

'One Country Two Systems' Overview: Public Survey and Index Construction Third Report

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Part I: Summary

This is our third Report on the 'One Country Two Systems' (henceforth 1C2S) Index (henceforth the Index). The purpose of the Index is to provide an objective assessment on the implementation of 1C2S. Our first Report was released in mid-2017, on the 20th anniversary of HK's return to China. It is our intention to update the Index once every six months. This will be our third Report on the Index. We constructed the Index as the average of the following two indices:

- 1) Index (A), an index of HK Public's Evaluation of 1C2S: Compiled from a telephone poll on various dimensions of 1C2S; and
- 2) Index (B), the Freedom and Democracy Index, which is obtained from various relevant indices produced by international think tanks.

Every half year, we update the Index through updating indices (A) and (B) respectively with a new public survey and with the latest data from international indices. In our second Report on the Index released in early 2018, besides updating the Index, we also introduced a new 1C2S Mass Media Index (MMI) that use big-data techniques to measure the sentiment of Hong Kong newspapers as regards 1C2S from 1988 to the end of 2017 as we consider news sentiment has very significant influences on public opinion.

In this third Report on the Index, we have conducted a third telephone poll to compile Index (A), reflecting conditions in mid-2018. We also updated Index (B) with the latest international data. For the MMI, we include newspaper reports up to the end of June 2018 to capture the latest news sentiment on 1C2S.

In our Report, differences in scores at a particular point in time, or changes in scores over time that are big enough to be statistically significant will be noted explicitly. If there is no mentioning of statistical significance about a score, it means that the difference or change concerned is statistically insignificant.

Figure 1: 1C2S Index

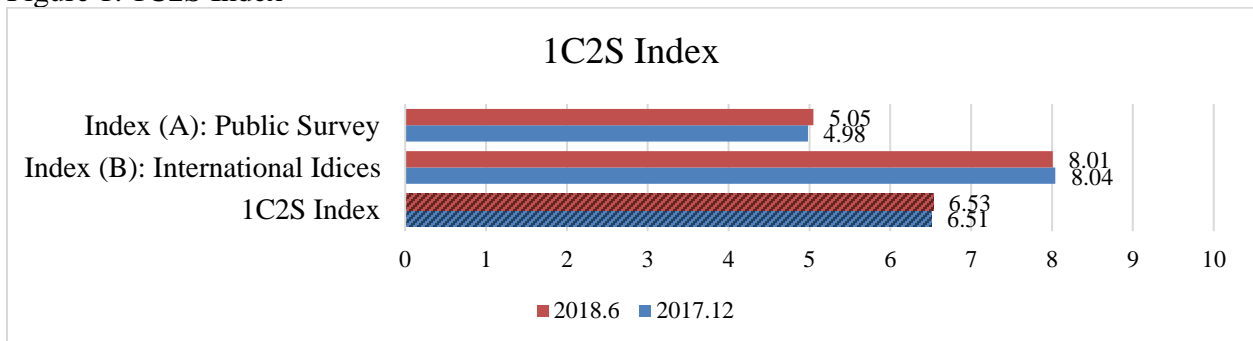


Figure 1 shows Indices (A), (B) and the 1C2S Index in the 2nd and 3rd rounds. From the end of 2017 to mid-2018, Index (A) rose from 4.98 to 5.05 while Index (B) fell from 8.04 to 8.01. The Index consequently rose from 6.51 to 6.53, rising by 0.3%.

The evaluation of the HK public of 1C2S has improved. From the MMI, the sentiments of HK newspapers on 1C2S has also improved. However, international perception has diverged from local perception in HK. This is likely a result of the adverse publicity in the international media on trials of protesters who participated in ‘Occupy Central’ and the civil unrest in Mongkok.

A. Change in scores in the three rounds

Changes in scores in the Index are likely to be affected by the controversial political events that occurred from mid-2017 to mid-2018. Between the first and second rounds, the following events generated a lot of attention:

- Disqualification of four LegCo members by the High Court;
- Prison sentences on the (13 + 3) protesters: The violent demonstrations of 13 protesters in relation to East North Territories Development, and the three student leaders (Joshua Wong, Nathan Law, and Alex Chow) in the Civic Square occupation. The (13 + 3) protesters were initially spared imprisonment and were sentenced to perform community service. However, the government won a sentence review pushing for tougher punishment. In August 2017, the Court of Appeals sentenced them to 6 to 13 months imprisonment. The court also gave new tougher sentence guidelines for future cases of large-scale unlawful assemblies involving violence. Emphasis on ‘overall jurisdiction over Hong Kong’ in the Work Report of 19th CPC National Congress;
- Amendment of the Rules of Procedure of the Legislative Council to restrict filibustering;
- China’s enactment of the national anthem law; and
- LegCo’s passage of the non-binding motion on the high-speed rail co-location arrangement.

Between the second and third rounds, from late 2017 to mid-2018, the following controversies are noteworthy:

- The case of the three student leaders was brought to the Court of Final Appeals (CFA). The CFA overturned the prison sentences on the trio on a technicality but ruled that the Court of Appeals was entitled to give tough sentence guidelines for future cases of large-scale unlawful assemblies involving violence;
- LegCo’s passage of the co-location bill on June 14 after protracted debates;
- Hong Kong is due to start the local legislative process to implement the national anthem law in the second half of 2018;
- Edward Leung, leader of *HK Indigenous*, was given a prison sentence of 6 years on June 11 for his role in the civil unrest in Mongkok.

The above events may have adversely affected the evaluations of 1C2S by the public and also by international think tanks. However, the sentencing of Edward Leung on June 11 occurred after our 3rd survey was carried out and therefore could not affect the results of the 3rd survey, which was

conducted from May 23 to June 2. However, the MMI does capture the effect of the sentencing as the MMI covers news sentiment up to the end of June.

(1) Index (A): Public Survey

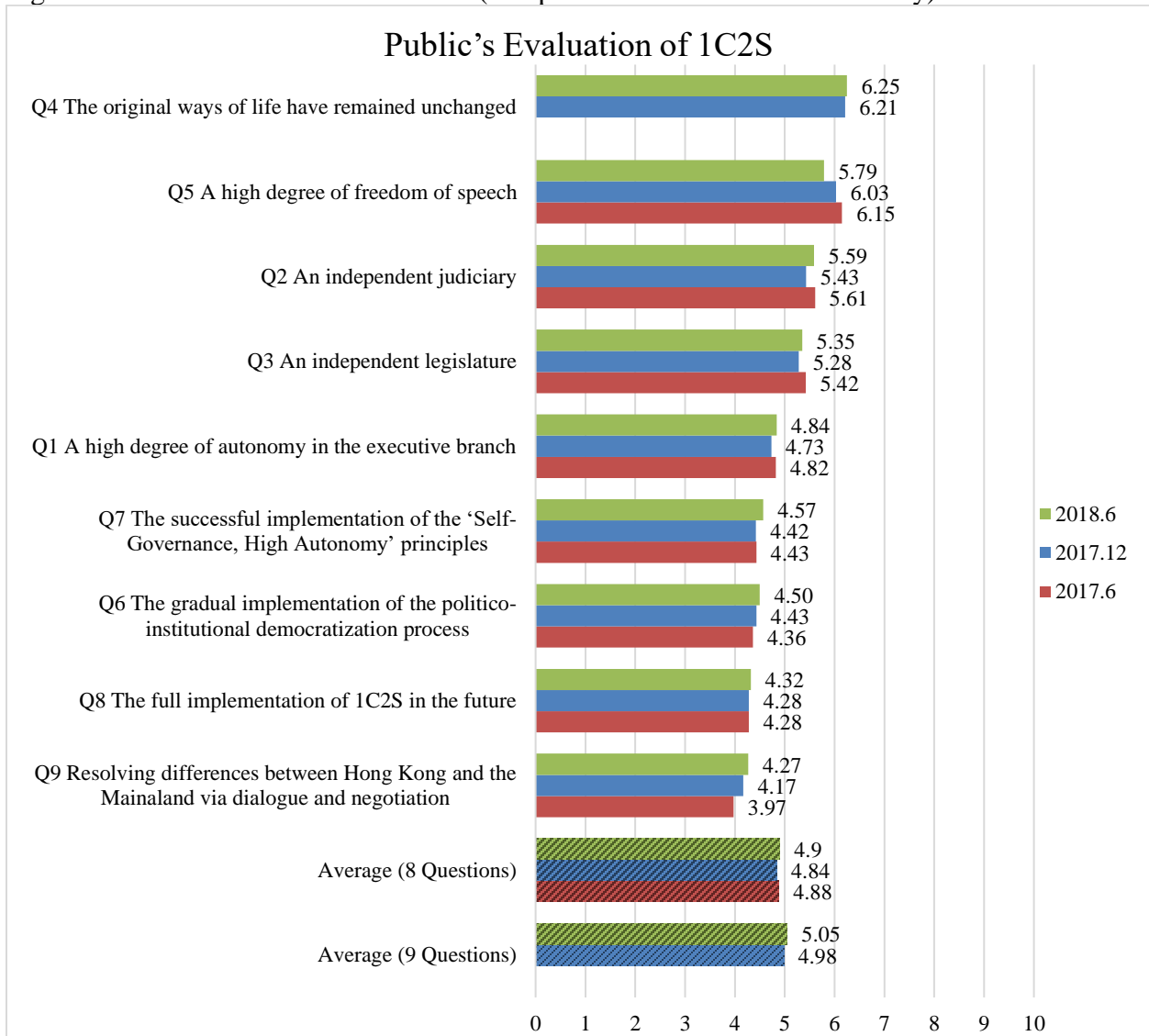
Index (A) is a composite score of 9 sub-scores obtained from 9 questions on different dimensions of 1C2S in our survey (Figure 2). We used 3 alternative methods, namely, Simple Average, Principal Component Analysis, and Factor Analysis to compute Index (A). The first method of Simple Average assigns equal weight to each of the 9 sub-scores. It is easily understood and is the most commonly used method. The latter two methods use statistical techniques to assign different weights to the sub-scores based on the variations in the sub-scores. Details of computations are in Appendix 1 as they are highly technical. As the differences in the results of using the 3 different methods are small and negligible, we adopt the simplest and most commonly used method, i.e., the average of the 9 items, in constructing Index (A).

Of the 9 questions in the survey, the score on Q4 in the first survey is not comparable to those in the second and third rounds due to refinement of question 4 ('original way of life in HK remained unchanged') after the first survey. In Figure 2, for comparison with the 1st survey, we also show the average scores of the other 8 questions that are identical across the 3 surveys.

From the 2nd to the 3rd round, the scores of all questions, except the score on 'freedom of speech', rose. Index (A) rose from 4.98 to 5.05, the first time that the Index exceeded the mid-point score of 5. The general improvement in scores is likely to be associated with the decrease in societal division after the appointment of Carrie Lam as CE (Chief Executive), as will be detailed later. The fall in the score on 'freedom of speech', which is statistically significant, is likely to be related to two incidents in which HK reporters were roughed up on the mainland in May, shortly before the commencement of our survey. It is to be noted, however, that although the reporters were from Hong Kong, those events strictly speaking, affected the freedom of the press on the Mainland rather than Hong Kong.

The scores of all items on 1C2S questions are quite stable, suggesting that the questionnaire design is robust. Four items consistently scored higher than 5; from the highest to the lowest, they are: maintaining original ways of life, freedom of speech, judicial independence, legislative independence – these results suggest the public holds relatively positive opinions with respect to the above four items.

Figure 2: Public’s assessments of 1C2S (comparison of three rounds of survey)



On the other hand, five items score below 5 in all 3 rounds: they are, from the highest to lowest, a high degree of autonomy in the executive branch, the successful implementation of ‘Self-Governance, High Autonomy’ principles, progress in democratization, the full implementation of 1C2S in the future, and the ability for the Mainland and Hong Kong to resolve differences via dialogue and negotiation. The results suggest that the public holds relatively negative views with respect to these five items. Although the average across the 9 items has risen to 5.05, just above the half way mark, the rating is still not high, a fact which policy makers ought to take note.

The range of the ratings is relatively narrow, ranging from 4 to 6 plus, most plausibly because the public generally hold a ‘holistic rating’ on 1C2S, such that regardless of the specific item surveyed, the answers are nevertheless shaped by their ‘holistic ratings’, such that the range across their answers for each specific item is relatively small.

(2) Polarization of public's evaluation of 1C2S across generations and across political inclinations

Figures 3 and 4 show public's evaluations of 1C2S respectively by age and by political inclination in the 3 surveys. The figures show that the generation gap and the political divide in evaluations of 1C2S are big and widening.

In Figure 3, the generation gap in evaluation of 1C2S is obvious: The average scores of younger age groups are lower than those of older age groups. The difference between the 18-49 age group and the over 50 age group is statistically significant. The average scores over 8 items of Young Adults (age 18 to 29) is only around 4, while those of old people (over 70) are above 6. Moreover, from the 1st survey to the 3rd, the evaluation scores of all 3 younger age groups (18-29, 30-39, and 40-49) fell, while the scores of 2 older age groups (50-59 and 60-69) rose, showing polarization across generations.

