

# Income and Wealth Inequality in Hong Kong, 1981–2020: The Rise of Pluto-Communism?

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## Abstract

The objective of this paper is to better understand the evolution and institutional roots of Hong Kong's growing economic inequality and political cleavages. By combining multiple sources of data (household surveys, fiscal data, wealth rankings, national accounts) and methodological innovations, two main findings are obtained. First, the evidence suggests a very large rise in income and wealth inequality in Hong Kong over the last four decades. Second, based on the latest opinion poll data, business elites, who carry disproportionate weight in Hong Kong's Legislative Council, are found to be more likely to vote for the pro-establishment camp (presumably to ensure that policies are passed that protect their political and economic interests). This paper argues that the unique alliance of government and business elites in a partially democratic political system is the plausible institutional root of Hong Kong's rising inequality and political cleavages.

**JEL classification:** D3, D72, E25, P36

**Keywords:** Hong Kong, wage distribution, capital share, wealth inequality, political cleavage

## 1. Introduction

The 2019–2020 Hong Kong protests have garnered significant international attention. Starting in June 2019, demonstrations against a proposed extradition law escalated into a much broader anti-government and anti-Beijing movement that resulted in violent clashes and upset the economic and social order of the city. Protests and demonstrations have indeed been increasing in Hong Kong over the past twenty years, as seen in the July 1 Protests of 2003 and the Umbrella Revolution of 2014. It is generally believed that the political conflicts over democratic rights that triggered the recent wave of protests have their roots in a set of economic and social conditions that lead to social unrest. One of the most important, but often overlooked, of these conditions is the city's extreme economic inequality (Ng 2013; Nagy 2015; So 2017; Dieter 2019). This paper aims to better understand the evolution of Hong Kong's economic inequality and the roots of the widespread social unrest.

By combining multiple data sources (household surveys, fiscal data, wealth rankings, national accounts, opinion polls) and innovative methodologies, this study documents a very large rise in wage inequality,

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in the labor share, and the concentration of wealth at the top over the last four decades. It then seeks to provide economic and institutional explanations for the growing inequality and political cleavages.

The results raise interesting questions about the nature of the political regime that is currently in power in Hong Kong and Beijing. The case of Hong Kong is an intriguing and probably unique historical example of an economy becoming more unequal in terms of income and wealth after becoming officially “communist,” or at least after joining a communist regime, following the 1997 handover of Hong Kong to the People’s Republic of China. In investigating this paradox, the authors coin the term “pluto-communism” to describe a form of communism dominated by the power of money. It is also worth pointing out the lack of transparency about income and wealth inequality in Hong Kong (as well as in the PRC in general). In particular, Hong Kong’s inheritance tax was abolished in 2006, meaning that there are no data at all on inheritances in Hong Kong since then. The study attempts to compensate for this by combining the available data sources, but it is clear that one would need access to more detailed sources (especially on wealth and capital incomes) to gain a more precise understanding of the forces at play.

This paper contributes to the existing literature in several ways. First, it provides the first corrected series of Hong Kong wage distributions based on salary tax data and census data.<sup>1</sup> Compared with census-based inequality estimates, the paper’s results provide a sharp upward revision and point to a much larger rise in wage inequality, especially in the period after the handover of Hong Kong. This conclusion is confirmed by various robustness checks.

Second, the study’s analysis based on the recentered influence function (RIF) of the Gini index (Firpo et al. 2009, 2018) suggests that there are two major driving forces in the rise of wage inequality before the handover: the expansion of higher education and the transformation of industrial structures from manufacturing to the financial and service sector. After the handover, the rise of wage inequality was mainly driven by the change in wage premiums in the finance and service sectors. This paper’s findings complement existing studies that point to a rise in producer services and outward processing trade as a major cause of the rise in wage inequality (Chiu and Lui 2004; Ho, Wei, and Chung 2005).

Third, the paper contributes to the literature on functional income distribution. In recent years, the research on inequality has been integrated with a focus on capital’s share in income. According to Piketty (2013) and Piketty and Zucman (2014), capital shares increased in all rich countries from about 15–25 percent in the 1970s to 25–35 percent in 2010.<sup>2</sup> Given that capital ownership is highly concentrated at the top, the rise in capital income will tend to increase both income and wealth inequality in the long run (Piketty 2014; Bengtsson and Waldenström 2018). However, since data on wealth or capital income of Hong Kong are extremely limited at both the aggregate and household level, largely due to the absence of a comprehensive progressive tax on capital income and wealth in Hong Kong, the evolution of Hong Kong’s capital share has not yet been documented in the literature. To bridge this gap, this study constructs a new capital share series for Hong Kong using corporate profit tax data and national accounts. The results suggest that Hong Kong’s capital share has grown substantially after the recovery from the Asian financial crisis. Today, Hong Kong’s capital share remains at such a high level that it is no longer comparable to major high-income economies.

As is the case with capital share data, there is also a lack of wealth survey and fiscal data, leading to a dearth of literature on the evolution of Hong Kong’s wealth concentration. This study seeks to fill this gap by constructing the first set of internationally comparable measurements of the concentration of top wealth in Hong Kong based on *Forbes* lists of the rich. Hong Kong’s wealth concentration increased substantially over the last three decades and currently appears to be one of the highest in the world. This study’s findings are consistent with simulations based on the wealth accumulation model<sup>3</sup> for the period

1 For other studies that have attempted to correct survey data using fiscal data, see Jenkins (2017); Burkhauser et al. (2016, 2018); Blanchet, Flores, and Morgan (2018); Piketty, Yang, and Zucman (2019), and Branko (2022).

2 See also Ellis and Smith (2007); Azmat, Manning, and Van Reenen (2012); and Karabarbounis and Neiman (2014).

3 For further discussion on the wealth accumulation model, see Piketty and Zucman (2014), Saez and Zucman (2016), and Kuhn, Schularick, and Steins (2020).

1996 to 2016, which show a rise in wealth inequality since 1996 due to the different roles of price and saving effects in the evolution of wealth shares among the rich and poor.

Finally, the institutional roots of the rising inequality and political cleavages in Hong Kong have been widely discussed in the literature (see [Li 1995, 2000](#); [Siu-Kai and Hsin-chi 2000](#); [Loh 2006](#); [Wong 2017](#); [Scartozzi 2017](#).) However, there are few empirical studies systemically investigating the relationships between income inequality and political cleavages in Hong Kong.<sup>4</sup> The present paper contributes to this discussion by providing important empirical evidence on the political inclinations of business elites. It finds that business elites (the upper class) are more likely to vote for pro-establishment parties as a means of ensuring that policies are enacted that will protect their political and economic interests. Additionally, political cleavages in Hong Kong have widened since the 2019 Hong Kong protests. The paper argues that in Hong Kong's partial democratic political structure, business elites carry disproportionate weight in the Legislative Council. Thus, by voting for the pro-establishment camp, these elites are able to block policies that would limit their political influence or harm their economic interests. Such alliances between government and business elites have contributed to the rise in inequality in Hong Kong over recent decades.

The rest of this paper is organized as follows. [Section 2](#) introduces the background of Hong Kong's political cleavages. [Section 3](#) describes the study's main data sources and methods. [Section 4](#) presents the results on the evolution of wage inequality and discusses the drivers of inequality trends. [Sections 5 and 6](#) discuss the study's methods for estimating capital shares and wealth inequality and presents the results, comparing Hong Kong to other countries. [Section 7](#) further investigates the relationships between income inequality and political cleavages in Hong Kong. [Section 8](#) provides concluding remarks. This paper is supplemented by an extensive supplementary online appendix available at *The World Bank Economic Review* website. The datasets and do files generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

## 2. Political Background

Starting in the late 1980s, the British government began introducing measures of democratization in Hong Kong in anticipation of its exit in 1997. This opened up a portion of political power for renegotiation ([Siu-Kai and Hsin-chi 2000](#)). Since that time, Hong Kong's politics have been characterized by a struggle to increase the representation of the general population in political institutions.<sup>5</sup> The 2019 Hong Kong protests are, to a large extent, the continuation of this struggle. Under Hong Kong's current political structure, only the seats representing geographical constituencies in the Legislative Council are elected by popular vote, while the seats representing functional constituencies are elected through smaller closed elections in business and professional sectors. Furthermore, the seats of the functional constituencies make up almost half of all seats in the Legislative Council.<sup>6</sup> As for the election of the chief executive, only the members of the Election Committee, most of whom are voters in the functional constituencies, are entitled to vote.

This partial democratic political structure not only introduces disparities in representation between constituencies (e.g., large corporations and business elites have privileged access to many constituencies

4 Among the few existing studies, [Wong \(2000a, 2000b\)](#) studies the shift in Hong Kong political parties' positions on redistribution and the relationship between individual sociological and psychological factors and attitudes toward redistribution. Using data from the Collective Survey of Election Studies (CSES), [Durrer and Gethin \(2021\)](#) provide a descriptive analysis of political cleavages in Hong Kong for the period from 1998 to 2016.

5 For detailed discussion on the formation and evolution of the political system in Hong Kong, see [Li \(1995\)](#), [Siu-Kai and Hsin-chi \(2000\)](#), [So \(2002\)](#), and [Wong \(2017\)](#).

6 From 2004 to 2020, the Legislative Council was made up of two groups of constituencies, the geographical constituencies and the functional constituencies. In the 2021 Hong Kong Legislative Council election, the Election Committee constituency, which had been abolished in 2004, was re-introduced as a third group of constituencies. S6 in the supplementary online appendix, Sheet AT1 presents the distribution of seats in Hong Kong Legislative Council since 1991.

that make up a small overall percentage of the electorate) but also creates political cleavages in the voting public that would not exist otherwise. Under the status quo, the disproportionate weight of business elites in the Legislative Council enables them to block policies that would either reduce their political influence or harm their economic interests through, for example, redistributive reforms. In the context of this unique alliance between the government and business elites in Hong Kong, the last four decades have witnessed a sharp rise in inequality.

The government of Beijing has undoubtedly played a decisive role in fostering the close relationship between Hong Kong's government and its business elites. The alliance between the PRC government and Hong Kong's business elites has been studied extensively (Goodstadt 2000; Fong 2014a, 2014b). After the transition, Beijing continued to franchise Hong Kong's government to the city's business elites, and Deng Xiaoping's concept of "Gang ren zhi Gang" or "Hong Kong people governing Hong Kong" was interpreted to mean governance by the bourgeoisie rather than by the proletariat.<sup>7</sup> Beijing's long-term strategy is "political absorption of economics," which positions the government of Hong Kong as an "absorber" that would have minimized political conflicts "through the granting of special positions to the business elite"<sup>8</sup> This strategy has shaped a political system that leads to the extreme level of inequality and widening political cleavages in Hong Kong that lead to "pluto-communism."

Given this unequal distribution of electoral power since the first direct elections of the Legislative Council in 1991, attitudes toward the Chinese government and the democratization process have been a source of major political cleavages between parties. The pro-democracy camp generally advocates for a faster pace of democratization, including universal suffrage in the election of the Chief Executive and the abolition of functional constituencies. The pro-establishment camp places less emphasis on progress in democratization and more emphasis on the need for stability and harmony.<sup>9</sup> The centrists do not take sides between the other two camps.

Over the recent decades, the unique alliance between the government and business elites has been contributing to the escalation of the inequalities in Hong Kong that, in turn, has deepened the existing political cleavages. The 2019 Hong Kong protests are one extreme outcome of the widening chasm between social groups. Probably with the same understanding, Beijing formulated an amendment in 2021 to Hong Kong's electoral rules to be able to influence the legislative council more directly,<sup>10</sup> and meanwhile began discussing measures to mitigate the rising inequality with Hong Kong's government.<sup>11</sup> Whether this will eventually reduce the level of inequality and calm public anger toward the rise of "pluto-communism" is very uncertain at this stage.

### 3. Data Sources

To estimate the evolution of wage inequality, the study relies on two data sources. First, it uses random micro-subsamples of eight waves of census data from the Census and Statistics Department of Hong Kong

7 Chu (2010), 69.

8 Chu (2010), 47.

9 Cleavages have also developed in attitudes toward protection of the rule of law, the degree of Hong Kong's autonomy, and integration between Hong Kong and the mainland.

10 Under the amendment, the total number of seats was increased from 70 to 90, with the directly elected geographical constituencies (GCs) being reduced from 35 to 20 seats, the functional constituencies (FCs) staying at 30, and the additional 40 seats being elected by the 1,500-member Election Committee.

11 Senior officials from mainland China and Hong Kong SAR have recently begun discussing ways to broaden the city's tax structure and increase land supply in an effort to mitigate Hong Kong's inequality and high living costs (Zhai and Wong 2021). <https://www.wsj.com/articles/china-targets-hong-kong-wealth-gap-housing-woes-after-political-purge-11615813651>.

covering the period from 1981 to 2016;<sup>12</sup> Second, it uses tabulated fiscal income data from Hong Kong Salaries Tax Assessments, published in the Hong Kong Inland Revenue Department Annual Reports from 1981 to 2018.<sup>13</sup>

The study's new Hong Kong capital share series are estimated based on corporate profit tax data and national accounts. Hong Kong's corporate profit tax is levied on profits from both corporations and unincorporated businesses<sup>14</sup> in Hong Kong. Data on corporate profit tax revenues are from annual reports of the Hong Kong Inland Revenue Department for the period 1989 to 2019. National accounts, including balance of payments data, are reported annually by the Census and Statistics Department of Hong Kong.

