080**	(0.028)
A Log Rent (2016 minus 2011)	0.044	(0.065)	0.105**	(0.038)
% Public housing	0.001	(0.001)	0.002	(0.001)
A Public housing (2016 minus 2011)	-0.002***	(0.000)	-0.002**	(0.001)
% Housing ownership	0.001	(0.002)	0.001	(0.001)
A % Housing ownership (2016 minus 2011)	-0.001*	(0.000)	-0.002**	(0.000)
Log Mortgage payment × Rich	0.012**	(0.003)		
A Log Mortgage payment × Rich	-0.003	(0.004)		
Log rent × Rich	-0.013**	(0.005)		
A Log rent × Rich	-0.034	(0.064)		
Log Mortgage payment × Poor			-0.066**	(0.018)

A Log Mortgage payment × Poor			0.131*	(0.050)
Log rent × Poor			0.071**	(0.021)
A Log rent × Poor			−0.102*	(0.039)
Demographic characteristics				
% Young people	−0.004	(0.004)	−0.007	(0.004)
A % Young (2016 minus 2011)	0.003	(0.002)	0.007**	(0.002)
% Putonghua spoken	0.004**	(0.001)	0.004*	(0.002)
A % Putonghua spoken (2016 minus 2011)	0.001	(0.006)	0.001	(0.006)
% Immigrants	−0.007	(0.005)	−0.005	(0.005)
A % Immigrants (2016 minus 2011)	0.010*	(0.004)	0.008	(0.004)
% Educated	0.004	(0.003)	0.004	(0.004)
A % Educated (2016 minus 2011)	0.001	(0.003)	0.001	(0.003)
Constant	0.471	(0.682)	0.511	(0.590)
District FEs	Yes		Yes	
Characteristics of candidates	Yes		Yes	
Political statements	Yes		Yes	
Observations	411		411	
R2	0.712		0.714	

$p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Note: Control variables contain whether uncontested in 2015, 2011, 2007, 2003, 1999 and vote share change (2011-2015) Protest-related variables contain number of tear gas and DQ legislators. Candidate related variables contain the difference in gender and difference in incumbent status. Political statement variables contain the difference in whether mention democracy, livelihood and anti-violence. Robust standard errors are clustered by districts.

Table 5 Robustness results for vote share in change between 2019 and 2015: Add interaction terms

	(1)		(2)	
Incumbency				
Incumbent counterpart	0.053	(0.033)	0.052	(0.031)
Incumbent	-0.009	(0.025)	-0.009	(0.024)
Competitor is a legislator	0.094***	(0.008)	0.093***	(0.006)
Legislator	0.009	(0.039)	0.015	(0.042)
Candidates' characteristics				
Δ Candidates' age	-0.001**	(0.000)	-0.002**	(0.000)
Housing characteristics				
Log Mortgage payment			0.004	(0.002)
Δ Log Mortgage payment (2016 minus 2011)			-0.014**	(0.005)
Log Rent			-0.022	(0.014)
Δ Log Rent (2016 minus 2011)			0.010	(0.007)
% Public housing	0.002	(0.002)	0.002	(0.002)
Δ Public housing (2016 minus 2011)	-0.002	(0.002)	-0.003*	(0.001)
Log Gini coefficient	-0.187**	(0.050)	-0.207**	(0.064)
% Subsidized housing	0.002	(0.002)	0.001	(0.002)
% Private housing	0.001	(0.002)	0.001	(0.002)
Δ % Subsidized housing	-0.002	(0.002)	-0.002	(0.002)
Δ % Private housing	-0.001	(0.002)	-0.001	(0.002)
% Financing and insurance industry	0.703	(0.869)	0.702	(0.844)
% Import/export, wholesale and retail trades industry	-0.804*	(0.361)	-0.907	(0.964)
Δ % Financing and insurance industry	-0.357	(0.547)	-0.416	(0.465)
Δ % Import/export, wholesale and retail trades industry	0.420***	(0.089)	0.408*	(0.156)
% Managers and administrators	-0.295	(0.373)	-0.449	(0.521)
% Professionals	0.214	(0.138)	-0.401	(1.586)
% Service and sales workers	0.728	(0.363)	0.647	(0.304)
% Plant and machine operators and assemblers	-0.541	(0.294)	-0.589	(0.315)
Δ % Managers and administrators	0.254**	(0.089)	0.366*	(0.135)
Δ % Professionals	0.411	(0.355)	0.724	(0.622)
Δ % Service and sales workers	0.344*	(0.160)	0.464*	(0.172)
Δ % Plant and machine operators and assemblers	0.887	(0.479)	0.736	(0.458)
% Managers × % Financing	0.492	(2.976)	0.955	(2.983)
	11.522**	(3.542)	10.801*	(4.529)
			2.126	(7.874)
Δ % Import/export × % Professionals	0.656	(0.864)	3.748	(14.799)
			0.534	(0.835)
District FEs	Yes		Yes	
Characteristics of candidates	Yes		Yes	
Political statements	Yes		Yes	
Observations	411		411	
R ²	0.711		0.719	