Figure 3: Public's evaluation of 1C2S by age

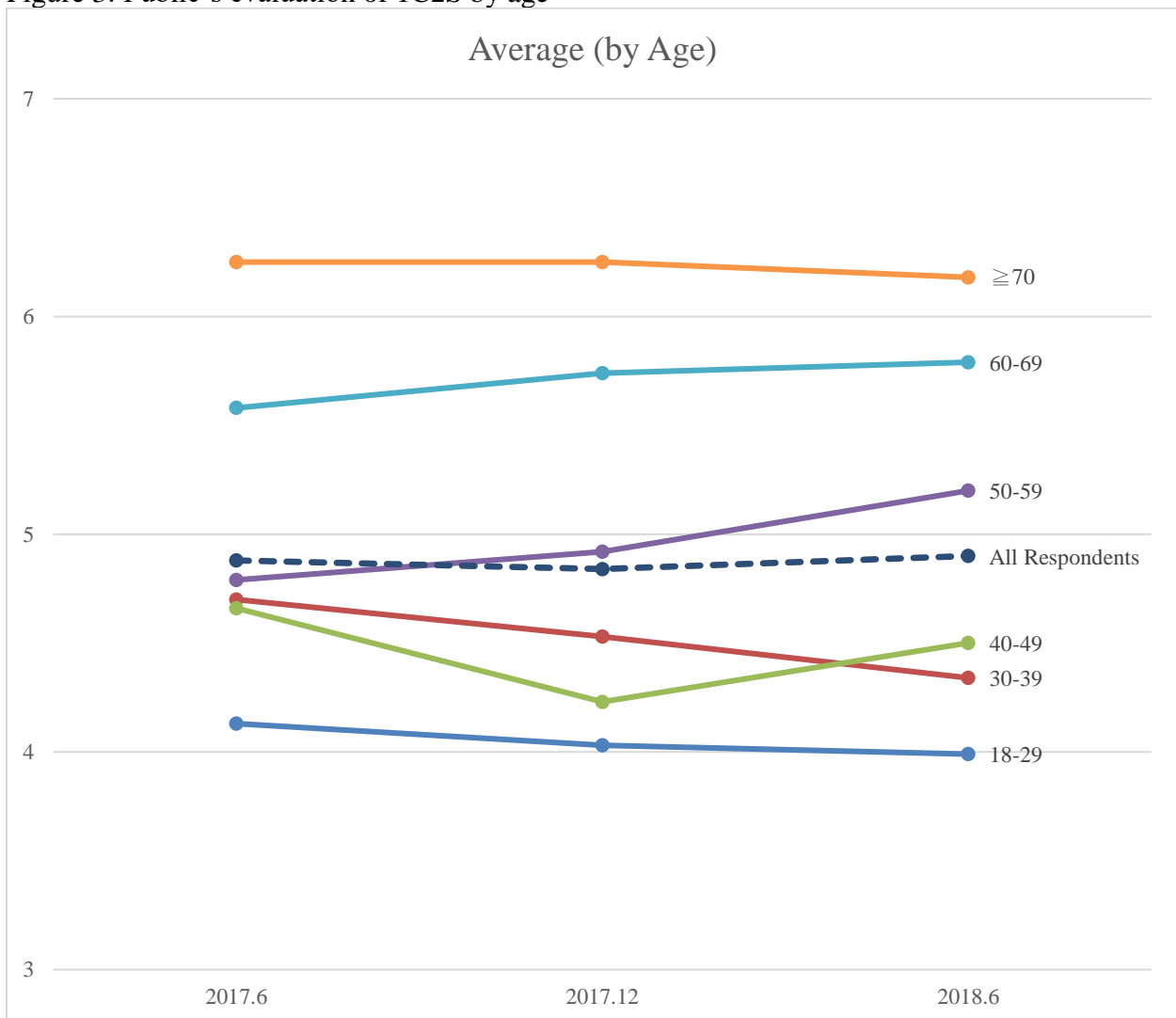
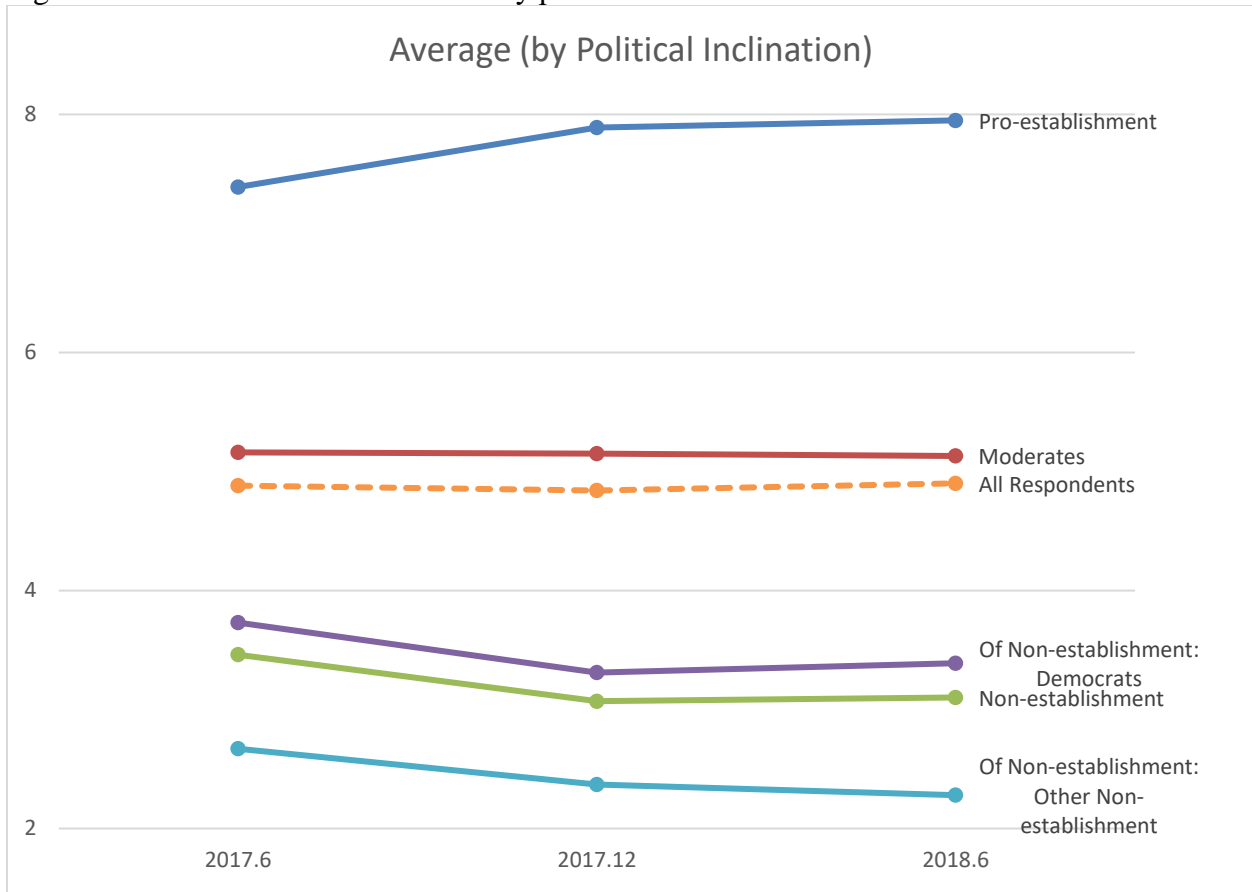


Figure 4 shows public’s evaluations of 1C2S by political inclinations in the 3 surveys. Statistical tests reveal that, in comparison with Moderates, the evaluations of Pro-establishment supporters are significantly higher, while the evaluations of Non-establishment supporters are significantly lower. Non-establishment supporters are divided into ‘Democrats’ and ‘Others’ (mostly localists/self-determinists). Within Non-establishment supporters, the ‘Others’ group have lower evaluations (scores around 2 to 3) in comparison with Democrats (scores around 3 to 4). The evaluation scores of Moderates (which include Centrists and those without political inclination) are quite stable in the 3 rounds, hovering slightly above 5.1.

Figure 4: Public’s evaluation of 1C2S by political inclination



The Pro-establishment – Non-establishment political divide is big and widening: Statistical tests reveal that the high scores of Pro-establishment supporters rose significantly higher (rising by 7.6% from the 1st to the 3rd round), and the low scores of Non-establishment supporters fell significantly lower (falling by 10.4% from 1st to 3rd round). The trend of polarization is evident.

From the 1st to the 3rd round, although the average score over 8 items for our entire sample is stable and has risen slightly from 4.88 to 4.90, there is evident polarization across generations and across political inclinations. This is a very serious problem.

(3) Index (B): Freedom and Democracy Index

Index (B) is the average of 3 indices, namely, the Economic Freedom Index and Personal Freedom Index of CATO-Fraser Institutes, and the Democracy Index of the EIU (Economic Intelligence Unit). Hong Kong has always ranked world's number one in Economic Freedom, and has also ranked highly in Personal Freedom.

The latest Economic Freedom and Personal Freedom indices only reflect conditions up to 2015. In the second and third Reports, we updated both indices to 2016 and to 2017 respectively. Hong Kong's Personal Freedom Index rose from 2008 to a peak in 2014, but fell thereafter. The Democracy Index rose from 2008 to a peak in 2015, but declined thereafter. Given the adverse publicity in the international media in relation to recent political controversies in Hong Kong, the recent declines are expected.

- The Personal Freedom Index climbed from 8.87 in 2008 to a peak of 9.08 in 2014, but fell to 8.58 in 2017, falling by 5.5% from the 2014 peak. Among the 7 sub-indices of this Index, the scores of 4 sub-indices fell, namely, rule of law (falling by 16.0%), freedom of religion (falling by 7.4%), freedom of association (falling by 22%), and gender identity & relationship (falling by 7.5%). However, the scores of 2 sub-indices rose, namely, security (rising by 4.8%), and freedom of speech (rising by 6.9%).
- Despite the decline from 2014 to 2017, Hong Kong's score in personal freedom is still decent, close to those of neighboring developed countries/territories such as Japan, Taiwan, South Korea, and Singapore. This is testament to Hong Kong's preservation of high levels of human rights and personal freedoms under 1C2S.
- Hong Kong's Democracy Index rose from 5.85 in 2008 to a peak of 6.50 in 2015, and rank from the 84th to the 67th. This may be due to the increase in the number of directly elected seats in the Legislature. However, the score fell slightly to 6.42 in 2016, and fell further to 6.31 in 2017. Hong Kong's scores were lower than those of Japan, Taiwan, and South Korea, but was close to that of Singapore. Hong Kong's mediocre ranking is expected given that the Chief Executive is not elected by universal suffrage.
- HK's economic freedom index rose from 9.09 in 2016 to 9.13 in 2017. Index (B), which is the average of the Economic Freedom Index, Personal Freedom Index, and Democracy Index, fell from 8.04 in 2016 to 8.01 in 2017.

B. Topical questions in the telephone survey

(1) Topical questions asked in all 3 rounds of surveys

- When conflicts arise in 1C2S, a majority believes that the Central Government and Hong Kong are equally responsible, which reflects the need for both parties to reconsider their own obligations and positions.

- The percentage of the public who plans to emigrate due to lack of confidence in 1C2S has fallen from 9.4% in the first round to 7.7% in the second round, but has rebounded back to 9.4% in the 3rd round.
- The public remains deeply divided over whether the current government ought to initiate public consultation for Article 23 legislation. The absence of consensus should be a cause for concern to policy makers.

(2) Topical questions asked in the 2nd and 3rd surveys

- Public opinion on appointment of Carrie Lam as CE is positive: In the 2nd survey, 49.0% indicated that social divisions remained unchanged; 41.0% indicated that they had decreased; only 7.6% indicated that they had increased. The respective figures for the 3rd survey are 46.5%, 42.1%, and 9.1%. In both surveys, those who chose ‘decreased’ vastly outnumbered those who chose ‘increased’.
- In the 2nd survey, the public tend to believe that the enactment of national anthem law in HK has a negative impact on 1C2S: 42.7% indicate negative impact; 34.3% indicate no impact; only 16.3% indicate positive impact. In the 3rd survey, public perception is still negative, though less than before. The respective figures are: 39.1%, 38.1%, and 15.7%.

(3) Topical questions asked in the 3rd survey (scale of score from 0 to 10):

- The public is not familiar with the ‘Guangdong-HK-Macau’ Big Bay Area (BBA) (mean score is 3.85). Only 12.2% of the public would consider moving there, another 11.9% may consider moving, but 63.1% would not consider moving there.
- The public agrees that HK should take part in the development of the Area (mean score is 6.3), and in the development of the Belt and Road Initiative (mean score is 6.37).
- The public is mildly positive that the open day of the Central Liaison Office (CLO) held in April can bring the CLO and the public closer (mean score is 5.32).

Despite worries about the freedom of speech and the enactment of the national anthem law, Hong Kong people appear to be very pragmatic in the reaction to recent controversies. In the topical questions of the second survey, they appear to place efficiency of operating the Express Rail Link over political concerns on whether the ‘co-location arrangement’ would infringe the Basic Law. They also value the effective functioning of the LegCo over lengthy filibustering (see second Report, pp. 35-42).

In this 3rd survey, the HK people have softened their negative view on the enactment of the national anthem law. They are positive that HK should take part in both the development of the BBA and the Belt and Road Initiative. They continue to have a positive view of Carrie Lam, who set aside political controversies on constitutional reforms and focus on improving people’s livelihood. This pragmatic approach is consistent with the improvement in the people’s evaluation of 1C2S despite the many political shocks and controversies that happened between the surveys.

C. Citizen's self-identification as Hongkongers and as Chinese

(1) Double identity as 'Hongkonger' and 'Chinese'

- On a scale of 0 to 10, the public's self-identifications as 'Hongkongers' and as 'Chinese' have both increased continuously in the last year. From mid-2017 to mid-2018, identity as 'Hongkongers' rose from 7.75 to 8.02, and identity as 'Chinese' rose slightly from 6.63 to 6.78. The increase in identity as 'Hongkongers' is statistically significant.
- An increasing majority of the public (55.9%, 56.1%, and 57.5% respectively in the 1st, 2nd, and 3rd rounds) have relatively strong identification as both 'Hongkongers' and 'Chinese', with both identity scores greater than 5.
- In all 3 rounds of surveys, there is a significant positive correlation between the two identities — the more strongly one is identified with 'Hongkonger', the more strongly one is identified with 'Chinese'; the converse also holds. This is a favourable condition for the implementation of 1C2S.
- As double identity as 'Hongkonger' and 'Chinese' is the norm in Hong Kong, results of traditional surveys that compel interviewees to choose between two identities ('Hongkonger' and 'Chinese') or choose one among four identities ('Hongkonger', 'Hong Kong Chinese', 'Chinese Hongkonger', and 'Chinese') are misleading as they implicitly put the 'Hongkonger' and 'Chinese' identity as mutually exclusive. Traditional surveys cannot reveal a situation in which the strength of both identities has increased, as is the case in the last year.

(2) Identity as Chinese across different groups

- In all 3 surveys, all age groups except Young Adults (18 years to 29 years old), and also all groups by educational background (from primary level to graduate school), have relatively strong identity as 'Chinese', with ratings above the median.
- Pro-establishment supporters and Moderates strongly and increasingly identify themselves as 'Chinese'. The increase in the strength of the identification of Pro-establishment supporters is statistically significant.
- Non-establishment supporters do not identify themselves strongly as 'Chinese'. The strength of their identity has fallen and the decline is also statistically significant. Among Non-establishment supporters, the strength of identification of Democrats is slightly above the median, but the strength of their identification has fallen. The 'Others' group (mostly localists/self-determinists) has relatively weak identity as 'Chinese'. The strength of their identification has fallen continuously over the 3 surveys, and the decline is statistically significant. The self-identity as 'Chinese' of Non-establishment supporters (25.2% of our sample in the 3rd survey) is moving further away from that of the majority. This is a cause for concern.

- The identity of Young Adults (18 to 29 years old) as ‘Chinese’ continues to hover around the median (score of 4). Policy makers need to work hard to cultivate national identity among Young Adults.