This paper estimates the evolution of the top wealth concentration in Hong Kong using "rich lists" published by *Forbes* magazine from 1988 to 2019. Before 2007, *Forbes* did not publish a separate rich list for Hong Kong. For the years prior to 2008, the study therefore uses data from the world billionaires list. From 2008 to 2012, the data are taken from "Hong Kong's 40 Richest" list, the late data after 2012 are from "Hong Kong's 50 Richest." Additionally, the study estimates the aggregate value of privately owned housing in Hong Kong based on the housing statistics published by the Hong Kong Rating and Valuation Department.

Finally, to investigate the determinants of the political inclinations of business elites, this paper relies on data from the opinion survey on ethnic identities conducted biannually by the Hong Kong Public Opinion Research Institute (PORI) from 2016 to 2021. The sample for the survey is selected randomly using telephone numbers from telephone directories, with a sample size of around 1000 (successful cases) for each wave.

More details on data sources are available in S1 of the supplementary online appendix.

#### 4. Rising Wage Inequality in Hong Kong

This section aims to address the two following questions. First, how has wage inequality in Hong Kong evolved since 1981? Second, what are the major drivers of rising wage inequality in Hong Kong?

##### Measuring Wage Inequality

Census data are often used to measure income and wage inequality in Hong Kong. However, this data source has two main limitations. First, wage data in the Hong Kong census are top-coded, which generates a downward bias in the top wage distribution. Furthermore, due to misreporting and small sample bias at the top, survey and census data often fail to capture the dynamics at the top of the distribution (Piketty, Saez, and Zucman 2018; Garbinti, Goupille-Lebret, and Piketty 2018; Piketty, Yang, and Zucman 2019; Khalid and Yang 2021).

To account for these issues, the study applies two corrections to the raw census-based estimation. First, to tackle the top-coding issue, it is assumed that the top of the wage distribution follows a Pareto distribution, where the average income of individuals above any income threshold, divided by that threshold, is constant and equal to the inverted Pareto coefficient  $b$ . This property makes it possible to estimate the inverted Pareto coefficient  $\hat{b}$  using the observations near the top-coding threshold  $C$  (see Blanchet, Flores, and Morgan 2018 and Blanchet, Fournier and Piketty 2022). With the estimated inverted Pareto coefficient  $\hat{b}$  at the threshold  $C$ , the wage mean for the top-coded observations is estimated, which is subsequently assigned to all observations above the top-coding threshold  $C$ .

12 For waves 1981 and 1986, the subsample covers 1 percent of the full census. For the rest of the waves, the sample, the data set covers 5 percent of the full census (i.e., the sample covers 366,319 individuals in census year 2016).

13 The Hong Kong salaries tax covers the pretax total salary income, but not capital income or business income. For detailed tax rules on salaries, see Related Tax Rules of Guide to Tax Return, [https://www.ird.gov.hk/eng/pdf/bir60\\\_st\\\_e.pdf](https://www.ird.gov.hk/eng/pdf/bir60\_st\_e.pdf).

14 Unincorporated business includes sole proprietor-ships, partnerships, and family trusts.

Furthermore, to overcome the problem of underestimating the top income shares due to misreporting and small sample bias at the top, the study combine fiscal data from the Hong Kong Salaries Tax Assessment and the census. The idea is not new (see, e.g., Jenkins 2017; Burkhauser et al. 2016, 2018; Piketty, Yang, and Zucman 2019; Branko 2022), but so far, no consensus has been reached on a standardized methodology to combine the two data sources. One of the major challenges is how to choose the “merging point” between the survey (or census) data and the fiscal data. For the study’s benchmark wage inequality series, the article adopts the data-driven method proposed by Blanchet, Flores, and Morgan (2018), in which the merging point is automatically selected by comparing the survey and fiscal data. As robustness checks, the 99.5th, 99th, 95th, and 90th percentiles are adopted as predetermined merging points. It is found that the impacts of choosing various merging points are not significant. A complete description of the correction process is provided in S2 of the supplementary online appendix.

In its benchmark series, the study measures wage inequality using the equal-split income concept, that is, assuming that wage income is equally distributed among the adults in a household. To this end, the individual adult wage is converted into the wage split equally between the adults in one household. Below the article presents only the main results and findings on wage inequality in Hong Kong from 1981 to 2018.<sup>15</sup> The full results, including corresponding distributional series of individual income, are available in S5 of the supplementary online appendix.<sup>16</sup>

Wage inequality in Hong Kong has been increasing markedly since 1981, with a particularly steep rise since 1996. According to the study’s benchmark estimates (based on corrected census data), the wage share earned by the top 1 percent of the population has increased from 10.7 percent in 1981 to 16.3 percent in 2018, while the share earned by the bottom 50 percent has dropped from 18.7 percent to 11.6 percent (panel A of fig. 1). The bottom 50 percent of the population used to have about twice the wage bill of the top 1 percent, while their wage bill is now 70 percent of the top 1 percent. Wage shares between the top 10 percent and the middle 40 percent have also been diverging, mainly driven by the strong rise in the wage share of the top 10 percent (panel B of fig. 1).

Panel A of fig. 2 compares the corrected Gini coefficient series with the raw census-based estimates. Here, several remarks are in order. First, similar to the study’s benchmark series, census-based data also show a rising trend in wage Gini coefficients from 1981 to 2016. Second, the paper’s benchmark series provide a sharp upward revision to the census-based estimates. The upward correction is particularly large in recent years: By the study’s estimates, the wage Gini coefficient is 60.8 percent in 2016 compared to 55.5 percent in the raw census. Third, most of the difference between the study’s estimates and the raw census data comes from the fiscal data correction. Although the series have improved since the 1990s through the top-coding correction of the census, this is always less important than the fiscal correction. In 2016, for instance, the wage Gini is 55.5 percent in the raw census, reaches 57.4 percent after factoring in the top-coding correction, and rises to 60.8 percent after factoring in the fiscal data correction.

When applying the correction proposed by Blanchet, Flores, and Morgan (2018) to the period from 1981 to 2016, the automatically selected merging points range from the 82<sup>nd</sup> percentile to the 97<sup>th</sup> percentile (see S2 in the supplementary online appendix, table S2.2). As robustness checks, merging points are adopted at the 99.5<sup>th</sup>, 99<sup>th</sup>, 95<sup>th</sup>, and 90<sup>th</sup> percentiles.<sup>17</sup> Panel B of fig. 2 compares the study’s benchmark Gini series with the series generated using various merging points. Although in some years, the choice of merging points has a larger impact on the level of wage Gini coefficients, overall, the impacts are not significant. In all scenarios, wage Gini coefficients have significantly increased since 1981 (panel B of

15 Unfortunately, census data are not available for the year 2018. To estimate corrected wage inequality in 2018, the study first interpolates the 2018 raw wage distribution using 2016 census and national accounts data by assuming a constant growth rate of wages for all individuals, then applies the same correction using the 2018 Salaries Tax Assessment.

16 See S5 in the supplementary online appendix, Sheet A2.1 and A2.3.

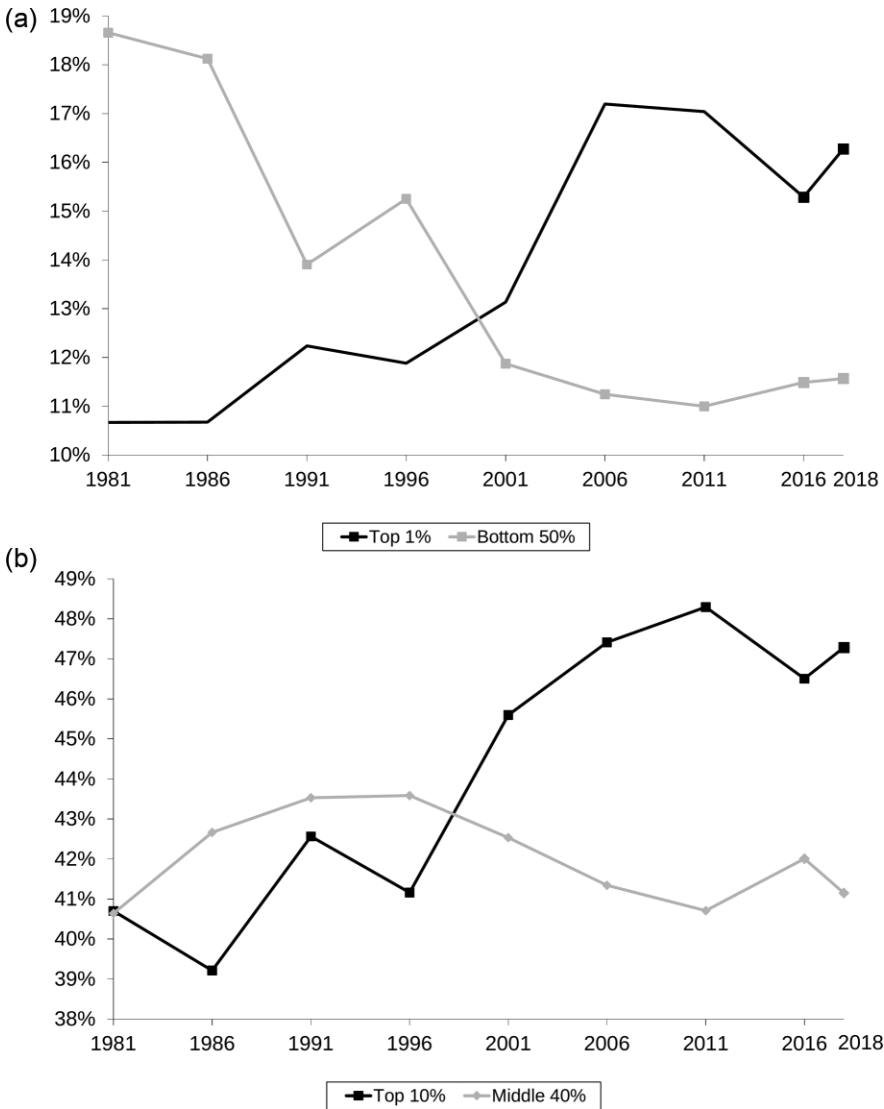
17 Blanchet, Flores, and Morgan (2018) also provide the corresponding Stata package (bfmcorr) for the correction process, which allows the user to choose predetermined merging points.



**Figure 1.** Rising Wage Inequality in Hong Kong, 1981–2018

Panel A: Top 1 percent vs. Bottom 50 percent

Panel B: Top 10 percent vs. Middle 40 percent



Source: Authors' calculations based on data from Hong Kong Micro Census (1981–2016) and HK Salaries Tax Assessments (1981–2018).

Note: Wage income is pre-tax adult equal split wage income.

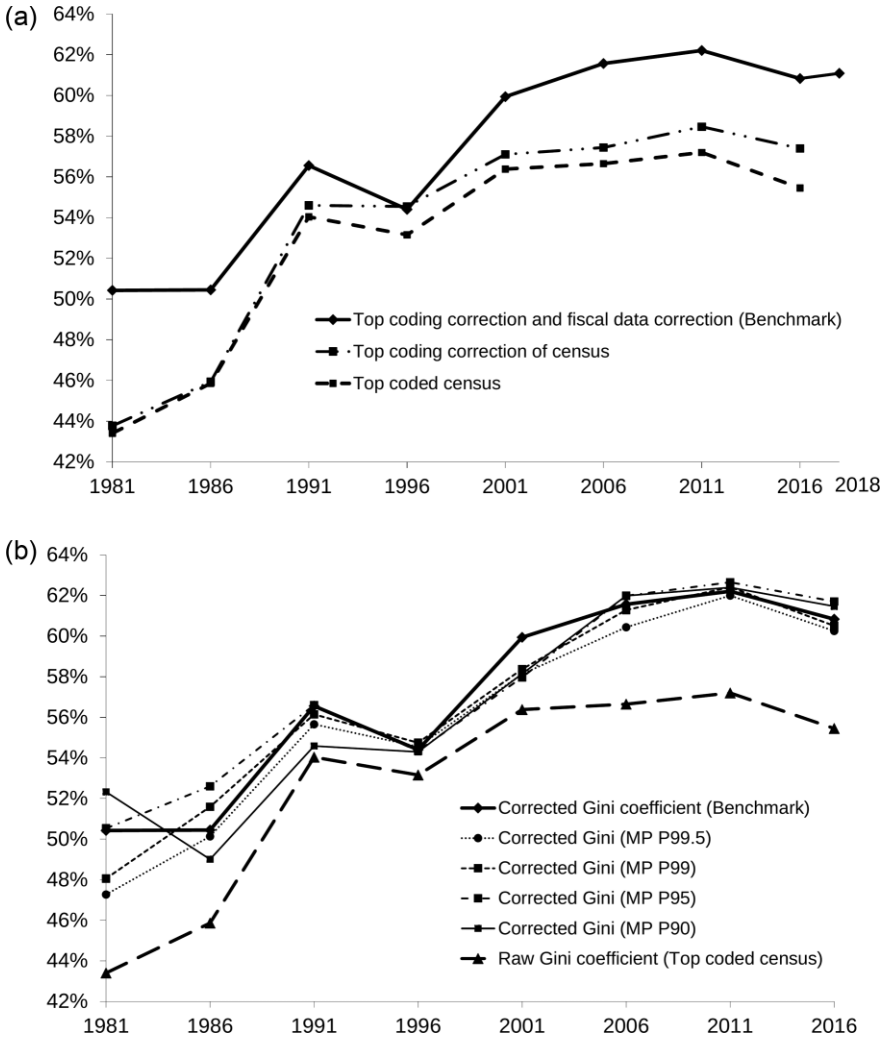
fig. 2).<sup>18</sup> The full results of the benchmark series, raw census-based series, and robustness checks are available in S5 of the supplementary online appendix.<sup>19</sup>

The study's new series on the wage distribution make it possible to decompose growth by income group. Figure 3 compares the distribution of 1981–2018 wage growth before and after the handover of Hong Kong in 1997. Growth rates of average wages are obviously much higher in the early period than

18 Calibration convergence cannot be achieved in the year 2001 when specifying the merging point at the 90<sup>th</sup> percentile. Thus, in the curve of "Corrected Gini (MP P90)" in fig. 2, the data point for 2001 is missing.