p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Note: Control variables contain whether uncontested in 2015, 2011, 2007, 2003, 1999 and vote share change (2011-2015) Protest-related variables contain number of tear gas and DQ legislators. Candidate related variables contain the difference in gender and difference in incumbent status. Political statement variables contain the difference in whether mention democracy, livelihood and anti-violence. Robust standard errors are clustered by districts.

6. Policy implications and recommendations

What happened between June 2019 and November 2019 posed the biggest crisis of governance in Hong Kong's post-handover period. While the trigger of the crisis was the extradition bill, it highlighted the roles of deeply rooted economic issues in Hong Kong, such as severe income inequality and the lack of social mobility of youths. It also exposed the divergent views of the society in general and the two major political camps (the pro-establishment camp and the pro-democracy camp) in particular on political issues ranging from democracy, violence, and national identity. In moving forward, the government of HKSAR and the society in general have an urgent need for understanding the roles played by the economic as well as political factors in determining the outcome of the 2019 District Council election. The research conducts a rigorous quantitative analysis about the determinants for the outcome of the 2019 District Council election. Its research results sheds light on the policies needed for ensuring the long-term prosperity and stability of Hong Kong.

Major findings of the research are as follows. First, the economic issues such as income inequality and lack of social mobility are found to have important explanatory power for the decreasing share of votes received by the pro-establishment camp (a proxy for the HKSAR government). Specifically, the Gini coefficient has negative and significant impacts on the votes gained by pro-establishment candidates. When the Gini coefficient increases by 1%, the vote share of pro-establishment campy will decrease by 2.4 to 2.9 percentage points during the period 2015-2019. Moreover, young people are prone to vote against the pro-establishment camp, as they face rising living costs and fierce competition with peers mostly from mainland. That's why the HKSAR should encourage HK youth go out to seeking

more development opportunities. Therefore, it calls for policies to alleviate income inequality through redistributive measures (such as more provision of public housing), and for policies to help Hong Kong youths to have the necessary educational background to move up economically.

Second, both pro-establishment and pro-democracy camps' candidates' characteristics and political statement have insignificant impacts on the vote share in change. It implies that candidates' personal characteristics and their political statement are not the determinant factors on the District Council election, though we have to acknowledge that it is difficult to fully capture the political factors quantitatively

7. Public dissemination

Due to the Covid 19 pandemic we could not conduct the public dissemination as planned. Instead the principal investigator has published a few articles in a local newspaper Hong Kong Economic Journal (信報), talking about the main problems faced by HK youth (Figure 2). Moreover, with the awareness of the importance of the deeply-rooted economic problems faced by Hong Kong youth, the principal investigator has conducted a few studies supported by the HK Guangdong association on the willingness of HK youths to participate in the Greater Bay Initiatives. The principal investigator was also involved in the design stage of a HSBC initiative in promoting HK youth to participate in the Greater Bay Initiative. Finally, in a major piece of public policy research supported by the former PICO, the main investigator together with Professor Anthony Yeh and Professor George LIN studied how HK can position itself in the Greater Bay Initiative, in which HK youth can have some important roles to play.

2021年2月10日

陶志剛 龍虎山下

雙循環下香港青年事業發展新機遇



[放大圖片](#) / [顯示原圖](#)

過去兩年來，香港經歷了內外環境巨變。社會運動影響下，本港經濟持續低迷，加上中美貿易談判曲折、新冠肺炎疫情衝擊、世界經濟下行，無疑令本地困局雪上加霜。失業人數不斷攀升，青年失業率更遠高於其他年齡組別。若要走出逆境，年輕一代需要多元發展，而粵港澳大灣區建設正好為他們開闢一條發展的新跑道。《香

Figure 2 The screenshot of the article published in HK Economic Journal.