D. 1C2S MMI (Mass Media Index)

- By surveying over 128,000 news articles and 64 million words from 20 local daily newspapers, 1C2S MMI monitors how ‘1C2S’ is perceived in the mass media. The MMI complements our 1C2S Index as media sentiment is an important factor in the formation of public opinion.
- In the longer run, subject to resource availability, the MMI opens up many opportunities of further research in public opinion formation. The MMI can be compiled at high frequency intervals (e.g. monthly) as it is not subject to the long time lags of ordinary surveys. It is also possible to investigate the effect of specific significant events (e.g., co-location arrangement for the Express Rail link) on media sentiment, or to compare sentiments in the local and overseas media.
- The base month of 1C2S is set at July 2017, the 20th anniversary of the HKSAR. We, however, compiled the MMI from April 1998 to June 2018. The overall trend of MMI is compared to two well-known opinion polls on public’s views towards 1C2S, namely, the polls of RTHK and HKU Public Opinion Programme. The trend of the MMI is similar to that of the two polls: Rising in the early 2000’s to a peak around 2007, then falling to a trough around 2014-16 with Occupy Central and the civil unrest in Mongkok, then recovering thereafter.
- The recent trend of 1C2S MMI correlates quite closely with significant events. In particular, it dropped sharply by over 20 points from December 2016 to June 2017 when the ‘Causeway Bay Bookstore’ incident and the civil unrest in Mongkok aroused widespread concern. However, 1C2S MMI bottomed out in July 2016, and has risen strongly since December 2016, when CY Leung declared that he would not run for a second term. This rise was further boosted in 2017 when Carrie Lam was elected CE. Despite there were controversies such as the passage of the co-location bill in the LegCo and the trial of the civil unrest in Mongkok under Carrie Lam’s first year of administration, 1C2S MMI rose from the nadir of 73 points in July 2016 to 99 points in June 2018.

E. De-radicalization and rise of moderation under Carrie Lam’s administration

Our 3 surveys cover the first year of Carrie Lam’s administration and the results can be used to evaluate her performance and the general political sentiment in Hong Kong under her administration. As mentioned above, the public believes that societal division has decreased. Moreover, Hong Kong people support the major government initiatives in development, including the co-location arrangement for the Express Rail Link, and the development of the BBA as well as the BRI. Both public’s evaluation and newspaper sentiment of 1C2S have improved.

Furthermore, in our surveys, the proportion of Moderates has increased and the proportion of the ‘Non-establishment’ supporters have decreased over the last year. Figure 5A shows the change in the proportions of different groups in terms of political inclination, and Figure 5B shows the change in the proportions of different types of Non-establishment supporters in the population.

Figure 5A shows that Moderates have been the largest group, and its proportion of the population has risen continuously from 58.4% in mid-2017 to 61.9% in mid-2018. The proportion of Non-establishment supporters has declined continuously from 28.3% to 25.2%, while the proportion of Pro-establishment supporters has risen slightly from 10.0% to 10.5%. Such trends indicate de-radicalization and the rise of moderation in the first year of Carrie Lam’s administration. However, as we only have observations over three points in time, we cannot determine if the above trends are statistically significant. We need to view the results as tentative rather than definitive.

Figure 5A: Composition of population by political inclination in 3 surveys (%)

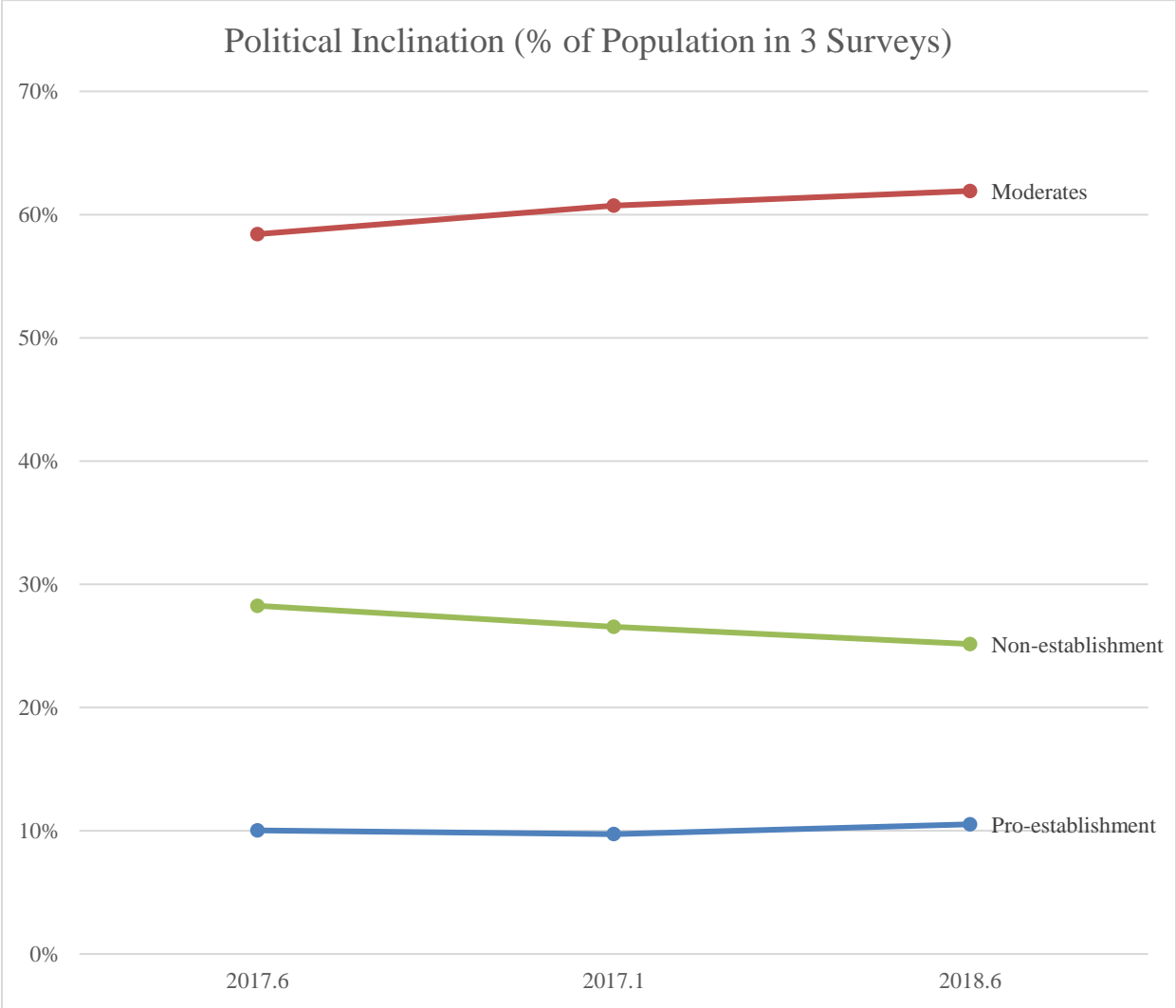


Figure 5B: Composition of population of non-establishment supporters in 3 surveys (%)

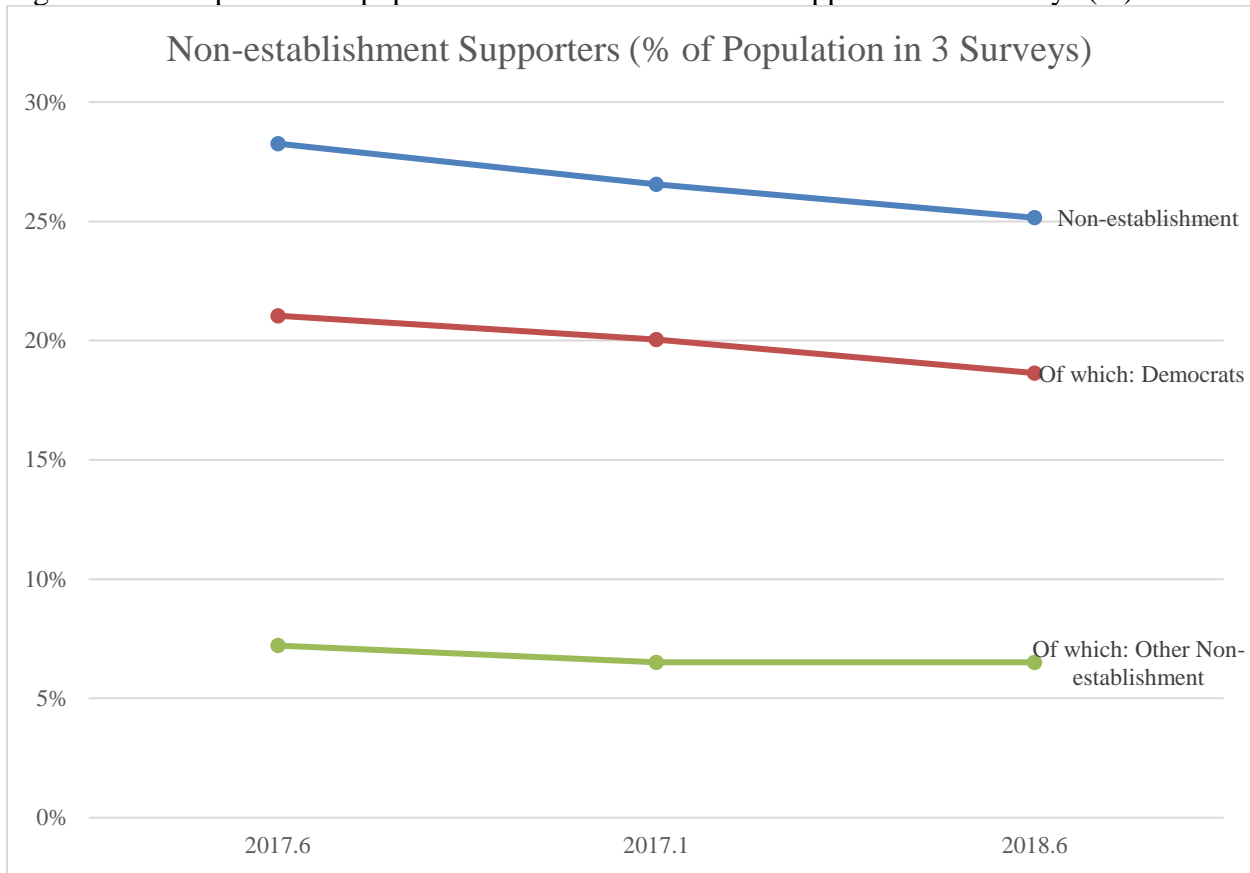


Figure 5B shows that, within Non-establishment supporters, the proportions of Democrats and ‘Others’ fell from 21.0% to 18.6%, and from 7.2% to 6.5% respectively. The proportion of Moderates in the population has risen by 3.5 percentage points, gaining 212,000 supporters, and that of Non-establishment supporters has fallen by 3.1 percentage points, losing 188,000 people. It appears that the Non-establishment group is gradually and consistently losing their supporters to the Moderates. This appears to be in line with recent by-election results and may be a reason why the general perception is that societal division is improving.

In our samples, the proportions of Non-establishment supporters have always been less than 30%. This appears to be much less than the 54% of votes that Non-establishment candidates got in the 2016 LegCo election. However, a substantial portion of Hong Kong adults are not registered voters or may not vote even if they are registered. In the 2016 LegCo election, there were around 4.8 million eligible voters, of whom only 3.8 million were registered. Only 2.2 million of registered voters voted, and Non-establishment candidates got 1.19 million votes, which were less than 25% of all eligible voters and less than 20% of the adult population (excluding foreign domestic helpers). People who do not bother to vote are much more likely to be Moderates than Non-establishment supporters. As Non-establishment supporters are more likely to vote and voice their opinions, political sentiments in Hong Kong are generally more likely to be shaped or influenced by them. In this respect, much of the perceived political sentiment can be said to be misleading.

F. First year of Carrie Lam’s administration: Public Sentiment and Mass Media Sentiment

Although our three surveys show a trend of de-radicalization and rise of moderation in the first year of Carrie Lam’s administration, they only cover one year and cannot reflect developments in previous years. Our MMI can reflect developments in the past as it spans 20 years and it shows that media sentiment on 1C2S rose strongly from a low of 73 points in mid-2016 to 99 points in mid-2018. However, the scope of the MMI is somewhat narrow as it only covers sentiments of newspapers on 1C2S instead of the sentiments of the public.

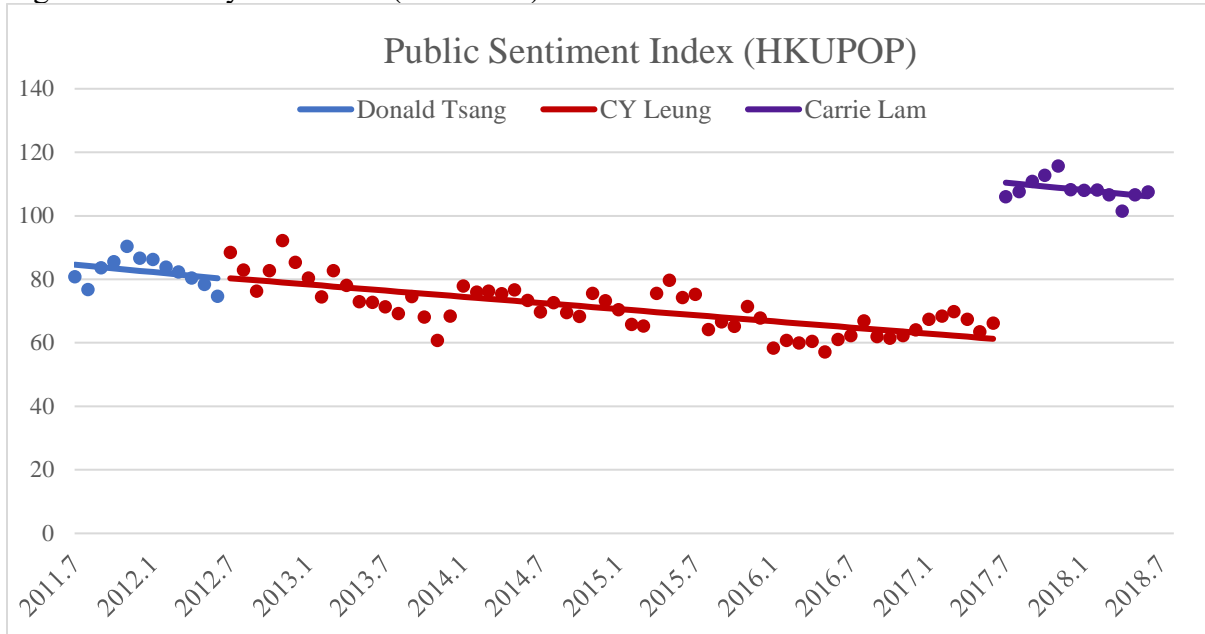
While our Index and MMI focused primarily on public’s evaluations on 1C2S, the Public Sentiment Index (PSI) of HKUPOP focused generally on public’s evaluations of the political, social, and economic environment. It also covers a substantial time span, from 1992 to mid-2018, providing a general background for us to interpret changes in the Index and the MMI.

In the words of HKUPOP, the PSI “aims at quantifying Hong Kong people’s sentiments, in order to explain and predict the likelihood of collective behaviour. PSI comprises 2 components: one being Government Appraisal (GA) Score and the other being Society Appraisal (SA) Score. GA refers to peoples’ appraisal of society’s governance while SA refers to peoples’ appraisal of the social environment. Both GA and SA scores are compiled from a variety of opinion survey figures. All PSI, GA and SA scores range between 0 to 200, with 100 meaning normal” (<https://www.hkupop.hku.hk/english/release/release980.html>).