19 See Sheet A2.1.

**Figure 2.** Wage Gini Coefficients in Hong Kong, 1981–2018  
 Panel A: Corrected Estimates vs. Census-based Estimates  
 Panel B: Benchmark Estimates vs. Alternatives



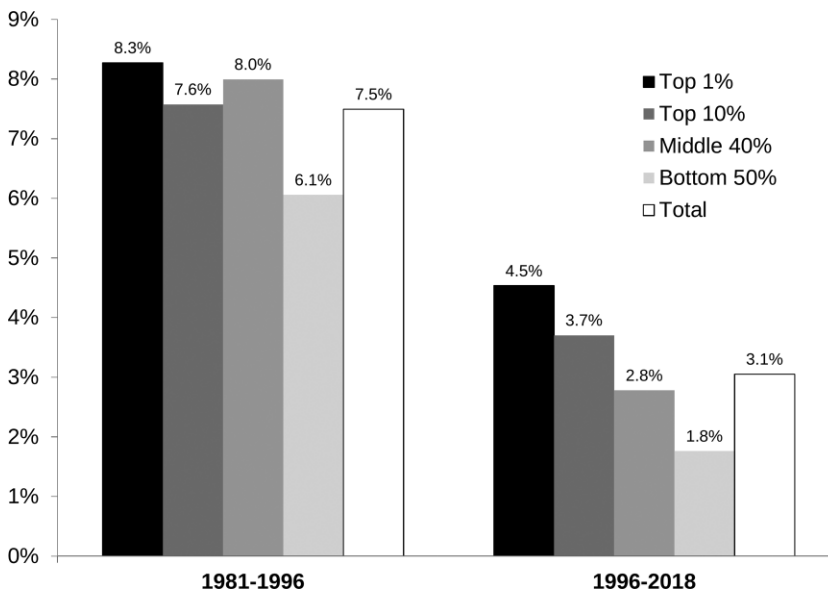
Source: Authors' calculations based on data from Hong Kong Micro Census (1981–2016) and HK Salaries Tax Assessments (1981–2018).  
 Note: Wage income is pre-tax adult equal split wage income.

in the later period: 7.5 percent versus 3.1 percent. For both periods, wage growth accruing to the bottom 50 percent is lower than average wage growth, while growth accruing to the top 10 percent is higher, and even higher when looking at the top 1 percent. Annual wage growth for the middle 40 percent is higher than that of the total population as well as the top 10 percent, while in the later period, it is lower than that of the total population.

**Drivers of Wage Inequality Trends**

This section turns to the major drivers of the rising wage inequality trends in Hong Kong by estimating the impact of various socio-economic characteristics on the evolution of Gini index.



**Figure 3.** Real Growth Rate of Wage Income in Hong Kong, 1981–2018

Source: Authors' calculations based on data from Hong Kong Micro Census (1981–2016) and HK Salaries Tax Assessments (1981–2018).

Note: Wage income is pre-tax adult equal split wage income.

Following [Firpo et al. \(2009, 2018\)](#), the study regresses the recentered influence functions (*RIF*)<sup>20</sup> of the Gini index on the explanatory socio-economic variables.<sup>21</sup> With this approach, it is possible to estimate unconditional partial effects of the socio-economic characteristics (gender, education, industries, occupations, etc.) on the level of Gini index for each year. The study then adopts a Blinder-Oaxaca-type decomposition of the Gini index and evaluates the impact of socio-economic characteristics on the change of the Gini index over time.<sup>22</sup> With the standard Blinder-Oaxaca decomposition, it is possible to decompose the changes in inequality into two parts: mechanical changes in workforce composition (composition effect) and a wage structure effect, which reflects changes in skill prices. More details on the Blinder-Oaxaca-type decomposition based on the *RIF* of Gini index are available in S3 of the supplementary online appendix. It must be stressed that the study's findings based on Blinder-Oaxaca decomposition are not causal and should therefore be seen as suggestive evidence.

This study's analysis is based on the Hong Kong census after the top-coding correction. The sample is restricted to all employees aged between 20 and 65 years, who were born in Hong Kong, mainland China, Macao, and Taiwan. [Table 1](#), columns 1 to 3, presents summary statistics for the key explanatory variables. Compared to 1981, in 2016, employees in Hong Kong are more gender-balanced, skilled, and educated. They are also concentrated in non-manufacturing sectors.

Columns 4 to 6 present the estimates of the *RIF* regressions for the years 1981, 1996, and 2016. Income is measured by individual monthly wages. The explanatory variables of interest include gender, place of birth, education, industry, and occupation. The study also controls for age, marital status, and residential

20 The influence function (IF) is a widely used tool in the robust estimation of statistical or econometric models. As its name suggests, the influence function  $F(Y; v, F_Y)$  of a distributional statistic  $v(F_Y)$  represents the influence of an individual observation on that distributional statistic. Adding the statistic  $v(F_Y)$  to the influence function yields the recentered influence function (*RIF*).

21 The *RIF* function of the Gini is automatically estimated with the Stata command.

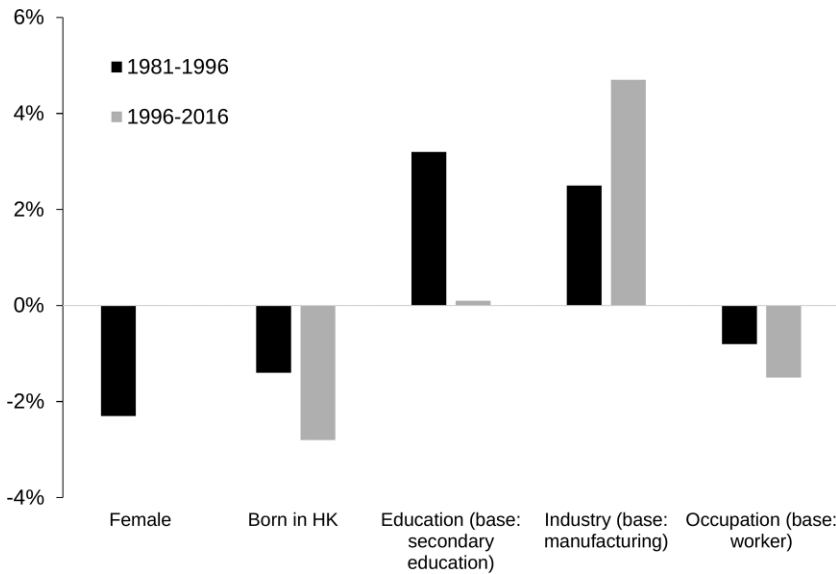
22 [Fortin, Lemieux, and Firpo \(2011\)](#) provide a thorough discussion of this methodology, comparing its econometric properties with other regression-based decomposition methods available in the literature.

**Table 1.** Summary Statistics, RIF Regression on Gini, and Blinder-Oaxaca Decomposition

	Employee share				Wage Gini coefficient		OB decomposition of wage Gini coefficient				
					32.7%	41.3%	1981 vs. 1996		1996 vs. 2016		
	1981	1996	2016	1981	1996	2016	Composition effect	Wage structure effect	Composition effect	Wage structure effect	
Gender (base: Male)											
Female	36%	39%	48%	0.072***	0.008	0.005	0.2%***	-2.5%***	0.1%	-0.1%	
Place of Birth (base: Not born in HK)											
Born in Hong Kong	48%	68%	72%	0.034***	0.004	-0.035***	0.7%***	-2.1%***	0.0%	-2.8%***	
Education (base: Secondary education)											
Primary education	48%	19%	9%	-0.009	0.024***	0.011***	0.3%	0.6%***	-0.3%***	-0.1%***	
Higher education	7%	22%	44%	0.324***	0.208***	0.112***	4.8%***	-2.5%***	4.7%***	-4.2%***	
Industry (base: Manufactory)											
Construction	10%	9%	9%	-0.031***	-0.008	0.01	0%***	0.2%*	0.0%	0.2%*	
Wholesale and retail	9%	15%	19%	-0.066***	-0.034***	0.004	-0.4%***	0.5%*	-0.1%***	0.7%***	
Restaurant and hotel	6%	8%	9%	-0.090***	0	0.038***	-0.1%***	0.7%***	0.0%	0.3%***	
TSC	8%	11%	13%	-0.056***	-0.030***	0.007	-0.2%***	0.3%*	-0.1%***	0.5%***	
Finance	6%	16%	21%	-0.018	0.036***	0.095***	-0.2%	0.8%*	0.2%***	1.2%***	
Service	16%	21%	24%	-0.033**	0.017**	0.084***	-0.2%*	1.1%***	0.1%*	1.6%***	
Other	1%	1%	1%	-0.024	-0.018	0.101***	0.0%	0.0%	0.0%	0.1%***	
Occupation (base: Worker)											
Professionals	6%	22%	31%	0.209***	0.003	-0.053***	3.2%***	-4.5%***	0.0%	-1.7%***	
Administration and management	3%	9%	10%	0.628***	0.277***	0.312***	3.8%***	0.3%***	0.2%***	0.3%	
Clerical	14%	19%	17%	-0.053***	-0.046**	-0.072**	-0.3%***	0.1%	0.1%***	-0.4%***	
Marriage (total effect)							0.2%*	1.3%***	0.0%	0.1%	
Age (total effect)							1.3%***	-4.9%***	2.5%***	-13.9%***	
Districts (total effect)							0.9%*	-2.9%*	-0.5%***	-11.2%***	
Constants				0.364***	0.477***	0.718***		11.3%*		24.1%***	
R-squared				0.2018	0.0752	0.1078					
No. of observations				16,324	116,254	138,772					
Share of employees in total population	53%	50%	43%								

Source: Hong Kong Micro Census, 1981–2016.

Note: The study corrects the observations with top-coded income and restricts the sample to all employees aged between 20 and 65 years, who were born in Hong Kong, mainland China, Macao, and Taiwan.

**Figure 4.** Overall Contribution of Main Explanatory Variables to the Change of Wage Gini

Source: Authors' calculations based on data from Hong Kong Micro Census (1981–2016).

districts in the regression. All the variables are dummies. The coefficients in the *RIF* regressions indicate the magnitude and direction of the expected change in the Gini index after a small increase in the average value of the corresponding variable.

In 1981, higher education, share of professionals, and managers, female labor participation, and the share of people born in Hong Kong are inequality-enhancing variables. In contrast, the industrial shift from the manufacturing sector to non-manufacturing sectors such as restaurants and hotels as well as wholesale and retail trade decreases the Gini index. In 2016, this picture flips: All the variables of industrial sectors become inequality-enhancing, while the Hong Kong-born dummy and the share of professionals become inequality-diminishing. Higher education is inequality-enhancing in all periods, but its effect decreases over time. High-wage occupations in administration and management remain the most inequality-enhancing variable.

Columns 7 to 10 present results for the standard Blinder-Oaxaca decomposition of the Gini index between two years. From 1981 to 1996, the Gini coefficient rises 8.6 percentage points from 32.7 percent to 42.8 percent, which can be further decomposed into aggregate composition effects (14.1 percent) and aggregate wage structure effects (−5.5 percent). Correspondingly, from 1996 to 2016, the Gini coefficient rises 1.5 percent, of which 6.9 percent is due to composition effects and −5.4 percent to the change in skill price. In both periods, the wage structure changes in a way that reduces wage inequality, so the returns to socio-economic characteristics become more balanced across the distribution. The composition effect has a positive sign, indicating that the changing composition of the workforce is inequality-enhancing. However, the composition effect decreases over time, while the wage structure effect remains almost the same.

The aggregate composition and wage structure effects can be further decomposed by explanatory variables (socio-economic characteristics). This decomposition makes it possible to calculate the overall contribution of each explanatory variable (or cluster of explanatory variables) to the change of Gini by adding up the composition effect and structure effect. Figure 4 presents overall effect by main explanatory variables calculated based on table 1.

Before the handover of Hong Kong (black bars), the major driving force in the rise of the Gini coefficient is the expansion of education, especially higher education, which is followed by the change of industrial structure from manufacturing to non-manufacturing sectors. Rising female labor market participation, the increase in the share of Hong Kong-born employees, and the occupational change toward high-skilled jobs lower the wage Gini coefficient. In contrast, after the handover (grey bars), the change of industrial structure becomes the sole driver of the rise in the Gini coefficient, having the largest absolute magnitude among all the factors. Further decomposing the overall effect of the change of industrial structure shows that the lion's share is due to wage-structure effects, and the evolution of returns in the finance and service sectors contributes the most to the increase in overall inequality (see [table 1](#)). Meanwhile, the increase in Hong Kong-born employees and occupational change, especially the increase in professionals, play an even more important role in reducing wage inequality.

## 5. The Evolution of the Capital Share in Hong Kong

This section turns to the evolution of the capital share in Hong Kong and its implications for inequality.