In addition, the principal investigator has communicated the main points of this study to fellow academics in HK, with the hope that it will help shape the future HKSAR policies on youths.

8. Conclusion

The 2019 District Council Election is a political event of historic proportion. The results represent the biggest swing in voting in the electoral history of Hong Kong and has led to major shifts in the political configuration of the city. It warrants in-depth analysis and rigorous study on its causes and implications. Using constituency level data from 1999 to 2019, this project analyzes the fundamental factors in deciding the outcome of the 2019 District Council Election. The results show that economic issues such as income inequality and lack of social mobility are important in explaining the decreasing vote shares received by the pro-establishment camp while taking into account the role played by political factors. The HKSAR government should pay more attention to alleviating income inequality and

helping Hong Kong youths move up. It is encouraging that the HKSAR government has moved in this direction.

9. Appendix

9.1 Appendix: Linking District Council Districts Boundary Changes to Population Census Data

Every four years, the Electoral Affairs Commission (EAC) in Hong Kong delineates boundaries of the District Council Constituency Area (DCCA) as population changes across constituency areas. In the 2019 District Council election, the population quota of DCCA is 16,599, which is derived from the projected population of Hong Kong, 7,502,600, divided by the total number of 452 seats. The EAC regulates that the existing DCCAs' boundaries have to be changed if the population exceeds or falls short of the population quota by more than 25% (i.e. less than 12, 449 or more than 20, 749 for the 2019 District Council election), except that situation was allowed for the last District Council election and the valid justifications to allow such situation remain. In 2019, the EAC changed boundaries in 128 constituencies and created 21 new constituencies.

Most of the constituency-level variables mentioned above are measured using the 2016 by-census survey data, which was based on the boundaries of the District Council Constituency Area (DCCA) in 2015, while our focus of analysis is on the outcome of the District Council election in 2019 (namely, the regression analysis is to be conducted at the DCCA of 2019). Hence, we must adjust census variables in 2016 and voting variables in 2015 to make their geographical coverage consistent with the variables obtained in 2019. DCCA boundary changes might impact on subsequent election outcomes due to the gerrymandering issue highlighted by many political scientists. Indeed Wong (2019) finds that the boundary redrawing in

the Hong Kong DCCA does undermine the interests of opposition parties and its votes shares, albeit it does not have significant impact on election success. To the extent that the 2019 District Council election was impacted by the redrawing of the DCCA to the advantage of the pro-establishment camp, our estimates of the relative importance of the political and economic factors are on the lower side given the landslide victory of the pro-democracy camp.

Specifically, we first calculate area evolution of DCCAs between 2015 and 2019 using Arcgis: (i) get access to the official Shapefile (SHP) for DCCAs in 2019, 2015, and 2011 from the website Accessinfo.hk; (ii) use the Arcgis Pro Software to remove the ocean part from the original DCCA boundaries map; and (iii) calculate the evolution of the constituency areas every four years and construct a matrix of constituency area evolution where the columns are constituency areas in 2019 (or 2015) and the rows are constituency areas in 2015 (or 2011). As an example, as Figure 3 shows, Tung Wah expanded its area in 2019 by incorporating 3% of area of Mid Levels East, while the latter's area shrunk from 2015 to 2019. Hence the vote share received by the pro-establishment in Tung Wah in 2015 (but measured at the DCCA of 2019) should be 3% of vote share of Mid Levels East in 2015 plus 97% of vote share of Tung Wah in 2015, while the vote share of Mid Levels East in 2015 (but measured at the DCCA of 2019) remained unchanged compared to that in 2015 (measured at the 2015 DCCA level), because 100% of its area in 2019 was from itself in 2015. Adjustment from 2011 DCCA level to 2015 DCCA level can be made in a similar way.