Figure 6 shows monthly PSI scores in the past seven years, going from mid-2011 to mid-2018, covering administrations of three CE’s, namely, the last year of Donald Tsang’s administration, the 5 years of C.Y. Leung’s administration, and the first year of Carrie Lam’s administration. Before Carrie’s Lam’s administration, the PSI score was consistently way below 100, but it jumped above 100 after Carrie Lam became CE.

To identify the underlying trend of PSI scores, we compute 3 linear trends that best fit the scores under the 3 administrations with the Least Squares Method. The PSI scores of the last year of Donald Tsang’s administration declined from 81 points to 75 points, and scores of the first year of CY Leung’s administration remained around that level. Statistical test (Chow test) shows that there was no structural break in the transition from Donald Tsang to C.Y. Leung as the scores before and after the change of CE were similar.

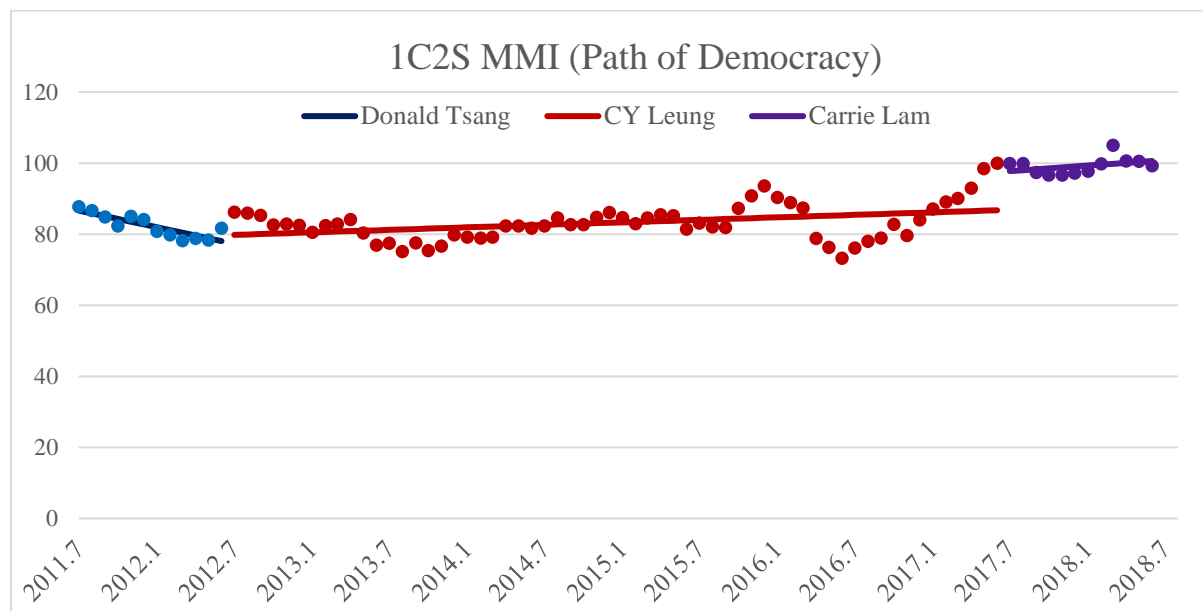
Figure 6: Monthly PSI scores (HKUPOP)



The trend under CY Leung was decreasing, and the decline was statistically significant. The score fell from 89, the first month of his administration, to 66 in June 2017, the last month of his administration; but it soared to 106 in July 2017, the first month of Carrie Lam’s administration. The structural break in the transition from CY Leung to Carrie Lam was statistically highly significant. In the first year of Carrie Lam’s administration, the PSI fluctuated from a low of 102 to a high of 116; it stood at 108 in June 2017, slightly higher than the score of 106 a year before. There is no statistically significant change in PSI in the first year of her administration.

Figure 7 shows the time trends of MMI (6 month moving average scores). As in the case of PSI, we compute 3 linear trends that best fit the MMI scores under the 3 administrations with the Least Squares Method. Statistical tests reveal that there was no structural break in the transition from Donald Tsang to CY Leung, but the structural break in the transition from CY Leung to Carrie Lam was statistically highly significant.

Figure 7: Monthly 1C2S MMI scores (Path of Democracy)



The time trend of MMI under Donald Tsang was declining. The time trend under CY Leung appeared to be rising, though the level of scores was low. However, the rise of the trend under CY Leung was mainly due to the jump in MMI when CY Leung announced that he would not run for another term in December 2016. The MMI jumped from 80 in November 2016 to 100 in June 2017 as the public knew that there would be a change of CE. If we exclude the MMI scores after November 2016, the trend under CY Leung would be horizontal instead of rising. The trend under Carrie Lam was slightly upwards, but the rise was not statistically significant.

To summarize, our statistical analyses indicate that the dramatic jumps in the PSI and MMI scores in the transition from CY Leung to Carrie Lam reflected structural breaks in the data that were statistically highly significant. This again underlines our finding that the political and social environment has shifted significantly towards de-radicalization and moderation under Carrie Lam.

G. Disaffection of Non-establishment supporters

Our surveys indicate that Non-establishment supporters in HK appear to be increasingly alienated. As mentioned above, their evaluations of 1C2S have declined, contrary to the trend of the general population. Their identity as ‘Chinese’ has fallen, again contrary to the trend of the general population. As will be detailed later, their intention to migrate overseas on the other hand, is much higher than that of the general population. In fact, the proportion of them who plan to migrate rose substantially from 19.0% in mid-2017 to 21.9% in late 2017 and rose further to 25.2% in mid-2018.

Though Non-establishment supporters are in the minority, their numbers are substantial. Moreover, they command more than half of the votes in most elections and as pointed out above are more influential in shaping public opinion. Their increasing disaffection is a serious social and political problem that the Central government and the HKSAR government have to tackle.

H. Divergence in evaluations of 1C2S: HK public vs. international think tanks

Both our survey and the international indices have unique features; whilst their findings are certainly different, there nonetheless exist certain similarities. First, both the Hong Kong public and international think tanks regard HK as a free society. HK's Human Freedom Index (average of Economic Freedom and Personal Freedom) has been among the highest in the world. The HK public also give relatively high scores to 'freedom of speech' and 'original way of life has remained unchanged' (It is widely recognized that HK's 'original way of life' has been characterized by a high degree of freedom). Second, both international think tanks and the HK public give relatively low scores to the progress of democratization.

As to differences, international think tanks tend to give markedly higher scores to HK than that of the public. However, the evaluations of the HK public have improved while the evaluations of international think tanks have deteriorated.

The higher level of scores of international think tanks may be explained by the aggregative and universal nature of international indices: their measurements encompass a large number of developing countries and regions, and given HK's highly developed status, its relative placing in comparison against these developing states is high. Furthermore, given the Hong Kong public's relatively high expectations of 1C2S, the public may be more demanding in their assessment in the public surveys. Hong Kong people's starting point is a system with a sophisticated legal system that enshrines both rule of law and personal freedoms, and gradual democratization that had already been in progress prior to the handover. These in turn induced greater expectations amongst the public with respect to self-governance and human rights enshrined by the Basic Law.

Though the level of scores of international think tanks is higher than that of the HK public, the evaluations of 1C2S of the HK public have improved while the evaluations of international think tanks have deteriorated. It appears that there are at least three reasons for the divergence. First, the Hong Kong public place a lot of weight on the change of CE, which has ushered in a trend of de-radicalization. International think tanks have mostly neglected the change. Second, the attitude of the West towards China has been shifting from that of engagement to confrontation as the West increasingly fears that its supremacy would be challenged by the rise of China. The evaluations of western think tanks on 1C2S cannot be entirely free from the influence of the shift in the attitude of the West towards China. Naturally, Hong Kong becomes an easy target in this confrontation. Third, traditionally, both the SAR Government and the Central Government have neglected defense of the OCTS in the western mass media which leads to a situation that media attacks by influential opinion leaders in the West are often left undefended or unexplained.

While the evaluations of the western think tanks on 1C2S may not be free of ideological biases, it would be a mistake to write off their evaluations as mere propaganda. Their evaluations may contain biases, but may also reflect genuine weaknesses in the implementation of 1C2S. Furthermore, their effect on the international investor cannot be underestimated. Under 1C2S, Hong Kong is China's most open and international city; it is also China's bridge to the world. We

need to take the evaluations of western think tanks seriously to reflect on possible shortcomings in the implementation of 1C2S.

This divergence in evaluations underlines the importance of including the opinions of both the Hong Kong public and international think tanks in a balanced index of 1C2S.

Part II: Main Report

- I. 1C2S overview: Telephone survey**
- II. International freedom and democracy indices**
- III. 1C2S MMI (Mass Media Index)**
- IV. Appendices**

I. 1C2S Overview: Telephone survey

In order to fully access the public's assessment of 1C2S, we commissioned the Hong Kong Institute of Asia-Pacific Studies of the Chinese University of Hong Kong to conduct a telephone survey from May 23 to June 2 in 2018. 1,004 individuals were successfully and randomly sampled, all aged 18 or above; all of them spoke either Cantonese or Mandarin (the sampling error is $\pm 3.09\%$ within a 95% confidence level); the response rate was 37.2%, satisfying both statistical and scientific standards. For a more extensive report on the survey results, please see Appendix II, which can be found on the homepage of the Path of Democracy (<http://pathofdemocracy.hk/>).

Rating scales:

The survey employed 1 to 7 as the rating scale in the data collection process, with 4 as the median; this scale is commonly adopted for most psychological assessments. During the actual surveying process, this scale was used instead of a 0 to 10 scale as the latter is deemed too finely graduated and cumbersome for respondents to choose from. For statistical analysis, we continue to employ the 1 to 7 scale. However, to better conform to existing indices – which tend to be expressed on a 0 to 10 scale (with 5 as the median) – we converted the results mathematically into the 0 to 10 scale for index compilation purposes.

Summary of key survey findings:

(1) Public's identification as 'Hongkongers' and as 'Chinese' (Questions 12 & 13)

We respectively surveyed how citizens identify themselves, whether as 'Hongkongers' or 'Chinese', or both (Table 1). The public identified themselves strongly as 'Hongkongers' as well as 'Chinese'. From the 1st round to the 3rd round, the public's strength of identification as 'Hongkongers' rose from 5.65 to 5.81 on the 1 to 7 scale (and therefore from 7.75 to 8.02 on the 0 to 10 scale). In the same period, the public's strength of identification as 'Chinese' rose from 4.96 to 5.07 on the 1 to 7 scale (and therefore from 6.63 to 6.78 on the 0 to 10 scale).

Table 1: Public’s identification as ‘Hongkonger’ and ‘Chinese’ (Comparison of 3 Rounds of Survey)

	Average (1-7)			Average (0-10)		
	2017.6	2017.12	2018.6	2017.6	2017.12	2018.6
‘I am a Hongkonger’	5.65	5.76	5.81	7.75	7.93	8.02
‘I am a Chinese’	4.96	5.00	5.07	6.63	6.71	6.78

The extent to which the public identified themselves as ‘Hongkonger’ and ‘Chinese’ can be better denoted by a scatter plot. The x-axis in Figure 8 constitutes the strength of self-identification as a Hongkonger; the y-axis, self-identification as Chinese. On the 1 to 7 scale, the median is 4, which indicates a moderate level of identification. Ratings that are higher than 4 indicate relatively strong identification; ratings that are lower than 4 indicate relatively weak identification. Figure 8 shows the scatter plot of the 3rd round survey. The largest group of citizens identify themselves very strongly as both Hongkongers and Chinese, with 233 individuals selecting 7 for both categories (23.8% of the total).

Figure 8: Scatter plot for public’s identification in the 3rd survey (valid sample: 981)

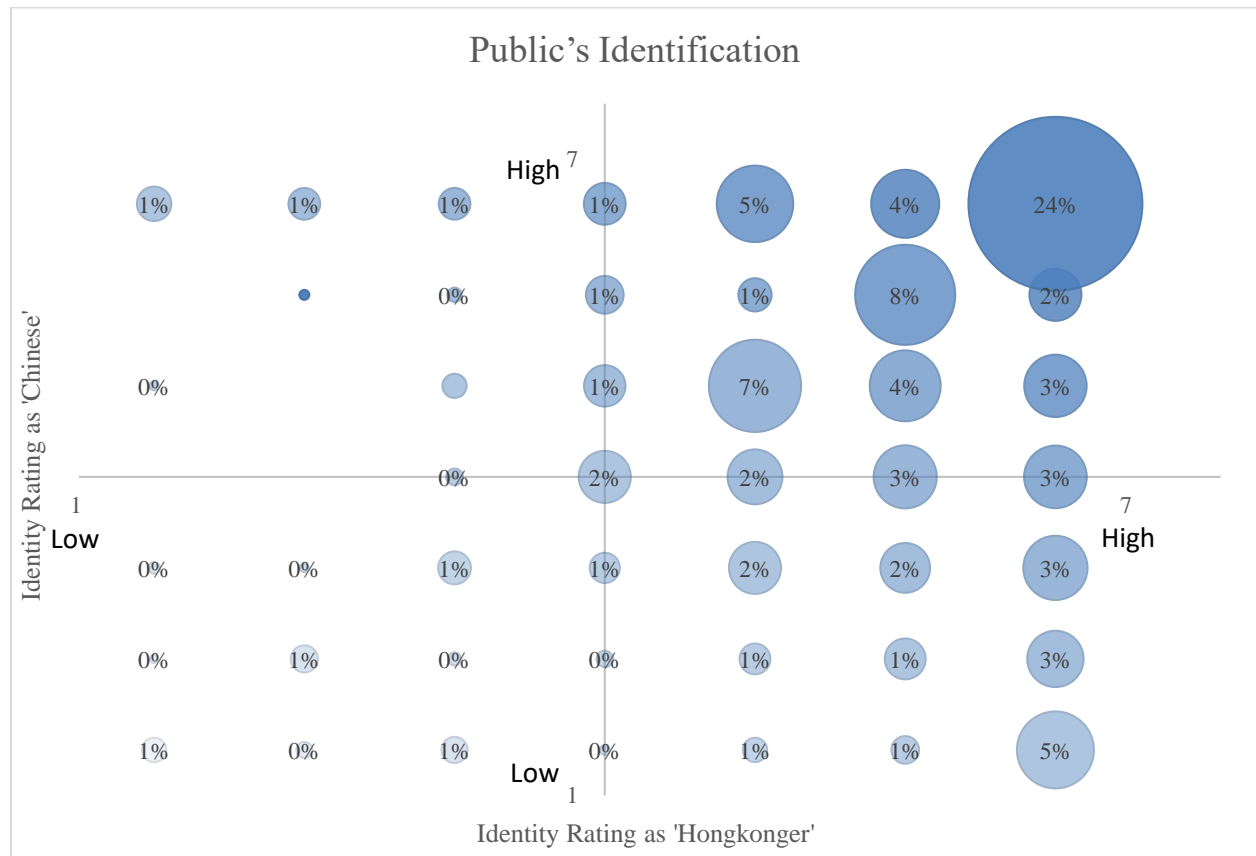
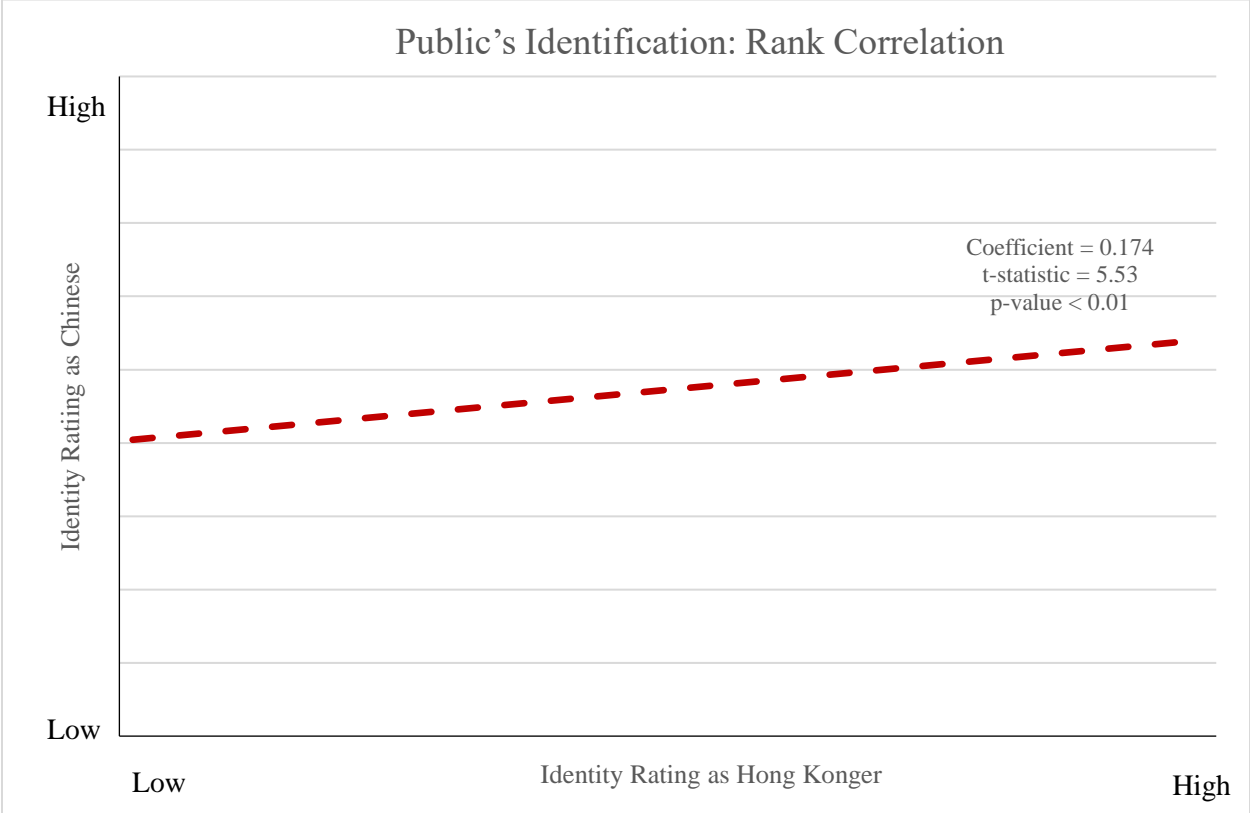