Due to the lack of data, the evolution of the capital share of income in Hong Kong has not yet been explored in the literature. To fill this gap, the study constructs a new Hong Kong capital share series by combining fiscal data<sup>23</sup> and national accounts. Following [Piketty \(2014\)](#), national income  $Y_t$  is equal to the sum of aggregate capital income  $Y_{Kt}$  (excluding government interest) and labor income  $Y_{Lt}$  minus net production tax and subsidies  $T_{pt}$ .

$$Y_t = Y_{Kt} + Y_{Lt} - T_{pt} \quad (1)$$

Aggregate capital income  $Y_{Kt}$  can be further broken down into (pre-tax) net corporate profit  $Y_{Kct}$ , pure rental value of housing  $Y_{ht}$ , capital income components of self-employed income  $Y_{Kset}$ , and net foreign capital income  $FY_{Kt}$ .

$$Y_{Kt} = Y_{Kct} + Y_{ht} + Y_{Kset} + FY_{Kt} \quad (2)$$

The aggregate capital share  $\alpha_t$  (excluding government interest) in national income is defined as follows.

$$\alpha_t = Y_{kt}/Y_t \quad (3)$$

Before 2018, profits of both corporations and unincorporated businesses were subjected to a flat-rate tax in Hong Kong. For example, in 2016, the tax rate for corporations was 16.5 percent, while the tax rate for unincorporated businesses was 15 percent. Thus, it is possible to retrieve taxable income of corporations and unincorporated business from corporate profit tax revenues.<sup>24</sup> The study takes the taxable income of corporations and unincorporated business for the estimation of net profit of corporate profit  $Y_{Kct}$  and capital income components of self-employed income  $Y_{Kset}$ .  $Y_t$ ,  $Y_{ht}$ , and  $FY_{Kt}$  can be obtained directly from Hong Kong's national accounts.<sup>25</sup> Detailed calculations are available in S5 of the supplementary online appendix.<sup>26</sup>

Panel A of [fig. 5](#) presents the study's benchmark estimation of Hong Kong's capital share (bold black curve) and its components since 1993. Several observations can be made from the graph. Since 1997, the Asian financial crisis (AFC) has led to a significant decrease of profits in both corporations and self-employed businesses. Hong Kong's capital share shrank from 43 percent of national income in 1997 to

23 That is, profit tax and property tax.

24 The profits are net of fixed capital consumption.

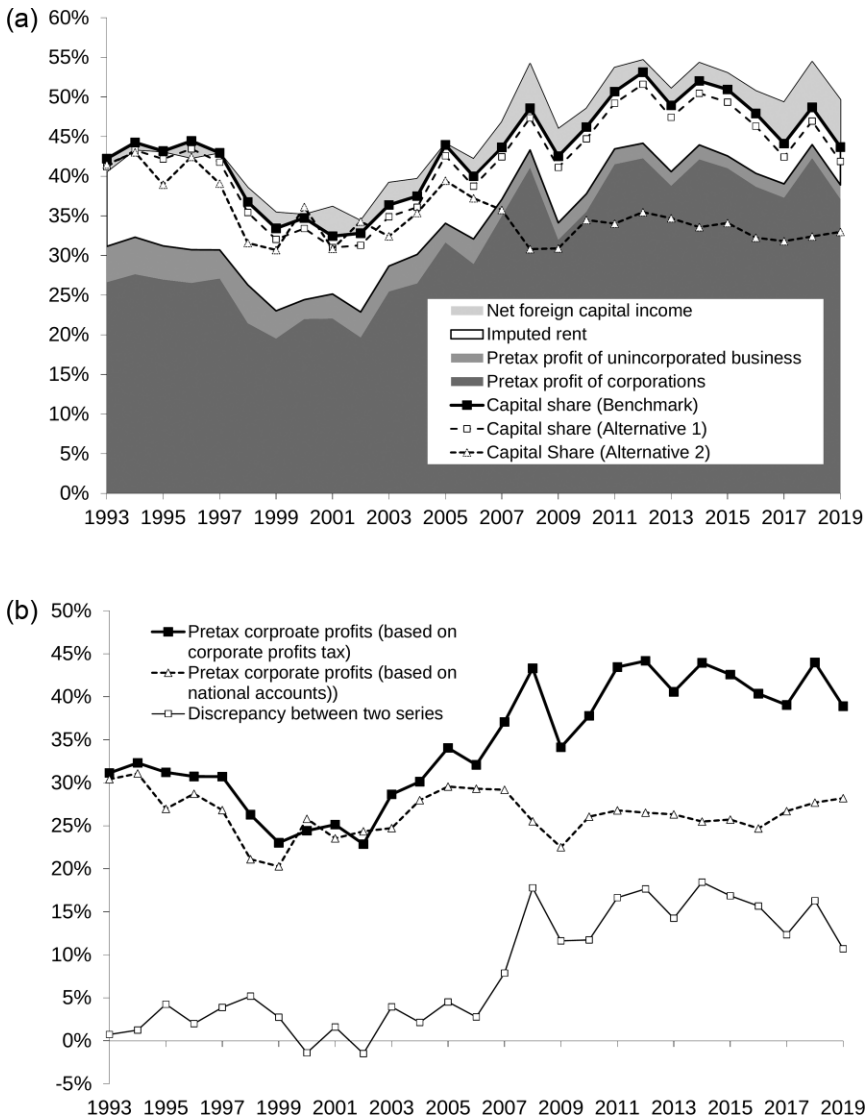
25 Pure rental value of housing  $Y_{ht}$  is equal to value added in the sector of ownership of properties minus net production tax and subsidies, which is provided in the Hong Kong Gross Domestic Product Yearbook. Net foreign capital income is provided in Hong Kong's Balance of Payments.

26 See Sheet 3.0.

**Figure 5.** Evolution of Capital Shares and Corporate Profits in Hong Kong, 1993–2019

Panel A: Capital Shares

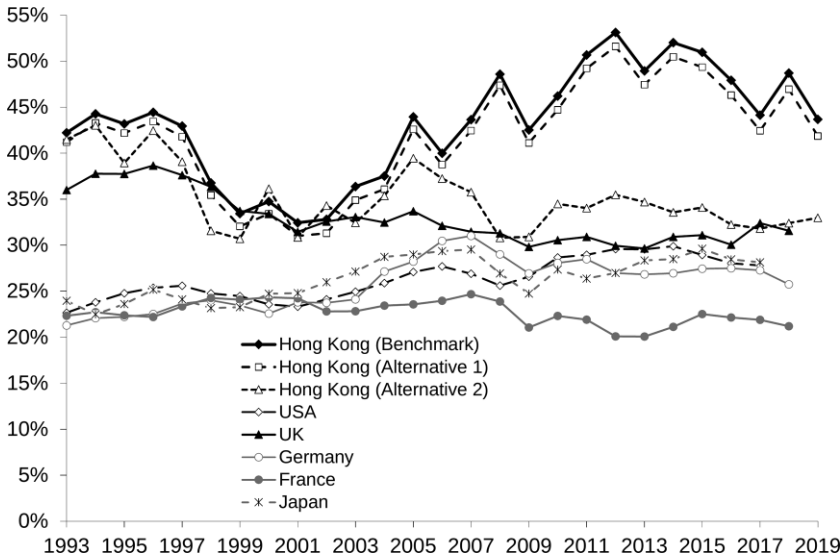
Panel B: Pretax Corporate ( percent of National Income)



Source: Authors' calculations based on data from Hong Kong corporate profit tax (1993–2019) and national accounts (1993–2019).

32 percent of national income in 2001. Driven by a sharp rise in net corporate profits, the first decade of the millennium saw a drastic increase in the capital share, reaching 53 percent of national income by 2012, which is 10 percentage points higher than its level before the AFC. Since 2014, the capital share has been gradually decreasing due to the increased deficits in net foreign capital income.

In the study's benchmark estimation, it is assumed that the annual depreciation of housing is equal to 2 percent of housing market value. As a robustness check, the alternative series is presented with a depreciation rate equal to 5 percent (Alternative 1). There is only a minor difference between the two series (around 1 percent), so the study's estimation seems to be fairly robust with regard to this assumption.

**Figure 6.** Evolution of Capital Shares: Hong Kong vs. High-income Countries, 1993–2019

Source: Capital shares of Hong Kong are authors' calculations based on data from Hong Kong corporate profit tax (1993–2019) and national accounts (1993–2019). Capital shares of other high-income countries are retrieved from the World Inequality Database.

Capital share can also be calculated based on labor income with the following equation.

$$\alpha_t = (Y_t - Y_{Lt} - T_{pt})/Y_t \quad (4)$$

Labor income can be measured by the compensation of employees in Hong Kong's national accounts. Capital share (Alternative 2) presents the alternative estimation based on labor income as another robustness check. Before 2006, the alternative series show a similar trend and level of the capital share to the study's benchmark series, but afterward, the two series diverge. This divergence originates in the discrepancy between the fiscal data and national accounts in corporate profits. The discrepancy between two estimates of corporate profits (based on corporate profits tax vs. based on labor income and national accounts) rises sharply starting in 2006 from less than 5 percent of national income to about 15 percent of national income (see [fig. 5](#), panel B).<sup>27</sup> Given that corporations do not have the incentive to over-report their profits, it is likely that the fiscal data are more trustworthy. Nevertheless, it is suggested that the estimates based on labor income be taken as a lower bound for the estimation of the capital share, especially for the period after 2006, as it is not yet possible to explain the exact cause of the discrepancy due to the data limitations.

[Figure 6](#) compares the evolution of capital shares in Hong Kong and five high-income economies between 1993 and 2019. Two remarks are in order. First, the level of Hong Kong's capital share is substantially higher than other high-income economies, except for the five-year period following the financial crisis, where its capital share dropped significantly, yet remains on par with the UK's capital share. Even when applying the lower bound of the estimation, which is based on labor income (Alternative 2), the results still hold except for a very few years. Second, since the recovery from the Asian financial crisis, Hong Kong's capital share has grown substantially. In about one decade, from 2001 to 2012, it surged from 32 percent to 53 percent of national income. Despite the gradual decline that followed, Hong Kong's capital share reached such a high level by 2018 that is no longer comparable to other high-income economies. Since 2010, for example, Hong Kong's capital share has been more than twice as high as France's.

27 All estimation results are available in S5, sheet A3.0 in the supplementary online appendix.



Due to lack of microdata on household wealth and capital income,<sup>28</sup> it has not been possible to estimate the impact of the evolution of the capital shares on income and wealth inequality in Hong Kong. Nonetheless, existing evidence shows that the distribution of capital income is strongly skewed to the right (Piketty 2014; Bengtsson and Waldenström 2018). Hence it is plausible to assume that the rising capital share in Hong Kong contributes to the increase in income and wealth inequality.

## 6. Wealth Inequality in Hong Kong

Discussions about the extreme wealth inequality in Hong Kong have been ongoing for several decades among the general public and policy makers. However, due to the lack of micro-level wealth survey or administrative data, empirical studies are still extremely limited.

To address this gap, this paper provides the first set of internationally comparable wealth-concentration estimates based on *Forbes* magazine's rich lists. Additionally, based on a wealth accumulation model, the study conducts simulations for the evolution of wealth inequality in Hong Kong over the period 1996 to 2016. The findings suggest that the top 0.001 percent of wealth (normalized by national income) has increased substantially in Hong Kong since the end of the 1980s (fig. 8). Today, Hong Kong's top wealth concentration level is at the very top internationally. This study's empirical results are consistent with the simulations, which show that wealth inequality has been increasing since 1996, since the price effect and the savings effect play very different roles in the evolution of wealth shares for the rich and poor.

### Measuring the Top Wealth Concentration in Hong Kong

In the recently emerging literature on the evolution of wealth inequality, *Forbes* rich lists have been increasingly used to estimate the wealth concentration at the very top, often as consistency checks or corrections for wealth survey data and fiscal data (see Saez and Zucman 2016; Alvaredo, Atkinson, and Morelli 2018; Novokmet, Piketty, and Zucman. 2018; Piketty, Yang, and Zucman 2019; Garbinti et al. 2021). The reliability of these lists has been questioned in light of several drawbacks. First, the data are compiled by relying on various sources, and the methodology cannot be transparently evaluated. Second, the rich lists presumably neglect a number of private assets and liabilities, which may lead to the underestimation of wealth concentration. Last but not the least, the unit of analysis is not always consistent across observations, and often, wealth is reported for an entire family consisting of more than one individual (or household).<sup>29</sup> Therefore, further adjustment is required when using *Forbes* rich lists to estimate individual-level wealth concentration.

Despite the aforementioned drawbacks, rich lists are the only source that can be relied on to estimate top wealth concentration in Hong Kong, where neither wealth surveys nor fiscal data on either capital incomes or inheritances (which can be used in a number of other countries) are available. It should be stressed that the study's estimations still suffer from serious limitations due to the lack of accurate statistical information on both the production and bias of the rich lists. This study's estimations must be seen as first steps towards a better understanding of the level and evolution of the wealth concentration in Hong Kong. To simplify the discussion, each observation in the rich lists is treated as a family, regardless

28 The lack of (or very limited) taxation of capital incomes in Hong Kong results in a lack of fiscal data. To date, both capital gains and dividend incomes, whether from Hong Kong or overseas, are exempt from taxation in Hong Kong. Interest income is subject to Hong Kong profits tax only when it is sourced in Hong Kong. Furthermore, there has never been a household wealth survey in Hong Kong to date.

29 For the methodology used to construct the *Forbes* rich lists, see Kerry A. Dolan, "Methodology: How We Crunch the Number," *Forbes*, <https://www.forbes.com/sites/kerryadolan/2012/03/07/methodology-how-we-crunch-the-numbers/?sh=77a4e714d3d8>.

of whether it consists of one or more individuals. Furthermore, the origins of the billionaires are defined by their citizenship.<sup>30</sup>

Figure 7 presents the number (panel A, normalized by the adult population) and total wealth (panel B, measured by national income) of billionaire families<sup>31</sup> in 63 major economies in 2017. The results are sorted by national income per adult.