An illustrative map of boundary in change



Figure 3 Boundary change in Hong Kong: an example in Central and Western District

9.2 Appendix: Variable construction

Table 6 Variables Definition

Election related variables	
PE vote share	Vote received by Pro-Establishment Camp / Total votes
Turnout rate	Voter turnout

Uncontested	When only one candidate in certain constituency
Characteristics of political statement	
Democracy	2:Strongly support, 1:Support, 0:Not mention
Livelihood	1:Mention, 0:Not mention
Anti- violence	- 1:Anti police violence, 0:Not mention, 1:Anti all violence
Anti tourists	0:Not mention, 1:Anti tourists
Variables based on the 2016 census	
Young-age dependency ratio	No. of people (15 <= age <= 39) / Working-age population (age 15-64)
Households living in public rental housing(%)	No. of households living in public rental housing / Total households
Households living in subsidised home ownership housing(%)	No. of households living in subsidised home ownership housing / Total households
Immigrants(%)	No. of internally migrated / Total
Gini coefficient	rpme number min max, by(place code) (Stata Package)
Median household income	Median Monthly Domestic Household Income(HK\$)
Owner-occupiers(%)	No. of owner-occupier households / Total domestic households
Owner-occupiers with mortgage or loan(%)	No. of owner-occupier households with mortgage or loan/ Total
Owner-occupiers without mortgage or loan(%)	No. of owner-occupier households without mortgage or loan/ Total

9.3 Appendix: Data Source

1. Hong Kong Population Census by DCC and Constituency Areas (year 2016) By developing web crawling algorithms, we obtained the HK population statistics by 18 District Council Districts and the Constituency Areas in 2016 from websites

<https://www.census2011.gov.hk/en/constituencyhtml> and <https://www.by-census2016.gov.hk/en/bc-dp.html>

2. Candidates' information and introduction from Hong Kong District Council Election (year 2011,

2015 and 2019) Using web crawling algorithms, we obtained the candidates' information (e.g. name, age, occupation, political affiliation and election

platform) at the level of constituency in 2011, 2015 and 2019 from the following websites respectively.

<https://www.elections.gov.hk/dc2011/eng/introtocan.htm> ,
<https://www.elections.gov.hk/dc2015/eng/introtocan.html>, and
<https://www.elections.gov.hk/dc2019/eng/introtocan.html>

1. District Council Constituency Boundaries Map(shapefiles) in year 2011,2015 and 2019 from the website Accessinfo.hk.

10. References

Baldwin, R. E. and C. S. Magee (2000). Is trade policy for sale? Congressional voting on recent trade bills. *Public Choice* 105(1-2), 79– 101.

Blanchard, E. J., C. P. Bown, and D. Chor (2019). Did trump’s trade war impact the 2018 election? Technical report, National Bureau of Economic Research.

Che Y, Lu Y, Pierce J R, et al. Did trade liberalization with China influence US elections? [J]. *Journal of International Economics*, 2022, 139: 103652.

Feigenbaum, J. J. and A. B. Hall (2015). How legislators respond to localized economic shocks: Evidence from Chinese import competition. *The Journal of Politics* 77(4), 1012–1030.

Hall, A. B. and J. Yoder (2018). Does homeownership influence political behavior? evidence from administrative data. Department of Political Science, Stanford University.

Holian, M. J. (2011). Homeownership, dissatisfaction and voting. *Journal of Housing Economics* 20(4), 267–275.

- Kriner, D. L. and A. Reeves (2012). The influence of federal spending on presidential elections. *American Political Science Review* 106(2), 348–366.
- Ma, N. (2015). The rise of “anti-China” sentiments in Hong Kong and the 2012 legislative council elections. *The China Review*, 39–66.
- So, A. Y. (2017). A new wave of anti-mainland protests since 2012: Characteristics, socio-political origins, and political implications. *Asian Education and Development Studies* 6(4), 333.
- Wong, S. H.-W. (2019). Gerrymandering in electoral autocracies: Evidence from Hong Kong. *British Journal of Political Science* 49(2), 579–610.
- Wong, S. H.-W., N. Ma, and W.-m. Lam (2018). Immigrants as voters in electoral autocracies: The case of mainland Chinese immigrants in Hong Kong. *Journal of East Asian Studies* 18(1), 67–95.
- Wong, S. H.-W. and K. M. Wan (2018). The housing boom and the rise of localism in Hong Kong: Evidence from the legislative council election in 2016. *China Perspectives* 2018(2018/3), 31–40