Figure 8 clearly depicts that most Hong Kong citizens are cognizant of their double identities as both Hongkongers and Chinese. The pattern of the scatter plots of the 1st and 2nd surveys (reported in previous reports) are very similar to that of the 3rd. The percentage of individuals in the 3 rounds that hold relatively strong levels of identification as both ‘Hongkongers’ and ‘Chinese’ (both scores higher than 4) has risen from 55.9% in the 1st round to 56.1% in the second round, and has risen further to 57.5% in the 3rd round.

Identification as Chinese may not be the same as ‘devotion to China’, but identification as both Chinese and Hongkongers is a pre-requisite for ‘devotion to China and Hong Kong’. The fact that a majority of Hong Kong people identify themselves as both ‘Hongkonger’ and ‘Chinese’ provides a strong basis for implementation of 1C2S.

Statistical analysis yields the observation that there exists a significant positive correlation between identification as a Hongkonger and identification as Chinese, suggesting that the more strongly one identifies with Hong Kong, the more strongly one also identifies with China (see Figure 9). The converse also holds. The rank correlation coefficient is 0.174 and is statistically very significant at the 99.9% confidence level, which is similar to the 1st and 2nd surveys where the corresponding coefficients were 0.132 and 0.184 respectively and were also highly significant. The finding that the two identities as ‘Hongkonger’ and ‘Chinese’ are mutually reinforcing each other and again provides a strong basis for the implementation of 1C2S.

Figure 9: Rank correlation of public’s identification (valid sample: 981)



(2) Survey design: Comparison with other public surveys

In HK, there are two types of questionnaire design to track the self-identity of the public, the ‘dominant identity’ design and the ‘multiple identity’ design. The ‘dominant identity’ design classifies identity into two categories, namely ‘Hongkonger’ and ‘Chinese’, or four categories, adding two mixed identities (‘Hong Kong Chinese’ and ‘Chinese Hongkonger’) to the ‘Hongkonger’, and ‘Chinese’ identities. Interviewees are compelled to choose one identity among the two, or one identity among the four. The two-category option explicitly assumes that the ‘Hongkonger’ and ‘Chinese’ identities are mutually exclusive: the more strongly one identifies himself as ‘Hongkonger’, the less strongly one identifies himself as ‘Chinese’ (and vice versa). Even though the four-category option admits mixed identities (‘Hong Kong Chinese’ and ‘Chinese Hongkonger’), it still treats different identities as mutually exclusive one or the other: If proportionally more people choose one category, the proportions of the other categories must go down. The ‘dominant identity’ design cannot allow for a situation in which the public’s self-identification with ‘Hongkonger’ and ‘Chinese’ both strengthens (or both weakens) simultaneously.

Our survey adopts the ‘multiple identity’ design while the majority of other surveys in HK adopt the ‘dominant identity’ design. One exception is the HKU Public Opinion Programme (HKUPOP) survey on self-identity, which adopts both the ‘dominant identity’ and ‘multiple identity’ designs. Though the HKUPOP survey reports the results of both designs, the HK media focuses its attention on the ‘dominant identity’ design as it is more popular in public surveys.

Our research and analysis suggest that the ‘multiple identity’ design is more appropriate for two reasons. First, multiple identity is the norm in HK. An increasing majority of HK citizens identify themselves strongly as both ‘Hongkongers’ and ‘Chinese’ – to ask that citizens choose one amongst the four categories (or one amongst the two categories) can easily lead to bias. Second, in our 3 rounds of surveys, the public’s self-identification with ‘Hongkonger’ and ‘Chinese’ has strengthened simultaneously – a fact that cannot be reflected in the ‘dominant identity’ design.

Figure 6 shows that 43.0% of the public have equally strong identification with both identities: compelling them to choose one over another would easily give misleading results. Moreover, in the scatter plot, the 3 largest groups are those giving equally high scores of 5, 6 or 7 to both identities. The 3 groups together account for 38.5% of our sample.

Besides possible bias, the ‘dominant identity’ questionnaire design also does not allow researchers to answer the following two important questions on identity raised in this study:

- i. What is the proportion of the public that strongly (or relatively strongly) identify themselves as both ‘Hongkonger’ and ‘Chinese’?
- ii. Is the identification with ‘Hongkonger’ and with ‘Chinese’ correlated?

Though the HKUPOP survey also adopts the ‘multiple identity’ design, it has not released any analyses on the above two issues. To our knowledge, our survey is the only one that adopts the ‘multiple identity’ design to analyse the above two important issues.

Our survey finds that, over the last year, the public have identified themselves more strongly as ‘Hongkonger’ and also as ‘Chinese’. On the other hand, surveys that adopt the ‘dominant identity’ design found that the strength of identities has gone in opposite directions: Identity as ‘Hongkonger’ has strengthened and identity as ‘Chinese’ has weakened. This is because the rise in citizens’ identity as ‘Hongkonger’ is bigger than the rise in their identity as ‘Chinese’. In such a situation, when interviewees are compelled to choose one identity over the other, more will choose ‘Hongkongers’ and less will choose ‘Chinese’. The ‘dominant identity’ design can thus produce highly misleading results.

(3) Self-identity as ‘Chinese’ across groups by age, by educational attainment, and by political inclination: Comparison of 3 rounds of surveys (Table 2)

Table 2 shows that, in the 3 surveys, all age groups except Young Adults (18 years to 29 years old), and also all groups by educational background (from primary level to graduate school), have relatively strong identity as ‘Chinese’, with ratings above the mid-point of 5. The identity as ‘Chinese’ of older age groups (age 50 and over) is significantly higher than that of younger age groups (age 18 to 49).

Table 2: Self-identity as ‘Chinese’ of groups by age, by education, and by political inclination

		2017.6	2017.12	2018.6	2017.6	2017.12	2018.6
		Respondents			Score (0-10)		
All Respondents		979	986	981	6.63	6.71	6.78
Age	18 to 29	176	169	169	4.93	5.06	4.96
	30 to 39	165	166	165	5.92	6.26	6.30
	40 to 49	173	174	172	6.73	6.56	6.71
	50 to 59	204	201	201	7.06	7.14	7.35
	60 to 69	142	147	147	7.40	7.57	7.88
	70 or above	120	129	127	8.04	7.70	7.76
Education	primary or below	125	121	112	7.74	8.03	8.00
	Lower secondary	116	121	111	7.26	7.58	7.44
	Higher secondary	294	295	301	6.79	6.54	6.95
	Non-degree tertiary	116	116	127	6.08	6.49	6.35
	Bachelor’s degree	270	274	275	5.70	5.87	6.10
	Postgraduate degree	55	53	49	7.08	6.64	6.17
Political Inclination	Pro-establishment	98	95	101	8.86	9.43	9.50
	Moderates	569	592	603	6.93	7.09	7.18
	Non-establishment	279	263	248	5.16	4.63	4.50
	of which: Democrats	207	198	184	5.74	5.16	5.16
	of which: Others	72	65	64	3.50	3.01	2.61

The identity of Young Adults (18 to 29 years old) as ‘Chinese’ continues to hover around the mid-point of 5. Policy makers need to work hard to cultivate national identity among Young Adults. Young Adults’ identification as ‘Chinese’ appears to be deeply polarized in all 3 surveys. In the present survey, 38.0% identify themselves relatively strongly as Chinese (above 5); 40.9% identify

themselves relatively weakly (below 5), with the remaining 21.1% identifying themselves moderately so.

For political inclination, Pro-establishment supporters very strongly identify themselves as ‘Chinese’. The identity as ‘Chinese’ of Pro-establishment supporters is significantly higher than that of Moderates. Moreover, the identity as ‘Chinese’ of Pro-establishment supporters has strengthened further over the 3 surveys, and the rise is statistically significant.

Moderates identify themselves strongly as ‘Chinese’, and their identity has strengthened over the 3 surveys. The increase in the strength of identity as ‘Chinese’ of the public reflects the trend of Moderates and Pro-establishment supporters, as the two groups constitute over 70% of the population.

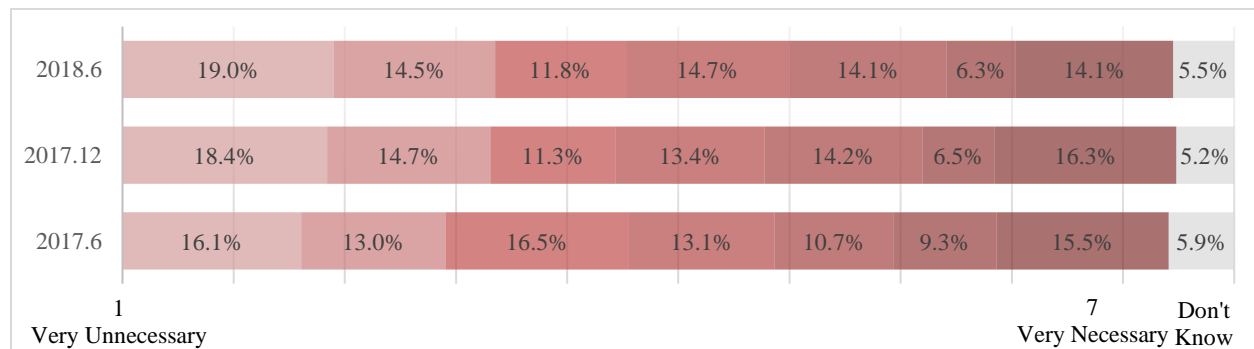
For Non-establishment supporters, their identity as ‘Chinese’ is weak and is significantly lower than that of Moderates. Moreover, their identity has further weakened over the 3 surveys, and the fall is statistically significant.

Among Non-establishment supporters, the strength of identification of Democrats as ‘Chinese’ is slightly above the midpoint of 5, but the strength of their identification has fallen. The ‘Others’ group (mostly localists/self-determinists) has very weak identity as ‘Chinese’. Moreover, their identity has weakened further over the 3 surveys, and the fall is statistically significant. The self-identity as ‘Chinese’ of Non-establishment supporters (25.2% of our sample in the 3rd survey) are moving further and further away from that of the majority. This is a cause for concern.

(4) Attitudes towards Article 23 public consultation (Question 10)

Figure 10 shows that, on the scale of 1 to 7, the opinions of whether the government should initiate public consultation for Article 23 legislation are clearly divided, with 16.1%, 18.4%, and 19.0% in the 1st, 2nd, and 3rd surveys respectively selecting 1 (‘very unnecessary’), and 15.5%, 16.3%, and 14.1% in the 1st, 2nd, and 3rd surveys respectively opting for 7 (‘very necessary’).

Figure 10: Attitudes towards Article 23 consultation (percentage distribution)



The reason for such polarization plausibly is due to the fact that a considerable proportion of the public is strongly opposed to having Article 23 legislated at all, and hence is opposed to any

consultation, whilst those in favour hold that – given the inevitability of Article 23’s legislation under the Basic Law, it is marginally better to have at least some consultation, as opposed to none.

Compared with Moderates, Pro-establishment supporters are more inclined towards ‘very necessary’, whilst Non-establishment supporters are more inclined towards ‘very unnecessary’. Amongst samples that explicitly state their political stance, 53.9%, 58.4%, and 50.3% in the 1st, 2nd, and 3rd surveys respectively of those who answered ‘very unnecessary’ were Moderates, whilst 60%, 57.5%, and 62.4% in the 1st, 2nd, and 3rd surveys respectively of those who answered ‘very necessary’ were also Moderates – constituting roughly the same proportion in both extremes. With regards to public consultation on Article 23 legislation, Moderates – as with the general Hong Kong public – remain deeply divided. In view of this, policy makers should exercise caution in approaching this subject.