Hong Kong ranks at the very top in both wealth concentration statistics, and its level of wealth concentration is far above the level in any other economy, regardless of the level of national income per adult. For example, in 2017, there were about 11 billionaire families for every million adults in Hong Kong, while the numbers for Switzerland and Singapore, which rank second and third, were 5.3 and 4.5, respectively. The United States, as a representative example of a high-income country with extreme wealth inequality, has 2.3 billionaire families per million adults. When looking at economies with similar income levels (50,000 to 60,000 US dollars in national income per adult), the Netherlands ranks lowest, with only 0.8 billionaire families per million adults. This finding shows that Hong Kong is really in a class of its own. Switching to the total wealth of billionaire families, the picture is similar. The total net wealth of billionaire families accounts for 85 percent of Hong Kong's national income in 2017, while it accounts for less than 35 percent in all other countries. Such results confirm public concern about inequality in Hong Kong. With regard to its level of wealth concentration, Hong Kong is not comparable to any other economy in the world.

How did wealth concentration in Hong Kong reach this high level? How did it evolve there compared to other economies? To address these questions, it is necessary to construct comparable wealth shares series across economies and over time, which requires estimating individual-level (instead of family-level) wealth statistics. So far, there is no consensus in the literature on how to individualize the family wealth reported in rich lists. [Alvaredo et al. \(2018\)](#), [Novokmet, Piketty, and Zucman \(2018\)](#), and [Piketty, Yang, and Zucman \(2019\)](#), for example, treat each billionaire as either a married couple or an individual. [Garbinti Goupille-Lebret, and Piketty \(2021\)](#) find that in order to reconcile the challenges lists (rich lists in France) with administrative data, they would have to assume a family size of as many as 10–15 individuals. Yet underestimating the size of billionaire families would lead to an overestimation of individual wealth. In this paper, family wealth is individualized from rich lists by assuming that the average billionaire family consists of five adults and that this size is consistent across economies and time. To provide a piece of indirect evidence to support this assumption, the study compares two series of top 0.001 percent wealth (normalized by national income) in the United States from 2008 to 2016: benchmark series estimated by [Saez and Zucman \(2016, 2020\)](#) using fiscal data, and alternative series estimated using the *Forbes* rich lists under the assumption of five adults per family (see S6 in the supplementary online appendix<sup>32</sup>). The results show that, at least in the case of the United States, the study's assumption leads to an underestimation of top wealth and thus can be seen as the lower bound of the benchmark series.

30 This is due to the following two concerns. First, the definition of residency in different countries might vary significantly. Moreover, it is not clear how *Forbes* rich lists define a billionaire as a resident in the country.

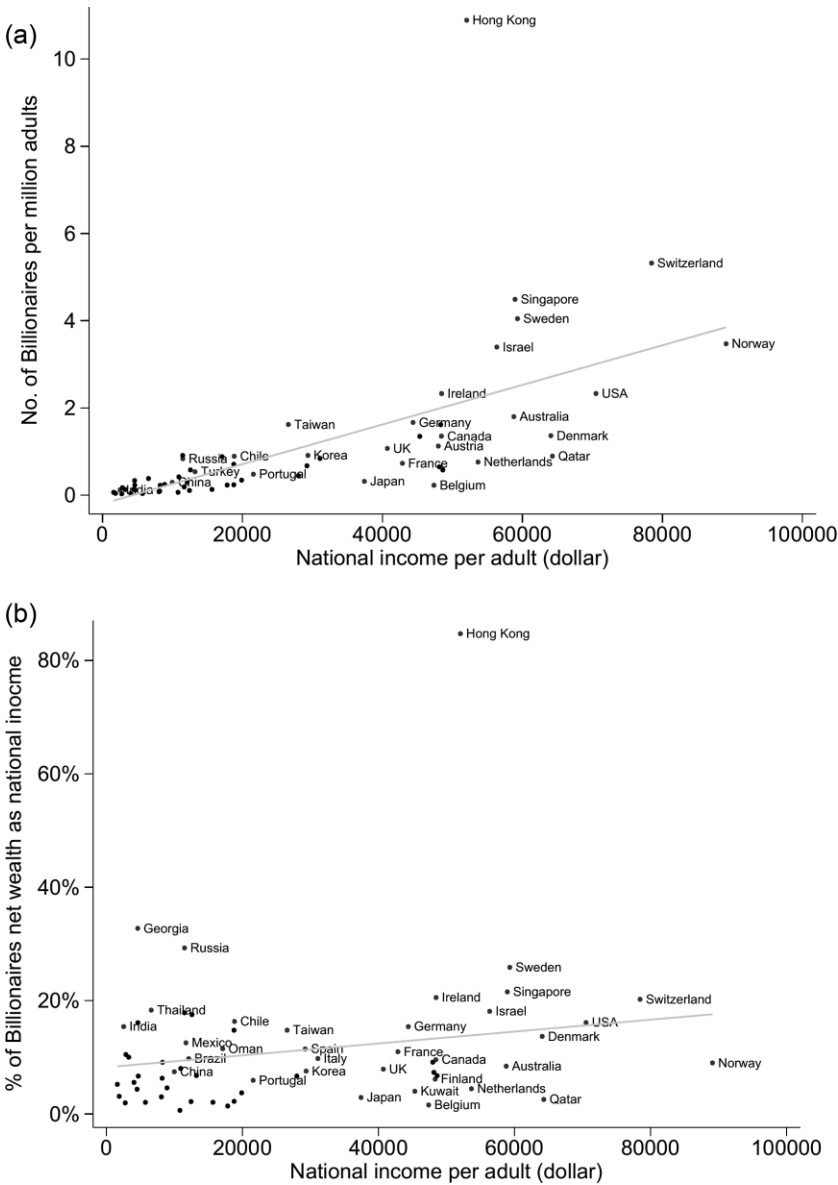
As a special administrative region of China, Hong Kong does not have its own nationality law, and natural-born residents are generally Chinese citizens. Permanent residency is the *de facto* citizenship status in Hong Kong. To acquire the status of a permanent resident of Hong Kong, Chinese citizens who were not born in Hong Kong and non-Chinese citizens are normally required to have resided in Hong Kong for a continuous period of not less than seven years and to have taken Hong Kong as their place of permanent residence. After obtaining the status of permanent resident, one is not required to take Hong Kong as one's main residence in order to keep the status.

However, a Hong Kong permanent resident is not necessarily a tax resident of Hong Kong. An individual is regarded as a tax resident of Hong Kong, China if (a) he/she ordinarily resides in Hong Kong, China; or (b) he/she stays in Hong Kong, China, for more than 180 days during a year of assessment or for more than 300 days in two consecutive years of assessment, one of which is the relevant year of assessment.

31 A billionaire is defined as a family whose net wealth is more than one billion US dollars.

32 See Sheet AF1.

**Figure 7.** Density and Wealth of Billionaires in 2017  
 Panel A: Number of billionaires (per million adults)  
 Panel B: Net wealth of billionaires ( percent of national income)

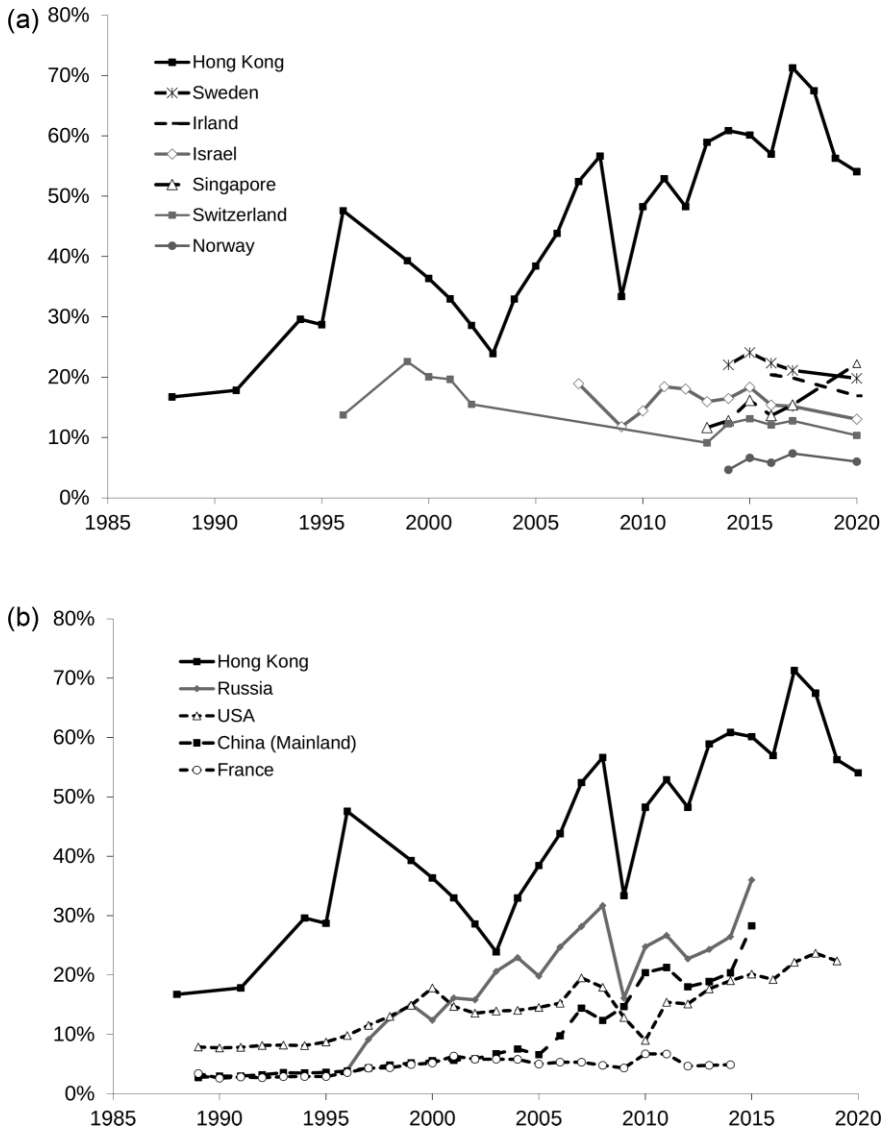


Source: Authors' calculations based on the 2017 world billionaires list and "Hong Kong's 50 Richest" published by *Forbes* magazine. National incomes are retrieved from the World Inequality Database.

Figure 8 presents the evolution of top 0.001 percent wealth (normalized by national income) of Hong Kong and other countries for the period from 1988 to 2020. Estimates in panel A are based solely on *Forbes* rich lists. In panel B, estimates of Hong Kong's top wealth are based on *Forbes* rich lists, and series for China, France, Russia, and the United States are retrieved from the World Inequality Database.

As illustrated in panels A and B, the top 0.001 percent wealth increased substantially in Hong Kong over the last three decades, despite several drops during economic recessions. In the end of 1980s, the top

**Figure 8.** Top 0.001 percent Wealth (as percent of National Income), 1988–2020  
 Panel A: Estimates based on Hong Kong's Rich Lists and the World Billionaires Lists.  
 Panel B: Estimates based on Hong Kong's Rich Lists and the World Inequality Database.



Source: Estimates in panel A are authors' calculations based on the world billionaires lists, "Hong Kong's 40 Richest," and "Hong Kong's 50 Richest" published by *Forbes* magazine from 1988 to 2020. In panel B, series for China, France, Russia, and the United States are retrieved from the World Inequality Database

0.001 percent wealth accounted for 17 percent of national income. At the time, it was comparable with other economies. By 2020, it rose to 55 percent of national income, more than tripling since 1988. The upward trend was even more pronounced after the recovery from the Asian financial crisis. In consequence, Hong Kong's normalized 0.001 percent wealth today is far higher than that of other economies. Even Russia, which is notorious for its high concentration of wealth among oligarchs, pales in comparison.

The top 0.001 percent wealth (normalized by national income) can be decomposed into the product of top wealth share and net private wealth-income ratio  $\beta_t^{private}$  following the equation below,

$$\frac{W_t^{top\ 0.001\%}}{Y_t} = \frac{W_t^{top\ 0.001\%}}{W_t} * \frac{W_t}{Y_t} = \text{Wealth share}_t^{top\ 0.001\%} * \beta_t^{private} \quad (5)$$

Here,  $Y_t$  and  $W_t$  indicate net national income and net private wealth, respectively, in year  $t$ . It is possible to estimate the top 0.001 percent wealth share providing  $\beta_t^{private}$ .

Unfortunately, official estimates of  $\beta_t^{private}$  are not available due to the absence of aggregate household balance sheets and private wealth data for Hong Kong. To overcome this problem, the private wealth income ratio in Hong Kong is estimated using the following procedure. First, the study estimates net private housing wealth as a fraction of national income in Hong Kong ( $\beta_t^{housing}$ ). Second, it estimates the share of net housing wealth in private wealth ( $A_t^{housing}$ ), with which it is possible to estimate the level of private wealth in Hong Kong. Thus:

$$\beta_t^{private} = \frac{\beta_t^{housing}}{A_t^{housing}} \quad (6)$$

Private housing stock and housing prices (market value) are published regularly by the Rating and Valuation Department of Hong Kong<sup>33</sup> and can be used to estimate the market value of private housing in Hong Kong. Outstanding mortgage loans are published by the Hong Kong Monetary Authority.<sup>34</sup> Net private housing wealth is equal to the market value of private housing minus outstanding mortgage loans. The study provides estimation details in S5, sheet AX10 of the supplementary online appendix.<sup>35</sup> Figure 9, panel A, presents the evolution of net private housing wealth in Hong Kong and other major world economies. Hong Kong's  $\beta_t^{housing}$  started at a relatively low level compared to other economies in the 1980s. Driven by the soaring asset prices, it rose to 340 percent of national income in 1997. In 2002, during the Asian financial crisis, it dropped to 109 percent of national income, and has risen dramatically since then, with  $\beta_t^{housing}$  reaching 416 percent in 2017.

Since 2012, Citibank has been releasing survey-based studies on multimillionaires in Hong Kong.<sup>36</sup> They indicate that housing makes up a particularly large share in wealth portfolios in the city, and that the share has been rising over the last decade. In 2012, housing wealth accounted for 68 percent of multimillionaires' total net wealth, and by 2018, it accounted for 75 percent. Since wealthy people are more likely to hold more financial assets, the share of housing wealth in the top wealth group can be seen as the lower bound of the housing share in total private wealth ( $A_t^{housing}$ ). Panel B compares housing shares in total private wealth among other economies, and again, the level in Hong Kong is exceptionally high.

Table 2 presents the estimation of the top 0.001 percent wealth share in Hong Kong and compares it with Russia, China, the United States, and France.<sup>37</sup> Results show that in 2018, the lower bound of the

33 Rating and Valuation Department, The Government of Hong Kong Special Administrative Region, <https://www.rvd.gov.hk/>.

34 Hong Kong Monetary Authority, "Monthly Financial Data Report" (September 2022), [https://www.hkma.gov.hk/gb\\_chi/data-publications-and-research/data-and-statistics/monthly-statistical-bulletin/](https://www.hkma.gov.hk/gb_chi/data-publications-and-research/data-and-statistics/monthly-statistical-bulletin/).

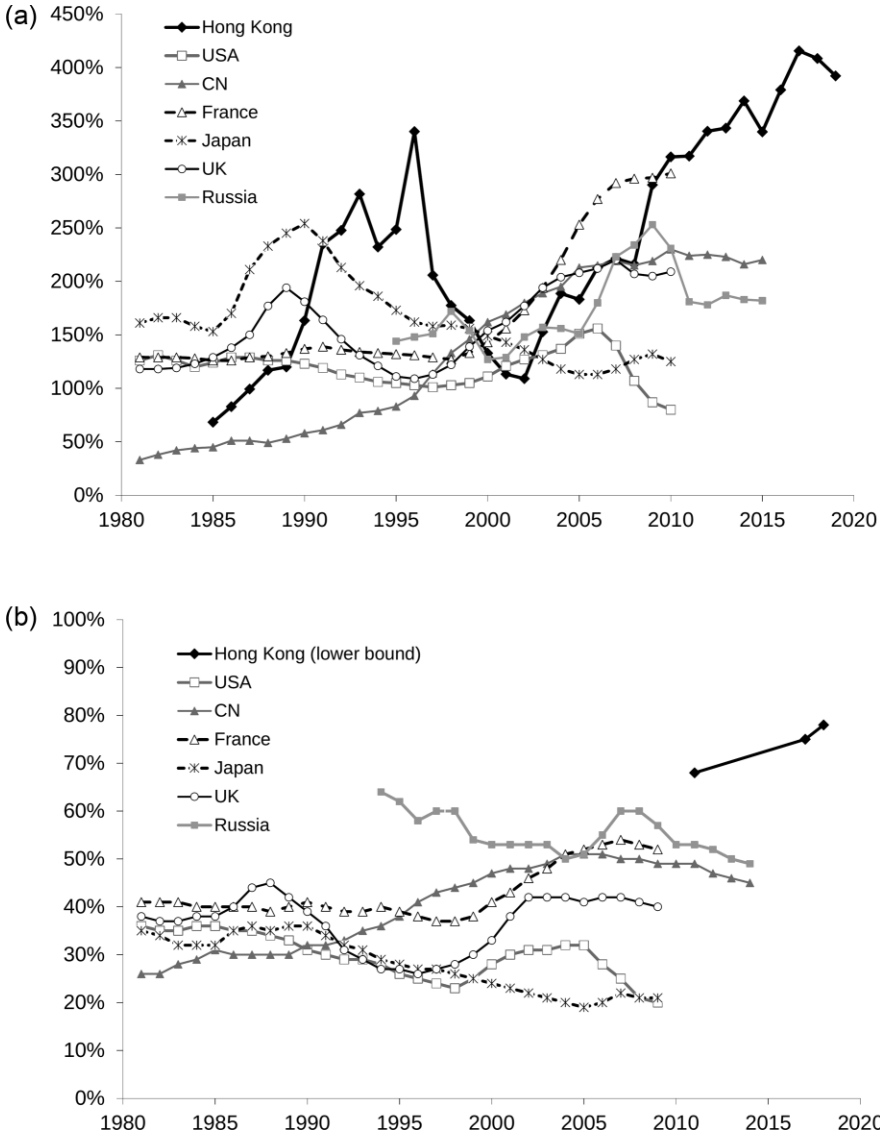
35 See supplementary online appendix S5, sheet AX10.

36 For instance, the "Hong Kong Affluent Study 2019/2020" by Citigroup Inc., released September 23, 2020. Multimillionaires are defined as those with total net assets of HK\$10 million or more and liquid assets of at least HK\$1 million.

37 Data for other economies are obtained from the World Inequality Database, <https://wid.world/>.

**Figure 9.** Evolution of Private Housing Wealth in Hong Kong and Other Major Economies, 1981–2019

Panel A: Private Housing Wealth as Share of National Income  
 Panel B: Private Housing Wealth as Share of Total Private Wealth



Source: Estimates of private housing wealth in Hong Kong are based on data from the Rating and Valuation Department of Hong Kong, the Hong Kong Monetary Authority, and the “Hong Kong Affluent Study 2019/2020” published by Citigroup Inc. Series of private housing wealth in other economies are from [Piketty and Zucman \(2014\)](#) and [Piketty, Yang, and Zucman \(2019\)](#).

Note: Private housing wealth is equal to the value of domestic private housing minus housing mortgage



**Table 2.** Top Wealth Share, Wealth Income Ratio, and Normalized Top Wealth (Hong Kong vs. Other Economies)

Country	Year	Top 0.001% share in private wealth	Top 0.001% wealth/national income	Private wealth national income ratio	Private housing national income ratio	Share of housing assets in aggregated private wealth
		Share <sup>top 0.001%</sup>	Normalized top 0.001% wealth	$\beta_t^{\text{private}}$	$\beta_t^{\text{housing}}$	$A_t^{\text{housing}}$
Russia	2015	9.8%	36%	371%		
China	2015	5.8%	28%	487%		
USA	2018	4.3%	24%	543%		
France	2014	0.9%	5%	558%		
Hong Kong	2018	Lower Bound 11.2%	61%	Upper bound 545%	408%	Lower Bound 75%

Source: Estimates of Hong Kong are derived from authors’ calculations based on “2018 Hong Kong’s 50 Richest” published by *Forbes* magazine, Rating and Valuation Department of Hong Kong, Hong Kong Monetary Authority, and “Hong Kong Affluent Study 2019/2020” published by Citigroup Inc.. Data for Russia China, the United States, and France are retrieved from the World Inequality Database.

top 0.001 percent wealth share is 11.2 percent, which exceeds that of Russia,<sup>38</sup> is more than twice that in the United States and China, and 10 times the level in France.<sup>39</sup>

In brief, expressed as a fraction of national income, billionaire wealth and the wealth of the top 0.001 percent in Hong Kong are far higher than any other country in the world. Expressed as a fraction of aggregate private wealth (due to the lack of data, it is only possible to measure this imperfectly), top 0.001 percent wealth shares in Hong Kong exceed those in Russia and are far higher than in all other countries.

**Saving, Asset Prices, and the Evolution of Wealth Concentration**

Now the discussion moves to the evolution of wealth accumulation and concentration in Hong Kong. Following the accounting framework adapted from [Piketty and Zucman \(2014\)](#), [Saez and Zucman \(2016\)](#), and [Kuhn et al. \(2020\)](#), it is possible to decompose the change in wealth share (as a percentage) of fractile *i* into an asset price effect and a savings effect with the following equation:

$$\frac{\Delta\omega_t^i}{\omega_t^i} = \frac{q_t}{1 + q_t + r_t * \frac{s_t}{\alpha_t}} * (\varphi_t^{q,i} - 1) + \frac{r_t}{1 + q_t + r_t * \frac{s_t}{\alpha_t}} * \left( \frac{s_t^i}{\alpha_t^i} * \varphi_t^{r,i} - \frac{s_t}{\alpha_t} \right) \tag{7}$$

Here,  $\omega_t^i$  denotes the wealth share of fractile *i* at time *t*, and  $\Delta\omega_t^i$  denotes the change of fractile *i*’s wealth share between *t* and *t* + 1.  $q_t$  denotes the contribution of capital gain to the growth of private wealth, that is,  $q_t * W_t$  represents the capital gains received by the total population between *t* and *t* + 1.  $s_t = S_t / Y_t$  denotes the aggregate savings rate of total population.  $r_t$  denotes the average rate of return.  $\alpha_t = \frac{r_t W_t}{Y_t}$  denotes capital share of national income at time *t*. By analogy, the study defines  $q_t^i, s_t^i, \alpha_t^i$  as the corresponding variable for fractile *i* between *t* and *t* + 1.  $\phi_{q,it}$ , which *i* is equal to  $qit/qt$ , donates the relative the asset price premium of fraction *i* at time *t*, and  $\phi_{r,t}$ , which is equal to  $rit/rt$ , donates the relative rate of return premium

38 Estimation of the top 0.001 percent wealth share in Russia is provided by [Novokmet, Piketty, and Zucman \(2018\)](#). When using Russian *Forbes* rich lists to estimate the wealth share at the very top, [Novokmet, Piketty, and Zucman \(2018\)](#) treat each billionaire family as one adult. Relaxing the assumption on the size of billionaire families (i.e., five adults) will significantly increase the population base and decrease the estimation of the wealth share. For example, under the same assumption, in 2015, the top 0.005 percent (not 0.001 percent) wealth share in Russia is 9.8 percent. Thus, the top 0.001 percent wealth share for Russia reported in [table 2](#) should be treated as the upper bound of the estimation.

39 Due to the lack of data, the top 0.001 percent wealth share in China and Russia starts in 2015, and in France in 2014.

of fraction  $i$  at time  $t$ .  $Y_t^i$  is defined as the income of fractile  $i$  between  $t$  and  $t + 1$ ,  $W_t^i$  as the wealth fractile  $i$  at time  $t$ , net private wealth  $W_t = \sum_{i=1}^I W_t^i$ , and national income  $Y_t = \sum_{i=1}^I Y_t^i \frac{q_t}{1+q_t+r_t+\frac{s_t}{\alpha_t}} * (\varphi_t^{q,i} - 1)$  represents the asset price effect, and  $\frac{r_t}{1+q_t+r_t+\frac{s_t}{\alpha_t}} * (\frac{s_t}{\alpha_t} * \varphi_t^{r,i} - \frac{s_t}{\alpha_t})$  represents the savings effect. The derivation of above equation is provided in S4 of the supplementary online appendix.

Based on the decomposition results, when holding aggregate parameters (i.e.,  $q_t$ ,  $r_t$ ,  $s_t$ ,  $\alpha_t$ ) constant, the asset price effect in the change of the wealth share is positively correlated with fractile  $i$ 's relative asset price premium,  $\varphi_t^{q,i}$ , while the savings effect is positively correlated with  $\frac{s_t}{\alpha_t} * \varphi_t^{r,i}$ . Following the decomposition, simulations are conducted on the evolution of wealth shares. Due to the lack of information on key parameters for the period before 1996, the simulations focus only on the post-handover period (1996 to 2016).

The aggregate-level parameters, namely  $r_t$ ,  $\alpha_t$ ,  $s_t$ , and  $q_t$ , are presented in table 3:  $r_t$  represents the real rate of return in Hong Kong for total private wealth, which is equal to the weighted average real rate of return on different types of private assets. Since detailed data are not available on the rate of return by assets or shares of assets, here the study uses the prime rate<sup>40</sup> in real terms<sup>41</sup> as a proxy for  $r_t$ . From 1996 to 2016, the accumulated rate of return is 164 percent (yearly rate 5.0 percent).  $\alpha_t$  is the average capital share in national income over the period, obtained from the study's estimation of the capital share.  $s_t$  represents the average private savings rate from 1996 to 2006, estimated based on Hong Kong's national accounts.  $q_t$  is the contribution of capital gains to wealth growth, which can be expressed as weighted capital gains of various assets (e.g., housing, equity, and savings),  $q_t = \sum_j q_t^j A_t^j$ , where  $A_t^j$  represents the share of asset  $j$  in net private wealth at time  $t$ . National-level capital gains in housing and equities are estimated based on the housing and stock index<sup>42</sup> (see fig. 10, panels A and B). It is assumed that  $q_t^{savings}$  equal to zero.

To estimate  $q_t$ , it is necessary to make assumptions about the share of different assets in net private wealth ( $A_t^j$ ). After comparing Hong Kong's housing share with that in other economies, the study assumes that  $A_{1996}^{housing}$  in Hong Kong is 50 percent.<sup>43</sup> The analysis then splits the rest of private wealth between equity wealth and non-equity financial wealth. Under this assumption, the contribution of capital gains to wealth growth  $q_t$  is equal to 51 percent (see table 3). This assumption is, to some extent, arbitrary, since there is no further information available on the portfolio of private wealth in Hong Kong, but after experimenting with different assumptions in the simulation, the analysis finds that the study's different assumptions result in a very similar evolution of wealth inequality.