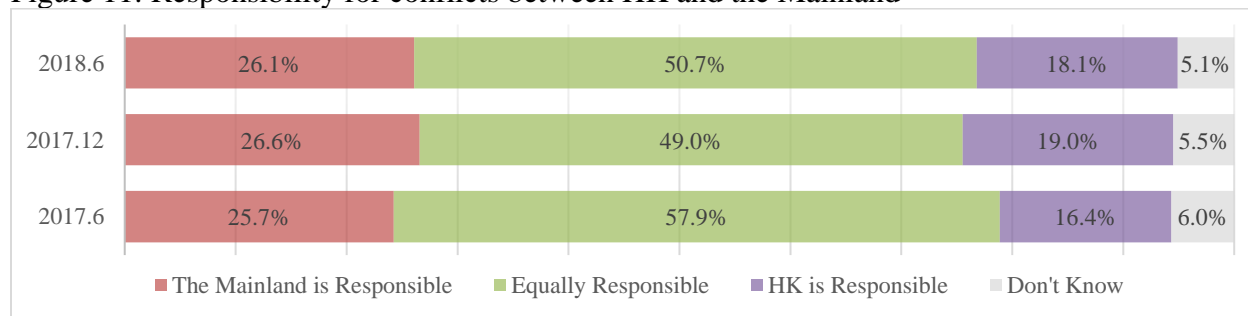
(5) Knowledge of Basic Law (Question 11)

Though the public’s self-rating (on a scale of 1 to 10) of its familiarity with the Basic Law has increased slightly from 4.45 in the 1st survey to 4.53 in the 2nd survey and has risen further to 4.63 in the 3rd survey, the rating is still below the median of 5, indicating that the public’s knowledge of Basic Law is inadequate.

(6) Whose responsibility is it when conflicts arise between Hong Kong and the Mainland? (Question 14)

Figure 11 shows that, in our 3 surveys, in allocating blame between the Mainland and Hong Kong when conflicts arise in the implementation of 1C2S, roughly half or more of the public selected ‘Equally Responsible’. A quarter or more of the public think that the Mainland is responsible while 1/6 or more think that HK is responsible.

Figure 11: Responsibility for conflicts between HK and the Mainland



From the 1st to the 2nd rounds, public opinions moved towards polarization as those who chose ‘Equally Responsible’ fell from 57.9% to 49%, while the proportions of those who held that the responsibility lay either with the Mainland or with HK both rose. In other words, more people were blaming either the Mainland or Hong Kong, indicating that public opinions were moving towards polarization. This is a worrying trend. However, from the 2nd to the 3rd rounds, the

polarizing trend was slightly moderated as those who chose ‘Equally Responsible’ rose slightly from 49% to 50.7%, and slightly less people were blaming either the Mainland or HK. However, from the 1st to the 3rd round as a whole, opinions were still polarized.

As expected, Pro-establishment supporters tend to blame HK while Non-establishment supporters tend to blame the Mainland. Among Moderates, a declining majority (declining from 65.9% to 60.8% from the 1st to the 2nd round and declining further to 60.1% in the 3rd round) held that both parties were equally to blame. Opinions within Moderates were also polarizing.

The results suggest that both the Central Government and Hong Kong ought to reflect on its own responsibility for deadlocks and conflicts between the two.

(7) Emigration and confidence in 1C2S (Questions 21 & 22)

Table 3 shows the percentages of different groups who plan to emigrate due to lack of confidence in 1C2S. For the community as a whole, the ratio of those who plan to emigrate due to their lack of confidence in 1C2S (henceforth Emigration Ratio for brevity) hover around 8% to 9% in the 3 surveys. The Emigration Ratios are very different for people of different political inclinations. In the third survey, the Emigration Ratios for Pro-establishment supporters, Moderates, Democrats, and ‘Non-establishment: Others’ (mostly localists and self-determinists) were 0%, 6.8%, 14.9%, and 34.4% respectively. The Emigration Ratio for ‘Non-establishment: Others’ is 5 times that of Moderates in the 3rd survey.

From the 1st to the 3rd survey, the Emigration Ratio of Pro-establishment supporters and Moderates declined, but that of ‘Non-establishment: Others’ rose from 15.3% to 34.3%. The Emigration Ratio, however, of Democrats are stable round 14% to 15%. The intention to migrate of ‘Non-establishment: Others’ is diverging from the rest of the community.

Table 3: Public’s emigration plans due to the lack of confidence in 1C2S

	Respondents			Due to the Lack of Confidence in 1C2S		
	2017.6	2017.12	2018.6	2017.6	2017.12	2018.6
Pro-establishment	101	97	105	1.0%	0%	0%
Moderates	580	600	617	7.9%	5.8%	6.8%
Non-establishment	279	265	248	14.3%	16.8%	19.9%
of which: Democrats	207	200	184	14.0%	14.3%	14.9%
of which: Others	72	65	64	15.3%	24.6%	34.3%
Total	996	998	999	8.8%	8.0%	9.2%

In the 3rd survey, among those who plan to emigrate due to their lack of confidence in 1C2S, 45% were Moderates, and 52% were Non-establishment supporters.

Past studies have suggested that surveys often inaccurately amplify the number of individuals who seek to emigrate, for only a fraction of those who express interest in emigrating eventually do so in reality – as such, caution should be exercised in interpreting the findings, though they still provide valuable reference of the degree and extent of concern. Amongst the Moderates, those who confess to having plans to emigrate due to their lack of confidence in 1C2S may do so due to – on one hand – their disillusionment towards the Central Government and the Pro-Establishment, but also – on the other hand – disillusionment towards perceived instability caused by the Non-establishment supporters, or ‘Yellow Ribbons’; the latter may cause disaffection amongst the Moderates due to the perceived damage of radical politics on the rule of law and Hong Kong’s economy. Neither of the possibilities above could be ruled out.

(8) Topical questions asked in the 2nd and 3rd surveys

After the first survey, some hot topics have arisen which may influence the public’s assessment of 1C2S. The following two questions were asked in the 2nd and 3rd surveys to collect public’s opinions:

1. Impact of Carrie Lam’s appointment as CE on societal division (Question 15)
2. Impact of enactment of National Anthem Law in HK on 1C2S (Question 16)

8.1 The impact of Carrie Lam’s appointment as CE on societal division (Question 15)

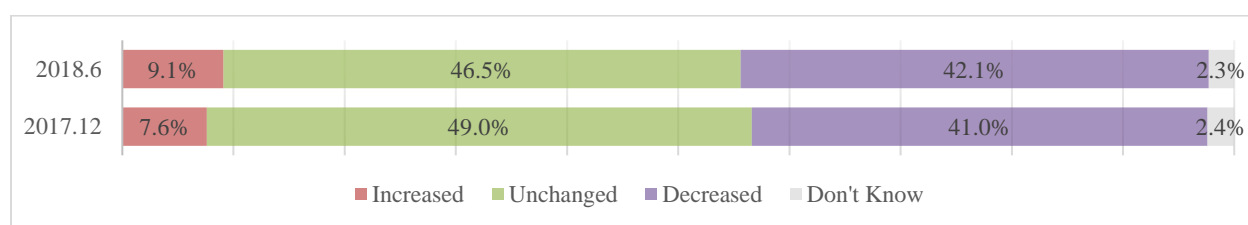
Figure 12 shows the impact of Carrie Lam’s appointment as CE on societal division in the 2nd and 3rd surveys. Most people chose ‘unchanged’ (49.0% in the 2nd survey and 46.5% in the 3rd survey) or ‘decreased’ (41.0% in the 2nd survey and 42.1% in the 3rd survey). A small minority chose ‘increased’ (7.6% in the 2nd survey and 9.1% in the 3rd survey). The change from the 2nd to the 3rd survey was small: Those who chose ‘decreased’ rose slightly by 1.1 percentage points, and those who chose ‘increased’ rose slightly by 1.5 percentage points. In both surveys, those who chose ‘decreased’ far outnumbered those who chose ‘increased’. On the whole, the public tends to think that the appointment of Carrie Lam as CE has decreased societal division.

As expected, Non-establishment supporters are more critical of Carrie Lam than Moderates and Pro-establishment supporters. However, even among Non-establishment supporters, those who chose ‘decreased’ (33.8% in 2nd survey and 30.6% in 3rd survey) were twice the number of those who chose ‘increased’ (14.3% in 2nd survey 15.5% in 3rd survey). Within Non-establishment supporters, Democrats are positive towards Carrie Lam: those who chose ‘decreased’ (35.8% in the 2nd survey and 34.6% in the 3rd survey) were three times the number of those who chose

‘increased’ (10% in the 2nd survey and 12.1% in the 3rd survey). However, the ‘Others’ group (mostly localists/self-determinists) was negative towards Carrie Lam: those who chose ‘decreased’ (20% in 2nd survey and 19% in 3rd survey) were much less than those who chose ‘increased’ (43.3% in 2nd survey and 25.4% in 3rd survey).

Our results show that Pro-establishment supporters, Moderates, and Democrats (i.e., the entire political spectrum excepting localists/self-determinists) who together constitute over 90% of our adult population regard Carrie Lam as a CE who can mend societal division. Even for localists/self-determinists, their negative view of Carrie Lam has moderated somewhat: From the 2nd survey to the 3rd survey, those who chose ‘increased’ fell from 43.3% to 25.4%.

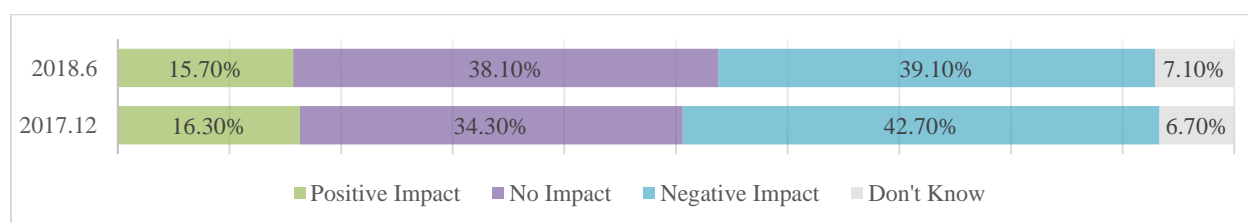
Figure 12: Impact of Carrie Lam’s appointment on societal division



8.2 Impact of enactment of the National Anthem Law in HK on 1C2S (Question 16)

Figure 13 shows that in both surveys, those who chose ‘negative impact’ (42.7% in 2nd survey and 39.1% in 3rd survey) far exceeded those who chose ‘positive impact’ (16.3% in 2nd survey and 15.7% in 3rd survey). Public opinion on the impact of the enactment of the National Anthem Law in HK on 1C2S was negative, though it has turned slightly less negative in the 3rd survey.

Figure 13: Impact of enactment of the National Anthem Law in HK on 1C2S



As expected, Pro-establishment supporters were positive towards the enactment of the Law while Non-establishment supporters were highly negative. Among the Moderates (over 60% of our population), those who chose ‘negative impact’ (27.8% in 2nd survey and 34.2% in 3rd survey) still far exceeded those who chose ‘positive impact’ (17.2% in 2nd survey and 20.1% in 3rd survey). In conclusion, the public has a certain degree of worry on the enactment of the national anthem law.

(9) New topical questions asked in the 3rd survey

Five new questions were asked in the 3rd survey to gauge public opinions on current topics:

1. How familiar are you with the Guangdong-HK-Macau Big Bay Area (BBA)? (Question 20)
2. Should HK take part in the development of the BBA? (Question 21)
3. Would you consider living or moving to other cities of the BBA? (Question 22)
4. Should HK take part in the development of the Belt and Road Initiative (BRI)? (Question 23)
5. Can the open day of the Central Liaison Office (CLO) bring the CLO closer to the public? (Question 24)

9.1 Are you familiar with the BBA? (Question 20)

The public is not familiar with the BBA: The mean score is only 3.85 (scale of 0 to 10). Pro-establishment supporters are slightly more familiar with the BBA (mean score of 4.65). This shows that more promotion of the BBA is needed.

9.2 Should HK take part in the development of the BBA? (Question 21)

The public agrees that HK should take part in the development of the BBA: The mean score is 6.37 (scale of 0 to 10). Pro-establishment supporters are highly positive (mean score of 8.08) while Non-establishment supporters are mildly positive (mean score of 5.43). Within Non-establishment supporters, Democrats are mildly positive (mean score of 5.86), but the ‘Others’ group (mostly localists/self-determinists) are mildly negative (mean score of 4.3).

9.3 Would you consider living or moving to other cities of the BBA (for study, employment, business, or retirement)? (Question 22)

Figure 14: Willingness to move to other cities in the Big Bay Area

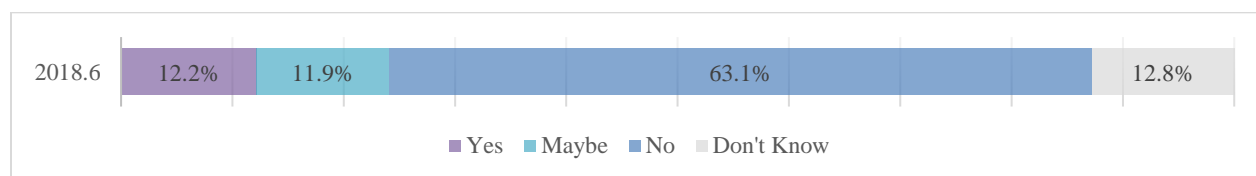


Figure 14 shows that only 12.2% of the public would consider moving there; another 11.9% may consider moving, but 63.1% would not consider moving. Among different age groups, two age groups are more inclined to move: Those aged 30 to 39 (16.1% would consider moving) and those aged 60 to 69 (18.5% would consider moving). The results are expected as the 30 to 39 age group are more experienced than students or young adults and they are better equipped to move; the 60 to 69 age group consists of ‘young olds’ who may retire across the border. For the over 70 age group, only 13.6% would consider moving. The group consists of ‘old olds’ who have great need for medical services, and they are not very willing to move.

9.4 Should HK take part in the development of the Belt and Road Initiative (BRI)? (Question 23)

The public agrees that HK should take part in the development of the BRI: Mean score of 6.3 (scale of 0 to 10). Pro-establishment supporters are highly positive (mean score of 8.06) while Non-establishment supporters are mildly positive (mean score of 5.43). Among Non-establishment supporters, Democrats are mildly positive (mean score of 5.87), but the ‘Others’ group (mostly localists and self-determinists) are mildly negative (mean score of 4.27).

9.5 Can the opening of the Central Liaison Office bring it closer to the public? (Question 24)

The public is mildly positive that the open day of the CLO can bring it closer to the public (mean score of 5.32, scale of 0 to 10). Pro-establishment supporters and Moderates are mildly positive (mean scores of 5.68 and 5.38 respectively), but Non-establishment supporters are mildly negative (mean score of 4.32). Among Non-establishment supporters, Democrats are mildly negative (mean score of 4.65) while the ‘Others’ group (mostly localists/self-determinists) are highly negative (mean score of 3.32).

Pro-establishment supporters and Moderates together constitute over 70% of our population. Our results show that the open day of CLO can bring it closer to the majority of the public.

(10) Summary of Opinion on New Topics

To summarize, Pro-establishment supporters, Moderates, and Democrats (i.e., the entire political spectrum excepting localists/self-determinists), who together constitute over 90% of the adult population, regard Carrie Lam as a CE who can mend social division. They agree that HK should take part in the BBA and the BRI. The results indicate that Carrie Lam, and HK’s participation in the BBA and the BRI have very widespread public support. However, the public is not familiar with the BBA, pointing to the need for more efforts in promotion. Only 12.2% and 11.9% of the public respectively would consider and may consider moving to other cities in the BBA to live, work, or retire. This points to the need for effective measures to facilitate integration.

II. International freedom and democracy indices

Under 1C2S, HK is China's most open and international city. Freedoms and democracy are core components of 1C2S, and international perception of freedoms and democracy in HK is very important for the implementation of 1C2S. Hence, we give equal weight to scores obtained from polls of the HK public, namely Index (A), and scores computed from international indices, namely Index (B).

Index (B) is the average of 3 indices, namely, the Economic Freedom Index and Personal Freedom Index of CATO-Fraser Institutes, and the Democracy Index of the EIU (Economic Intelligence Unit). The average of the Economic Freedom and Personal Freedom Indices is known as the Human Freedom Index, which is the most comprehensive index of freedom available. Hong Kong is always ranked world's number one in Economic Freedom, and is also ranked highly in Personal Freedom. As a result, Hong Kong has also been world's number one in Human Freedom from 2008 to 2014.

Hong Kong's rank in the Democracy Index has been mediocre, behind Japan, Taiwan, and South Korea. This is expected as Hong Kong's Chief Executive is not elected by universal suffrage.

As Hong Kong is a highly developed region and given that highly developed regions tend to have comparatively higher Freedom and Democracy Indices as compared with developing regions – we have selected certain neighbouring developed countries and territories (namely, Japan, South Korea, Singapore, and Taiwan) as the benchmarks for comparison and assessment of Hong Kong's performance. We have also compared the respective scores of the Mainland and Hong Kong under the indices, so as to identify whether Hong Kong has become increasingly 'Mainlandised' under 1C2S. For brevity, we will refer to Japan, South Korea, Singapore, Taiwan, and the Chinese mainland as 'neighbouring territories'.

As the Human Freedom Index covers a very large number of countries, there is a two-year time lag in data compilation. The latest 2017 Human Freedom Index only reflects conditions in 2015. In our second Report released in early 2018, we have updated the Human Freedom Index of Hong Kong and neighbouring territories to 2016 according to the methodology of CATO-Fraser Institutes. In this Report, we will first update the Personal Freedom Index to 2017, and then update the Economic Freedom Index to 2017 (the Human Freedom Index is the average of the Personal Freedom and Economic Freedom Indices). There is no need to update the Democracy Index as it already reflects conditions in 2017.

(1) Updating the Personal Freedom Index (Table 4)

The Personal Freedom Index is composed of 7 items: they are respectively, rule of law, security and safety, freedom of movement, freedom of religion, freedom of association, freedom of expression and information, and gender identity and relationships – all key components of human rights and individual freedoms. Table 4 shows the updated 2017 scores of Hong Kong (see

footnotes of the Table for the updating methodology) and of neighboring territories. We also show the 2014 to 2016 scores of HK to show the trend for each of the 7 items. The 2014 and 2015 scores are taken from the Reports of the Cato-Fraser Institutes. The 2016 scores are updates estimated in our second Report. The 2017 scores are updates of this Report.

Table 4: Updating the Personal Freedom Index for HK & neighbouring territories*

	Year	Personal Freedom Index							
		Rule of Law	Security and Safety	Movement	Religion Freedom	Association	Expression and Information	Identity and Relationships	Aggregate
Hong Kong	2014	7.80	9.33	10.00	10.00	9.79	8.23	10.00	9.08
	2015	7.79	9.40	10.00	9.26	7.64	8.77	9.25	8.79
	2016	7.14	9.40	10.00	9.26	7.64	8.67	9.25	8.62
	2017	6.55	9.78	10.00	9.26	7.64	8.80	9.25	8.58
Mainland China	2017	4.70	7.93	3.33	4.94	1.67	6.03	10.00	5.75
Japan	2017	7.64	9.82	10.00	8.75	8.89	9.27	9.25	8.98
Korea	2017	7.44	9.58	8.33	9.26	9.44	10.58	9.25	8.94
Singapore	2017	7.68	9.35	8.33	7.69	3.61	7.51	8.00	7.77
Taiwan	2017	7.62	9.5	10.00	9.19	9.86	9.73	10.00	9.16

*Updating methodology: Data on ‘Security & Safety’ come from the ‘Security’ sub-index of the Rule of Law Index of the World Justice Report. Data on ‘Expression & Information’ come from the World Press Freedom Index of Reporters Without Borders. Data on the other 5 items come from relevant indices of the Freedom in the World Report of Freedom House. For each of the 7 items, we compute the percentage change of the relevant index in 2017 over that in 2016, and then apply the change to each of the seven 2016 scores estimated in our second Report to obtain the 2017 scores.

The Personal Freedom Index climbed from 8.87 in 2008 to a peak of 9.08 in 2014, but fell to 8.58 in 2017, falling by 5.5% from the 2014 peak. Among the 7 sub-indices of this Index, the scores of 4 sub-indices fell, namely, rule of law (falling by 16.0%), freedom of religion (falling by 7.4%), freedom of association (falling by 22%), and gender identity & relationship (falling by 7.5%). However, the scores of 2 sub-indices rose, namely, security (rising by 4.8%), and freedom of speech (rising by 6.9%). The substantial declines in the scores of rule of law and freedom of association is likely a result of adverse publicity in the international media on trials of HK protestors who participated in ‘Occupy Central’ and the civil unrest in Mongkok.

Despite the decline from 2014 to 2017, Hong Kong’s score in personal freedom is still decent, close to those of neighboring territories. This is testament to Hong Kong’s preservation of high levels of human rights and personal freedoms under 1C2S.

(2) Updating the Economic Freedom Index

The Heritage Foundation's Economic Freedom Index is very similar to that of CATO-Fraser Institutes, but the former only has a one-year time lag instead of the two-years. From 2016 to 2017, Heritage Foundation's Economic Freedom Index has risen by 0.45%. We apply this percentage change to the 2016 Economic Freedom Index of CATO-Fraser, and the updated 2017 score is 9.13 (see Table 5).

(3) Updating Index (B): The Freedom and Democracy Index (Table 5)

The 2017 Democracy Index was released by the EIU. From the updated Economic Freedom and Personal Freedom Indices, we can obtain the updated Human Freedom Index and Index (B). In 2017, Hong Kong's score in the Human Freedom Index was 8.85, higher than all neighboring territories. Hong Kong's score in Index (B): The Freedom and Democracy Index was 8.01, is lower than Taiwan, South Korea, and Japan but above Singapore.

Table 5: Updated 2017 international indices of HK and neighbouring territories

	Freedom and Democracy Index				
	Human Freedom Index (2017)			Democracy Index (2017)	Aggregate
	Economic Freedom	Personal Freedom	Aggregate		
Hong Kong	9.13	8.58	8.85	6.31 (71)	8.01
Mainland China	7.11	5.75	6.43	3.10 (139)	5.32
Japan	7.39	8.98	8.19	7.88 (23)	8.08
Korea	7.76	8.94	8.35	8.00 (20)	8.23
Singapore	8.91	7.77	8.34	6.32 (69)	7.67
Taiwan	7.90	9.16	8.53	7.73 (33)	8.26

(4) HK's trends in terms of different international indices (Table 6)

Over the past decade, Hong Kong has made some progress in its democratization, with its Democracy Index score increasing from 5.85 in 2008 to a peak of 6.5 in 2015, and rank from the 84th to the 67th. This was probably due to the increase of directly elected seats in our Legislature. However, the score fell slightly to 6.31 in 2017, falling by 2.9%. Index (B), the Freedom and Democracy Index, rose from 7.96 in 2008 to a peak of 8.19 in 2014, but declined to 8.01 in 2017, falling by 2.2%.

Given the adverse publicity in the international media on recent political events in HK, the declines in these indices are not surprising. Hong Kong's Personal Freedom Index, Democracy Index, and Index (B): The Freedom and Democracy Index, have declined respectively by 6.1%, 2.2%, and

2.2% from their peaks. Even though the Personal Freedom Index has the largest decline, the 2017 score of 8.58 is still quite decent, close to those of developed neighbouring territories.

Table 6: HK's scores and ranks in major international indices

	Freedom and Democracy Index				
	Human Freedom Index			Democracy Index	Aggregate
	Economic Freedom	Personal Freedom	Aggregate		
2008	9.17 (1)	8.87 (26)	9.02 (1)	5.85 (84)	7.96
2010	8.96 (1)	8.90 (26)	8.93 (1)	5.92 (81)	7.93
2011	8.92 (1)	9.14 (18)	9.03 (1)	5.92 (80)	7.99
2012	8.98 (1)	9.09 (18)	9.04 (1)	6.42 (63)	8.16
2013	8.97 (1)	9.01 (20)	8.99 (1)	6.42 (65)	8.13
2014	9.03 (1)	9.08 (20)	9.06 (1)	6.46 (66)	8.19
2015	8.97 (1)	8.79 (26)	8.88 (2)	6.50 (67)	8.09
2016	9.09	8.62	8.85	6.42 (68)	8.04
2017	9.13	8.58	8.85	6.31 (71)	8.01

Looking into the change in the seven sub-indices of the Personal Freedom Index from 2014 to 2017, four sub-indices have substantial declines, namely, rule of law, religious freedom, freedom of association and assembly, and gender identity and relationships. From this, one can see the international community does have concerns on personal freedoms in Hong Kong.

Despite recent declines, Hong Kong's scores and rankings in the Personal Freedom Index, Democracy Index, and Index (B): The Freedom and Democracy Index, remain way above those of the Mainland. The fear that Hong Kong has become 'Mainlandised' is vastly exaggerated.

IV. 1C2S Mass Media Index (1C2S MMI)

Media sentiment is an important factor in the formation of public opinion. We attempt to use big data techniques to measure media sentiment towards 1C2S and monitor how 1C2S is conveyed in the mass media to provide a timely barometer of public sentiment. 1C2S MMI is a net sentiment index of newspaper articles over a given time. To dovetail with our main Index, we will compile the MMI half yearly.

In the longer run, subject to resource availability, the MMI opens up many opportunities of further research in public opinion formation. The MMI can be compiled at high frequency intervals (e.g. monthly) as it is not subject to the long time lags of surveys. It is also possible to investigate the effect of specific significant events (e.g., co-location arrangement for the Express Rail link) on media sentiment, or to compare sentiments in the local and overseas media.

1C2S MMI mines close to 128,000 news articles and around 64 million words from 20 local daily newspapers. Newspaper is only part of the media, and the MMI does not cover news reported by traditional media such as television and radio, as well as news carried by new media. Measuring the sentiments of news reported by television and radio is very difficult as there is no comprehensive text-based data base available. Measurement of sentiments of new media is also very difficult as it will be very demanding on resources. Furthermore, while widely accepted credibility ratings of different newspapers are available through regular opinion polls, comparable ratings on the credibility of different new media outlets are not available. We will thus confine our study to newspaper articles on 1C2S.

It should be noted that many newspapers have also broadcasted their news through online outlets such as websites and mobile apps. In so far as the news articles of these online outlets are the same as their printed versions, the sentiments of these articles are already included in our MMI regardless of whether they are printed or broadcasted online. 1C2S MMI currently only gauges sentiment of an important subset of mass media, printed newspapers, as a general representation of sentiment in mass media.

(1) Latest figures

1C2S MMI in the first half of 2018 comes in at 99.22, a slight increase from 97.14 recorded in the previous 6 months and is consistent with the rise of the main Index (Table 7). The following events influenced media sentiment towards 1C2S in the first half of 2018:

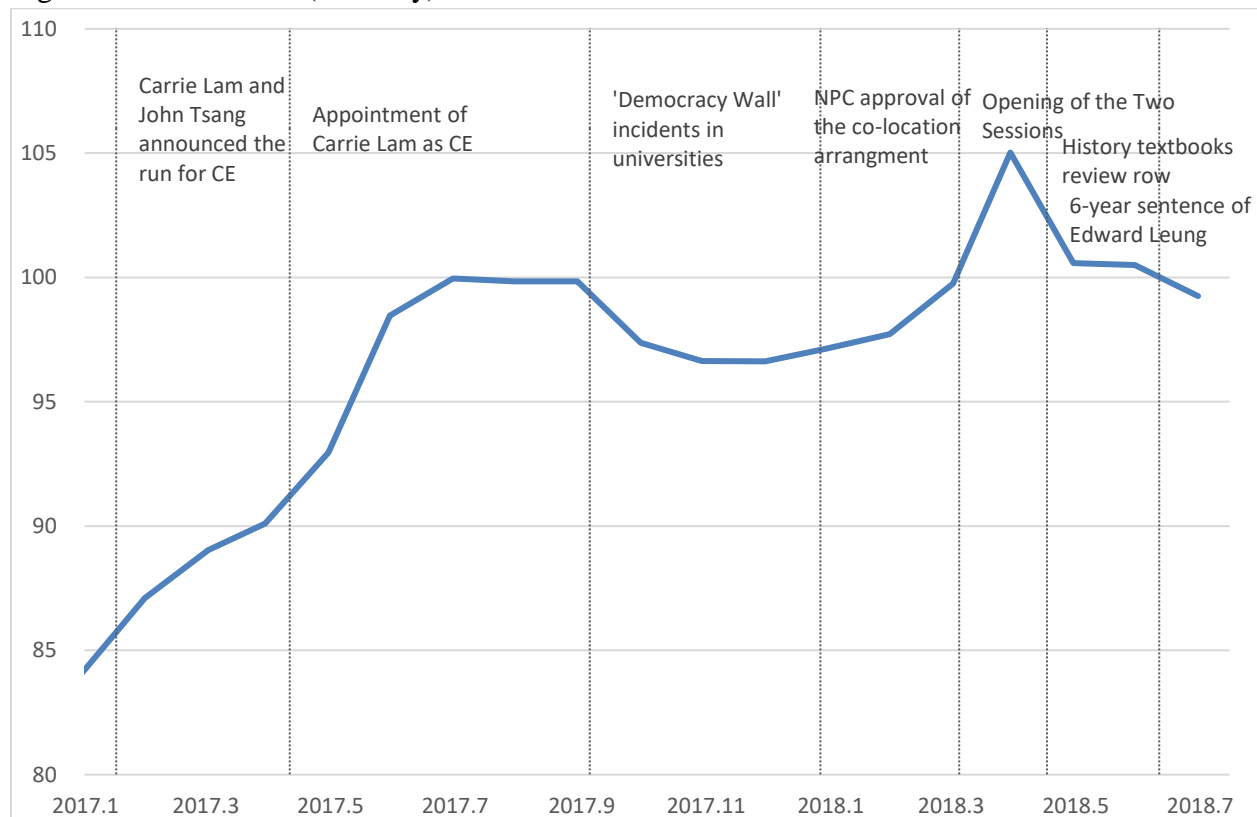
- The NPC Standing Committee approved the co-location arrangement. The Hong Kong Bar Association criticized that it will undermine public confidence in 1C2S severely;
- Agnes Chow of Demosistō was disqualified from running in the LegCo by-election;

- During the closing meeting and the press conference of the Two Sessions, President Xi Jinping and Premier Li Keqiang reiterated the principles of 1C2S, ‘Hong Kong people governing Hong Kong’ and the ‘high degree of autonomy’;
- The Education Bureau demanded History textbook publishers to change inaccurate phrases used in their textbooks, raising concerns about political censorship;
- The National Security Education Day Hong Kong Symposium was first held in Hong Kong;
- The European Union published its annual report on Hong Kong suggesting a potential erosion of Hong Kong’s high degree of autonomy in the long term;
- The Ministry of Science & Technology and the Ministry of Finance enabled cross-boundary remittance of national science and technology funding to higher education and research institutions in Hong Kong;
- LegCo’s passage of the co-location bill;
- Edward Leung, leader of HK Indigenous, was given a prison sentence of 6 years for his role in the civil unrest in Mongkok.