The analysis now simulates the evolution of the wealth share for the wealth groups at the bottom and at the top. The study defines the bottom groups as households that do not own any property or equity ( $\varphi_t^{q,i} = 0$ ) and do not save ( $\frac{s_t}{\alpha_t} * \varphi_t^{r,i} = 0$ ). The authors believe that this definition represents the financial reality for the bottom 50 percent households in Hong Kong relatively well. Figure 10 (panel A and B) shows that in 1996, more than 50 percent of households do not own an apartment and less than 20 percent of adults owned any stocks. Poon and Hon (2015) show in addition that in 2014, the bottom 50 income group had less than 5 percent of total household savings. Simulation results show a 50 percent decrease in the wealth share of the bottom group during the period 1996–2016, while the price effect and the savings effect being almost equally responsible for the decrease (price effect = –26 percent vs. savings effect = –24 percent).

40 The prime rate is the interest rate that commercial banks charge their most creditworthy corporate customers.

41 Deflated by the consumer price index (CPI).

42 Data are published by Census and Statistics Department of Hong Kong and Hong Kong stock market price index (HIS). All indices are deflated by the consumer price index.

43 Based on Figure 9 Panel B, in 1996 the share of housing in net private wealth is below 40% in most rich countries. Due to the rising price of housing before the Asian financial crisis (see Figure 10 Panel A), it is very likely that the housing share in Hong Kong is higher than in other countries in 1996.

**Table 3.** Simulation for Evolution of Wealth Inequality in Hong Kong, 1996–2016

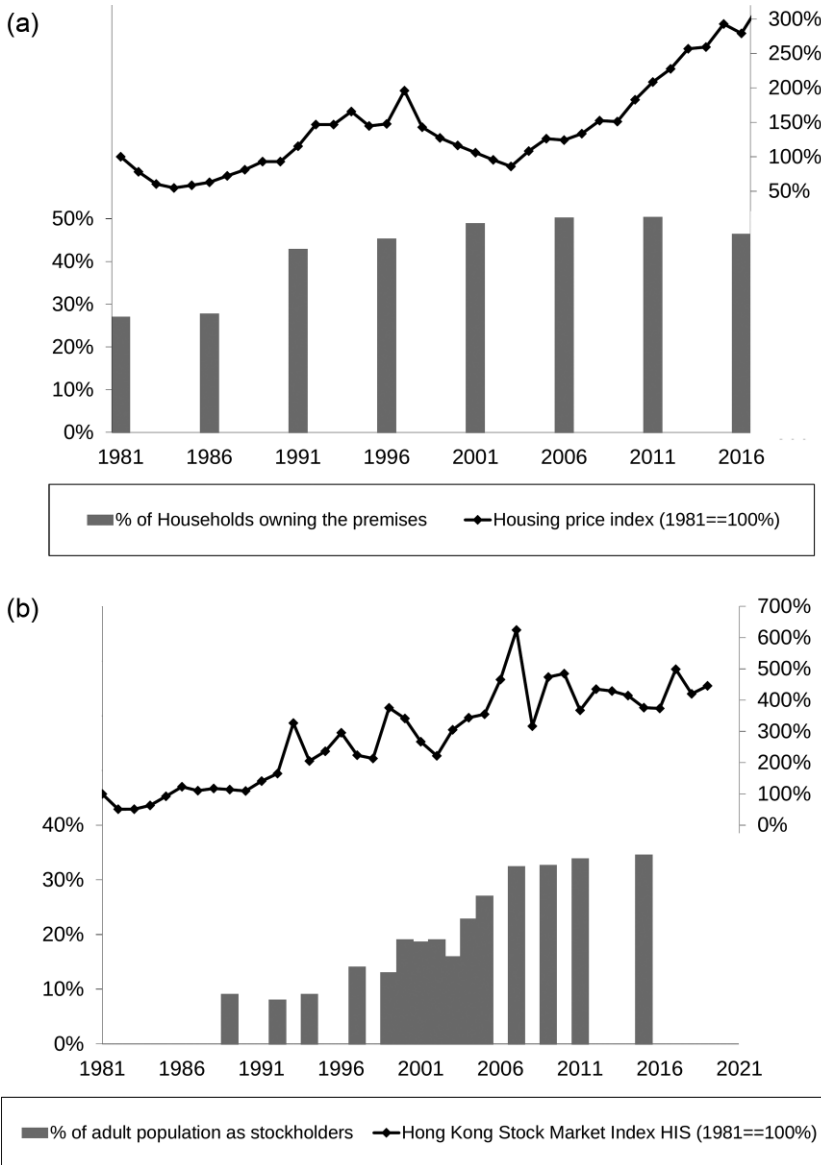
	Simulation parameters										Simulation results				
	Rate of return	Capital share	Private saving rate	Capital gain on different assets			Asset portfolio			Capital gain on all assets	Relative premium	Relative rate of return	Price effect	Saving effect	Total effect
				Capital gain on housing	Capital gain on equities	Capital gain on savings	Share of housing	Share of equities	Share of savings						
	$r_t$	$\alpha_t$	$s_t$	$q_t^{housing}$	$q_t^{equity}$	$q_t^{savings}$	$A_t^{housing}$	$A_t^{equity}$	$A_t^{savings}$	$q_t$	$\phi_t$	$\phi_{t,i}$			
National	164%	43%	12%	89%	26%	0%	50%	25%	25%	51%	150%	100%	–12%	38%	26%
Top		80%	40%		26%		0%	100%	0%	0%	–26%	0%			
Bottom		0%	0%				0%	0%	100%	0%	–26%	100%		–24%	–50%

*Source:* In the national level,  $r_t$  is proxied using the prime rate (the interest rate that commercial banks charge their most creditworthy corporate customers) in real terms;  $\alpha_t$  is obtained from the study's estimation of Hong Kong's capital share;  $s_t$  is estimated based on Hong Kong's national accounts;  $q_t^{housing}$  and  $q_t^{equity}$  are estimated based on the housing and stock index (Data are published by Census and Statistics Department of Hong Kong and Hong Kong stock market price index (HIS)). We assume  $q_t^{savings}$  is equal to 0;  $A_t^{housing}$  is 50%, and both  $A_t^{equity}$  and  $A_t^{savings}$  are equal to 25% in 1996. We define the bottom groups as households that do not own any property or equity, thus  $A_t^{savings}$  is equal to 100%. We define the top groups as households whose assets consists only of equity ( $A_t^{equity} = 100\%$ ). We assume the rate of capital gains on equity of the top groups is equal to the market rate of capital gains (26%), the saving rate is equal to 40%, capital share is equal to 80%, and the relative rate of return premium ( $\phi_t^{(i)}$ ) is equal to 150%.

**Figure 10.** Evolution of Assets Price and Ownership, 1981–2016

Panel A: Housing Assets

Panel B: Stocks



Source: Shares of households owning premises are derived from authors' calculations based on data from the Hong Kong Micro Census (1981–2016). Data on housing price index are from the Rating and Valuation Department of Hong Kong. Data on share of adult population as stockholders and Hong Kong Stock Market Index are from Hong Kong Stock Exchange ([www.hkex.com.hk](http://www.hkex.com.hk)).

The study now moves to the top wealth groups (namely the super-rich). A moderate assumption is adopted by assuming the asset portfolio consists only of equity ( $A_t^{equity} = 100\%$ ) and there is no capital gain premium on assets. The rate of capital gains of the super-rich is therefore equal to the market rate of capital gains ( $q_t^i = 26\%$ ). A moderate assumption is also adopted by assuming that the savings rate of

top group A ( $s_t^i$ ) is 40 percent.<sup>44</sup> The study assumes that the relative rate of return premium ( $\varphi_t^{r,i}$ ) is equal to 150 percent and the capital share ( $\alpha_t^i$ ) is equal to 80 percent. Under this assumption, the total wealth share of the top wealth group rises 26 percent, which can be decomposed into a –12 percent price effect and a 38 percent savings effect. Due to the study's moderate assumption, these results can be seen as the lower bound of the estimation. Increasing the capital gain or savings rate, or decreasing the capital share in income will increase the wealth share of the top wealth group.

This study's simulation also shows that the rise in the equity price relative to the rise in the housing price has a direct impact on the wealth share of the super-rich by way of the price effect, since the share of equity in the wealth portfolio of the super-rich is often higher than the share of properties. By the same token, when housing prices rise faster than equity prices, the wealth share for the middle class (homeowners) will increase, driven by the price effect. This kind of race between the stock market and the housing market and its impact on the evolution of wealth inequality have been discussed at length by [Kuhn, Schularick, and Steins \(2020\)](#) using U.S. data. However, such a race only matters for the people who own property or equity. For those who do not own any real assets and only have low nominal savings, their wealth share will decrease when asset prices increase.

## 7. The Institutional Roots of Rising Inequality and Political Cleavages in Hong Kong

The previous sections have documented the rising income and wealth inequality in Hong Kong over recent decades. This section examines the relationship between Hong Kong's political structure and the rising inequality. The study argues that the failure of Hong Kong's government to stop the widening income and wealth gap in the city stems from its own electoral politics. Under the partial democratic political structure, business elites carry disproportionate weight in the Legislative Council. Thus, they are able to block policies that would limit their political influence or harm their economic interests—for instance, redistributive policies.

Using the unique opinion survey conducted biannually from 2016 to 2021 by the Hong Kong Public Opinion Research Institute (PORI), the study tests the following hypotheses.<sup>45</sup>

*A. Compared to the rest of society, business elites are more likely to vote for the pro-establishment camp to preserve or reinforce their political privileges.*

*B. The 2019 Hong Kong protests, which aimed to abolish the political privileges of business elites, have deepened existing political cleavages.*

The survey provides information on the political inclinations as well as the socio-economic characteristics of the interviewees, including income class (self-perceived), gender, age, education, occupation, and place of birth. The upper income class (roughly top 5 percent) is used as a proxy for business elites. [Figure 11](#), in panels A and B, presents the evolution of the distribution of political inclinations and income class among the interviewees from 2016 to 2021. [S6](#)<sup>46</sup> in the supplementary online appendix reports the summary statistics for all the variables. To ensure that the opinion survey data are representative for Hong Kong, the study compares the summary statistics on socio-economic variables, such as gender, age, education, occupation, and place of birth, between the opinion survey and the Hong Kong census for the year 2016. It is found that overall, the opinion survey is consistent with the census.

44 [Saez and Zucman \(2016\)](#) show that the savings rate of the top 1 percent wealth group in the United States is between 30 percent and 45 percent for the period 1975 to 2012; [Späth and Schmid \(2016\)](#) show that the savings rate of the top 1 percent wealth group in Germany is 25 percent in 2013.

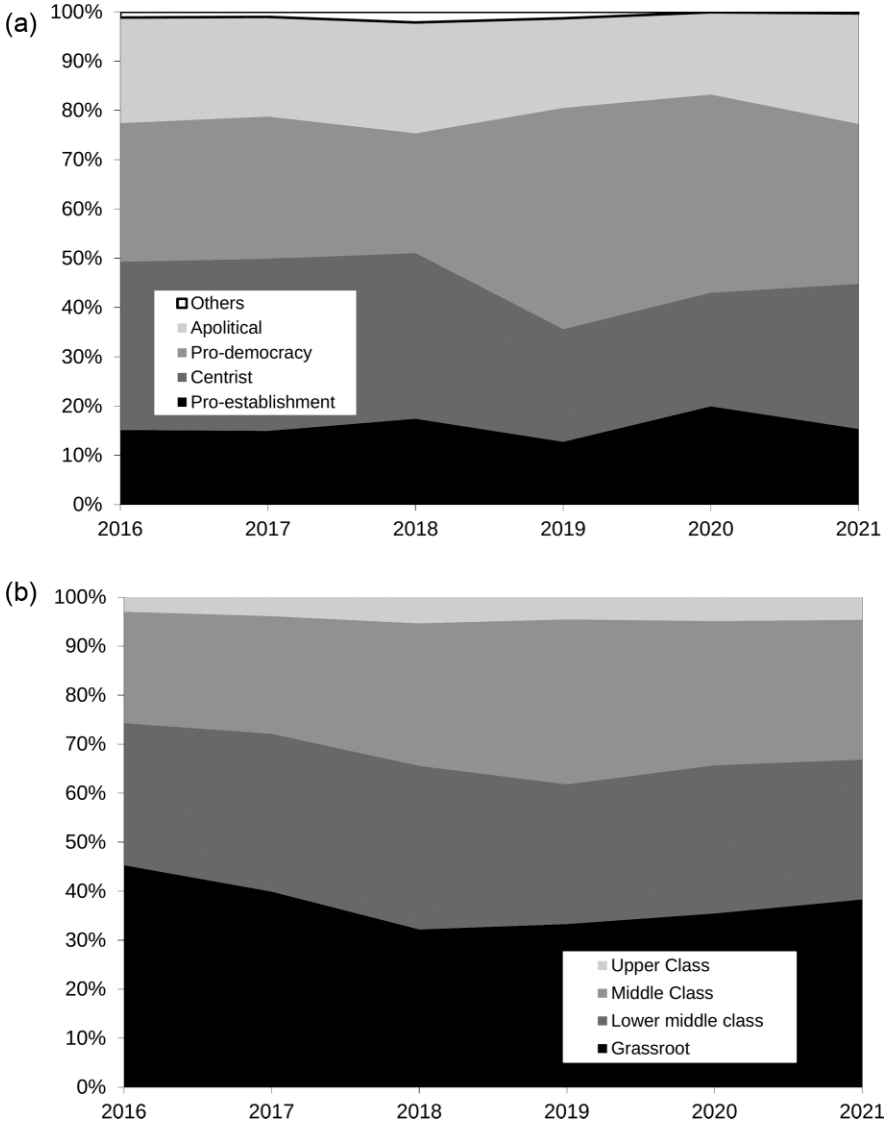
45 Compared to CSES data used by [Durrer and Gethin \(2021\)](#), the PORI survey not only provides the latest political opinion data (up to 2021) with a larger sample size but also more detailed categories of the political inclination, namely the pro-establishment, the pro-democracy, the centrist, and the apolitical. [Durrer and Gethin \(2021\)](#) neglects the last two fractions, which account for about 50 percent of the population of Hong Kong (see [Figure 11](#), panel A).

46 See supplementary online appendix S6, sheet AT2.

**Figure 11.** Summary Statistics of Political Inclination and Income Groups in Hong Kong, 2016–2021

Panel A: Political Inclination

Panel B: Income Groups



Source: Data for the study come from the opinion survey on ethnic identities conducted biannually by the Hong Kong Public Opinion Research Institute (PORI) from 2016 to 2021.

To test the hypotheses, the study’s baseline model is as follows:

$$BJ_{i,t} = \sum_{j=1}^C \alpha_{j,pre2019} * D_{pre2019} * C_{i,t}^j + \sum_{j=1}^C \alpha_{j,post2019} * D_{post2019} * C_{i,t}^j + X'_{i,t} \beta + d_t + e_{i,t} \tag{8}$$

Here  $BJ_{i,t}$  is the political inclination dummy for the pro-establishment camp.  $C_{i,t}^j$  is an income class dummy, which is equal to 1 if the interviewee  $i$  belongs to income class  $j$  in year  $t$ .  $C$  is the set of income classes, including middle class, lower middle class, and lower class. The upper class is treated as the base group



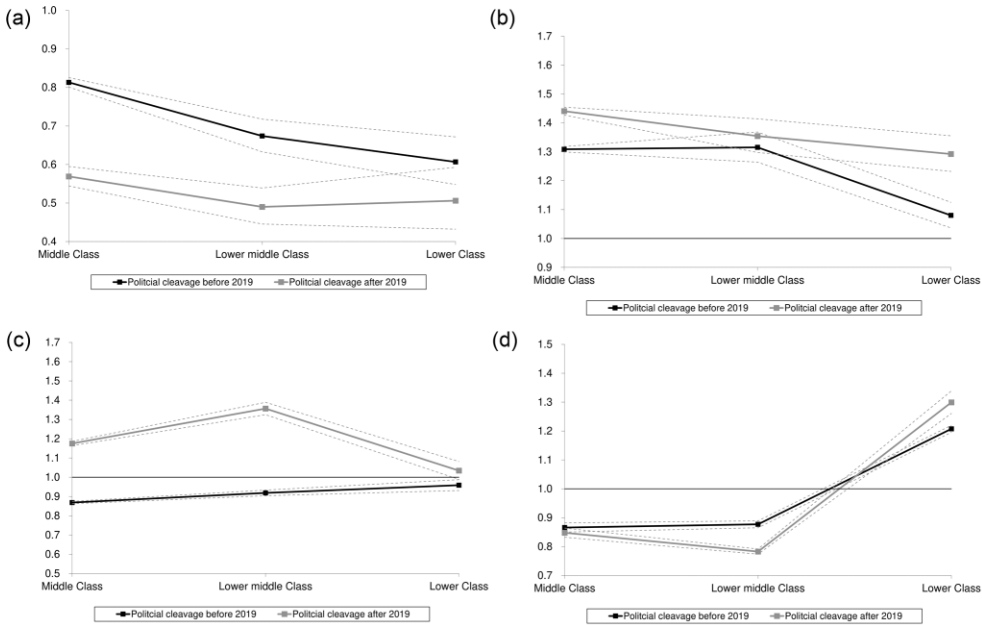
**Table 4.** Logit Regression on Political Inclination (Coefficients Reported in Odds Ratios)

Political inclination	Logit regression on political inclination			
	Pro-establishment Camp	Centrist	Pro-democracy Camp	Political Indifference
<b>Income class pre2019 (base: Upper class)</b>				
Middle class	0.813*** (0.006)	1.309*** (0.005)	0.869*** (0.003)	0.866*** (0.008)
Middle lower class	0.674*** (0.022)	1.315*** (0.027)	0.919*** (0.007)	0.877*** (0.006)
Lower class	0.607*** (0.031)	1.080*** (0.023)	0.959*** (0.014)	1.207*** (0.006)
<b>Income class post 2019 (base: Upper class)</b>				
Middle class	0.569*** (0.013)	1.441*** (0.007)	1.175*** (0.006)	0.848*** (0.008)
Middle lower class	0.490*** (0.024)	1.355*** (0.030)	1.356*** (0.016)	0.783*** (0.005)
Lower class	0.506*** (0.041)	1.292*** (0.031)	1.034 (0.024)	1.299*** (0.020)
<b>Occupation (base: Executives and professionals)</b>				
Clerical and workers	1.102 (0.106)	1.041 (0.073)	0.925* (0.038)	1.060 (0.093)
Students	0.691 (0.253)	0.948 (0.210)	1.305*** (0.065)	0.551* (0.195)
Homemakers, retirees, and others	1.143 (0.137)	0.917 (0.124)	0.892 (0.109)	1.306*** (0.134)
<b>Age (base: 60+)</b>				
18–29	0.195*** (0.022)	0.764*** (0.068)	2.185*** (0.247)	1.025 (0.192)
30–39	0.449*** (0.075)	1.036 (0.068)	1.325** (0.183)	1.226 (0.233)
40–59	0.615*** (0.082)	1.309*** (0.030)	0.948 (0.150)	1.232 (0.226)
50–59	0.844* (0.085)	1.161*** (0.017)	1.040 (0.043)	0.940 (0.162)
Female	0.806 (0.117)	0.937 (0.062)	0.925** (0.034)	1.572*** (0.158)
<b>Education (base: Secondary education)</b>				
Primary education	0.816** (0.070)	0.928** (0.030)	0.723*** (0.026)	1.628*** (0.062)
Tertiary education	0.869 (0.084)	0.981 (0.081)	1.402*** (0.050)	0.620*** (0.053)
<b>Place of birth (base: Hong Kong)</b>				
Mainland	1.961*** (0.100)	0.980 (0.031)	0.579*** (0.017)	1.214** (0.119)
Other places	1.394*** (0.170)	0.716*** (0.067)	0.812 (0.125)	1.661*** (0.053)
Constants	0.279*** (0.026)	0.434*** (0.077)	0.526*** (0.063)	0.147*** (0.015)
Observations	9,341	9,341	9,341	9,341
Log pseudolikelihood	–3572	–3572	–3572	–3572
Year fixed effect	Y	Y	Y	Y
Cluster at income class level	Y	Y	Y	Y

Source: Data for the study come from the opinion survey on ethnic identities conducted biannually by the Hong Kong Public Opinion Research Institute (PORI) from 2016 to 2021.

**Figure 12.** Political Inclination (in Odds Ratio Comparing to Upper Class)

Panel A: Pro-establishment camp  
 Panel B: Centrist camp  
 Panel C: Pro-democracy camp  
 Panel D: No political inclination



Source: Data for the study come from the opinion survey on ethnic identities conducted biannually by the Hong Kong Public Opinion Research Institute (PORI) from 2016 to 2021.

and is therefore excluded from  $C$ .  $D_{pre2019}$  is the time dummy for the years before the 2019 Hong Kong protests, while  $D_{post2019}$  is the dummy for the post-2019 period.  $X_{i,t}$  is a vector of controls including interviewees' gender, age, education, occupation, and place of birth.  $d_t$  is the year fixed effects.  $e_{i,t}$  is the error term. Since the dependent variable  $B_{i,t}$  is binary, a logit model is applied for estimation. The odds ratios of the coefficients of interest  $\alpha_{j,pre2019}$  and  $\alpha_{j,post2019}$  measure the possibility of income class  $j$  voting for the pro-establishment camp comparing with the upper class before and after the 2019 Hong Kong protests. They can be interpreted as a proxy for the political cleavages between the upper class and other income classes. To support the study's hypothesis, the study expects that the odds ratios of  $\alpha_{j,pre2019}$  and  $\alpha_{j,post2019}$  are smaller than 1 and significant, while the gap between  $\alpha_{j,post2019}$  and  $\alpha_{j,pre2019}$  is negative and significant.

Regression results are presented in table 4, column (1). All coefficients and standard errors are reported in odds ratios. Standard errors are clustered at the income class level.<sup>47</sup> To better visualize the findings, the main results appear in fig. 12, panel A. The black curve represents the odds ratios for each income class before 2019, while the red curve represents the odds ratios after 2019. Dashed lines mark the boundary of the 95 percent confidence intervals. As shown in the table and figure, in the period before the 2019 Hong Kong protests, the upper class was the most likely of all of the income classes to vote pro-establishment. The probability of the middle class voting pro-establishment, for example, is 81.3 percent of the probability for the upper class. The odds ratios also decrease across income groups. After 2019, the odds ratios decrease substantially, indicating widening political cleavages between the upper class and other income classes. To test whether the changes in the odds ratios before and after 2019 are significant, the study

47 This is because the sample is at the individual level, while the key variable  $C_{i,t}^j$  is a dummy at the income class level.

estimates the following modified model:

$$BJ_{i,t} = \sum_{j=1}^C \alpha_j * C_{i,t}^j + \sum_{j=1}^C \alpha_{j,\Delta} * D_{post2019} * C_{i,t}^j + X'_{i,t} \beta + d_t + e_{i,t} \quad (9)$$

where  $\alpha_{j,\Delta}$  measures the changes in the likelihood of income class  $j$  voting pro-establishment camp before and after 2019. Results are provided in S6 of the supplementary online appendix.<sup>48</sup> All the estimations of  $\alpha_{j,\Delta}$  are significantly negative, indicating that odds ratios decreased significantly for the middle class, lower middle class, and lower class voting pro-establishment after 2019. The study's regression results provide strong supportive evidence for the hypotheses.

To gain a fuller picture of voting dynamics in Hong Kong, the same model is applied to estimate the determinants of voting for the centrist camp, pro-democracy camp, and for being apolitical. Regression results and corresponding graphs are presented in table 4, columns 2, 3, and 4, and fig. 12, panels B, C, and D. Three remarks are in order. First, before 2019, the upper class was less likely to vote centrist and more likely to vote pro-democracy. Second, since the 2019 Hong Kong protests, the rest of the society has been moving toward the centrist and pro-democracy camp—in contrast to the upper class. Third, the results are mixed for apolitical voters: The upper class is more likely to be apolitical than the middle and lower middle class, and has been becoming more apolitical since 2019. The lower class is more likely to be apolitical than the upper class, and this tendency has been increasing since 2019.

Furthermore, it is also found that the inclination to vote pro-establishment increases with age, while the inclination to vote pro-democracy increases with education. People who were born in mainland China are more likely to vote pro-establishment and less likely to vote pro-democracy. Women are more likely to be apolitical than others, as are homemakers and retired people.

## 8. Conclusion

This paper combined and compared and confronted several data from multiple sources to analyze the evolution of income, wealth, and electoral inequality in Hong Kong. The study obtained several important findings. First, wage inequality has risen significantly in Hong Kong over the last four decades. The upward trend became even more pronounced after the handover of Hong Kong in 1997. These results are confirmed by various robustness checks. The analysis based on the recentered influence function (RIF) of the Gini index (Firpo et al. 2009, 2018) suggests two major driving forces behind the rise in wage inequality: first, the expansion of higher education, and second, the transformation of Hong Kong's industrial structure from manufacturing to the financial and service sector. Interestingly, the latter factor is the only dominant force after the handover of Hong Kong, due mainly to its wage structure effects. It should be stressed that the results are not causal and should therefore only be seen as suggestive evidence.

Second, the study constructed Hong Kong's first capital share series from 1993 to 2019 by combining corporate tax data and national accounts. Based on the study's benchmark estimates, the capital share in Hong Kong has increased dramatically since the beginning of the century. Today, Hong Kong's capital share is much higher than that of major high-income economies. Even when applying the lower bound of the estimation (estimating the capital share based on labor income), this result still holds.

Additionally, this article provides the first set of internationally comparable wealth concentration estimates based on *Forbes* rich lists. The main findings suggest that the top 0.001 percent of wealth (normalized by national income) has increased substantially in Hong Kong since the end of the 1980s. Today, billionaire wealth and top 0.001 percent wealth are far higher in Hong Kong than in other economies, while in 2018, top 0.001 percent wealth shares in Hong Kong exceeded those in Russia, were more than twice those in the United States and China, and were 10 times those in France. Additionally, the study's

48 See supplementary online appendix S6, sheet AT4.

simulations based on the wealth accumulation model confirm that wealth inequality has been increasing in Hong Kong since 1996.

Due to the lack of data, the study's key results on Hong Kong's top wealth concentration are derived based on some strong assumptions, two of the most important of which are the size of billionaire families and the share of housing assets in total private wealth. Increasing the size of billionaire families or decreasing the share of housing assets will lead to a lower estimation of top wealth (normalized by national income) and top wealth shares. Based on existing direct and indirect evidence, the study argues that both assumptions will lead to an underestimation of Hong Kong's top 0.001 percent wealth concentration, and that the findings should therefore be seen as the lower bound of the wealth concentration estimation.

Finally, it is argued that the partial democratic political structure in Hong Kong is the institutional root of the rising inequality and political cleavages in Hong Kong. The evidence suggests that compared to the rest of the society, business elites (the upper class), who carry disproportionate weight in the Legislative Council, are more likely to vote for the pro-establishment camp to ensure that policies are enacted that will protect their political and economic interests. Such political cleavages have become even wider since the 2019 Hong Kong protests.

It should be stressed again that the study has many limitations, in particular due to the lack of adequate data access. It is to be hoped that more data will become available in the future to enable a better understanding of the evolution of income and wealth inequalities as well as political cleavages in Hong Kong.

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