Table 7: 1C2S MMI (Half-Yearly)

2017 H1	2017 H2	2018 H1
99.96	97.14	99.22

Figure 15: 1C2S MMI (Monthly)



(2) Sentiment trend

2.1 *Comparison with public surveys*

Media coverage will shape public opinion and the effect of media priming is observed in Hong Kong.¹ A local study also suggests that sentiment analyses will lead telephone surveys by about 2 weeks.² Figure 14 juxtaposes 1C2S MMI with survey results regarding views towards 1C2S by two organizations, namely Radio Television Hong Kong (RTHK)³ and Public Opinion Programme by the University of Hong Kong (HKUPOP).⁴ Remarkably, these series depict a similar overall trend of public views - albeit with some quantitative differences across the 3 samples. All three series rose in the early 2000's to a peak around 2007; then fell to a trough around 2014-16 with Occupy Central and the civil unrest in Mongkok, and then recovered thereafter.

As for quantitative differences, 1C2S MMI tends to reveal the immediate effect of speeches and activities of high-ranking officials, especially those of the Chinese leaders which have extensive coverage in mass media. Survey-based indicators might be affected by events with no direct relevance to 1C2S such as the re-election of Donald Tsang with high popularity in 2007. 1C2S MMI also serves as a better proxy for cases with high newsworthiness, while survey-based indicators trace incidents which impose more universal impacts. For example, 1C2S MMI gives a more negative rating during the civil unrest in Mongkok, which came as a shock yet affected only limited parties. Survey-based indicators, on the other hand, show a more negative rating during the "Occupy Central" movement, which affected the general public in various aspects.

2.2 *Historical performance*

Figure 16 shows that the MMI was on an upward trend from April 1998 (inception date of MMI) to 2001. When the discussion and consultation of Article 23 began in 2002, 1C2S MMI started to fall until the government withdrew the legislation in September 2003. The NPC Standing Committee's interpretation of the Basic Law on constitutional development in April 2004 caused a certain drop in 1C2S MMI, but it continued to rise after Tung Chee Hwa resigned as CE in March

¹ Willnat, L., & Zhu, J. H. (1996). Newspaper coverage and public opinion in Hong Kong: A time-series analysis of media priming. *Political Communication*, 13(2), 231-246.

² Fu, K. W., & Chan, C. H. (2013). Analyzing online sentiment to predict telephone poll results. *Cyberpsychology, Behavior, and Social Networking*, 16(9), 702-707.

³ RTHK commissioned the Hong Kong Institute of Asia-Pacific Studies (HKIAPS) to conduct an annual survey. The related question is: 'Satisfactory to the overall development of Hong Kong after the handover' ('對回歸以來香港整體發展的滿意度').

⁴ In the survey conducted by HKUPOP, the related question is: 'Generally speaking, are you confident in "One Country, Two Systems"?' ('咁整體黎講·你對一國兩制有冇信心?').

2005. In March 2006, a designated chapter was written for Hong Kong and Macau in the national 11th 'Five-Year Plan', boosting 1C2S MMI to reach the second highest point after the handover. In October 2009, the celebrations for the 60th anniversary of the PRC further raised 1C2S MMI to the peak.

The 'Five Constituencies Resignation' campaign, which attempted to mobilise support for universal suffrage, was followed by a period of sentiment downturn for several years beginning in 2010. Despite the temporary relief provided by the successful political reform proposal, 1C2S MMI was pushed to the lowest point of the period after activists from the Chinese mainland were denied entry to HK to attend Szeto Wah's memorial service in January 2011. The problems of 'anchor babies', the 'Reclaim Sheung Shui' movement and the infant formula shortage exacerbated the drop.

Although the knife attack on Kevin Lau and the 'Reclaim Yuen Long' and 'Reclaim Tuen Mun' movements led to some fluctuations in 1C2S MMI between 2014 and 2015, the overall level was relatively stable because the media did not present a one-sided view of the 'White Paper on "One Country, Two Systems"', the NPC Standing Committee's '8.31' decision and the 'Occupy Central' movement. MMI rose somewhat after Queen Elizabeth II affirmed that 1C2S was a historical achievement during her meeting with Xi Jinping in October 2015.

1C2S encountered the most severe challenge in the beginning of 2016 when 1C2S MMI plummeted to the lowest level ever since the handover. The 'Causeway Bay Bookstore' incident aroused widespread media attention in January. The civil unrest in Mongkok evolved into a clash between civilians and the police in February. The award of the independent film 'Ten Years' as the best film in Hong Kong Film Awards in April aggravated the negative sentiment in the mass media.

The MMI bottomed out and rose strongly when CY Leung announced that he would not run for a second term and when Carrie Lam was elected CE. Though the NPC Standing Committee's interpretation of the Basic Law in response to the oath-taking row in the LegCo in November 2016, the 'democracy walls' incidents in universities in September 2017, and the trial of the civil unrest in Mongkok in early 2018 occurred, 1C2S MMI still rose to a high level in the first half of 2018 under the new administration of Carrie Lam.

Figure 16: 1C2S MMI and Other Public Surveys

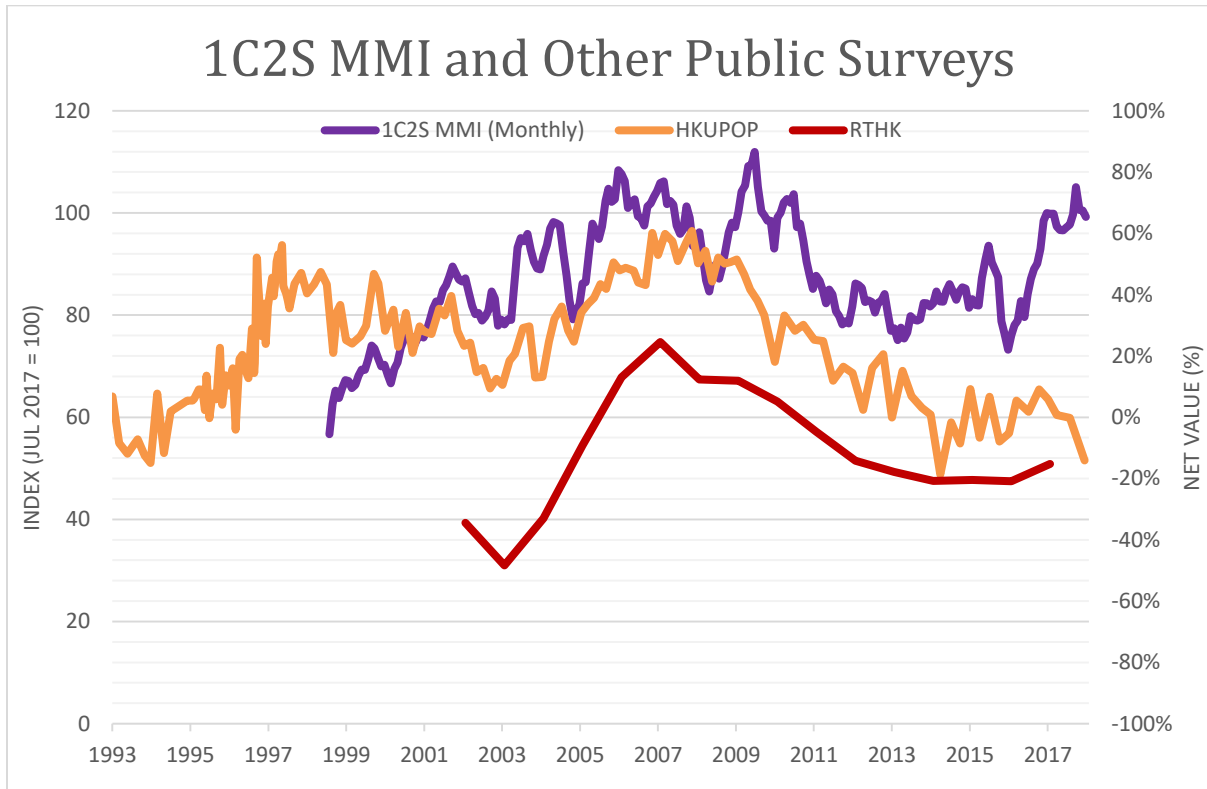


Table 8: Time Series of 1C2S MMI since 2014

Year	Half-Year	Month	1C2S MMI (2017-Jul = 100)	
			Monthly	6-Month
2014	H2	Jul	83.46	82.28
		Aug	88.12	84.61
		Sep	84.98	82.68
		Oct	81.82	82.65
		Nov	85.67	84.73
		Dec	92.29	86.06
2015	H1	Jan	75.30	84.70
		Feb	77.80	82.98
		Mar	94.43	84.55
		Apr	87.11	85.43
		May	84.35	85.21
		Jun	69.72	81.45
	H2	Jul	85.16	83.10
		Aug	71.31	82.01
		Sep	93.72	81.89
		Oct	119.39	87.27
		Nov	105.59	90.81
		Dec	86.43	93.60
2016	H1	Jan	65.41	90.31
		Feb	62.97	88.92
		Mar	84.60	87.40
		Apr	67.90	78.82
		May	90.49	76.30
		Jun	67.87	73.21
	H2	Jul	82.53	76.06
		Aug	74.79	78.03
		Sep	90.05	78.94
		Oct	90.74	82.75
		Nov	71.54	79.59
		Dec	94.74	84.06
2017	H1	Jan	100.73	87.10
		Feb	86.41	89.03
		Mar	96.44	90.10
		Apr	107.89	92.96
		May	104.60	98.47
		Jun	103.72	99.96
	H2	Jul	100	99.84
		Aug	86.38	99.84
		Sep	81.64	97.37
		Oct	103.44	96.63
		Nov	104.57	96.63
		Dec	106.79	97.14
2018	H1	Jan	103.41	97.71
		Feb	98.56	99.74
		Mar	113.21	105.00
		Apr	76.76	100.55
		May	104.08	100.47
		Jun	99.28	99.22

(3) The Construction of 1C2S MMI

Our sample consists of around 128,000 newspaper articles related to 1C2S from 20 local daily newspapers that were published between April 1998 and June 2018.

Each article undergoes a ‘tokenisation’ process whereby articles are segmented into words/phrases (often referred to as tokens) via a computer algorithm. In the sample period of approximately 21 years, our text corpus contains around 64 million tokens. From this massive dataset, common words that are inconsequential to the understanding of news articles, such as ‘我’ , ‘你’ , ‘的’ , are first removed before further analysis.

To determine the sentiment of an article, words are categorised as: ‘positive’, ‘negative’ or ‘neutral’ (not a sentiment word). A positive word is then given a sentiment score of 1, a negative word is assigned a score of -1, and a neutral word has a score of 0. The classification scheme adopted is given by the sentiment dictionary for Traditional Chinese words developed by Ku et al. (2009).⁵

The positive, or negative as the case may be, sentiment of a paragraph is quantified via a count of the number of positive (negative) words it contains, adjusted by its total word count. The sentiment score of an article is calculated as the average difference between positive and negative proportions among constituent paragraphs. 1C2S MMI is derived as an index that captures the weighted average sentiment score among newspapers in a given month. The base month is set at July 2017 to indicate 20 years after the establishment of Hong Kong Special Administrative Region. Table 9 reveals substantial differences in the number of news articles published by newspapers during the sample period. Article count of a newspaper alone could be an insufficient representation of its influence and perceived importance among readers. To ensure 1C2S MMI’s reliability, the sentiment score for each newspaper is further weighted by public perceptions of its credibility based on the survey ‘Public Evaluation on Media Credibility’ conducted by Centre for Communication Research, The Chinese University of Hong Kong.

⁵ Ku, Lun-Wei, Ho, Xiu-Wei and Chen, Hsin-His (2009). Opinion Mining and Relationship Discovery Using CopeOpi Opinion Analysis System, *Journal of American Society for Information Science and Technology*, 60(7), pp1486-1503.

Table 9: Data Source

Newspaper	Number of Articles
A Daily	81
am730	1,847
Apple Daily	8,131
Headline Daily	892
Hong Kong Commercial Daily	12,312
Hong Kong Daily News	4,476
Hong Kong Economic Journal	8,929
Hong Kong Economic Times	3,788
Hong Kong Globe	194
Metro Daily	1,253
Ming Pao Daily News	10,492
Oriental Daily News	7,240
Sharp Daily	152
Sing Pao	4,670
Sing Tao Daily	6,712
Sky Post	407
Ta Kung Pao	25,701
The Sun	4,828
Tin Tin Daily News	452
Wen Wei Po	25,396
Total	127,953

Table 10: Number of Words

Year	Number of Words
1998	669,676
1999	2,498,254
2000	2,320,584
2001	2,640,690
2002	2,545,546
2003	2,713,403
2004	4,801,621
2005	2,874,994
2006	1,879,834
2007	2,797,512
2008	1,446,629
2009	1,815,839
2010	1,880,198
2011	2,040,824
2012	3,441,893
2013	3,312,415
2014	5,386,835
2015	4,411,567
2016	5,590,354
2017	6,204,647
2018 (H1)	2,456,416
Total	63,729,731

(4) Accuracy test

1C2S MMI index is underpinned by a lexicon-based model which treats each paragraph as a bag of words and as a result may detract from the overall context of the paragraph. For instance, the model may not be able to detect nuances in writing such as sarcasm and therefore do not understand fully the true meaning of a paragraph. Nonetheless, whilst this may be a limitation when analysing publications such as novels, this is less of an issue for news articles which are written in a more direct manner.

To ascertain the accuracy of this lexicon-based method in identifying the sentiment of a paragraph, two researchers manually categorised around 18,000 paragraphs randomly drawn from the text corpus into ‘positive’, ‘neutral’ and ‘negative’ categories. References to which newspaper a paragraph came from were removed before the paragraph was presented to our team of researchers. If these two researchers classified a paragraph differently, a third researcher would be asked to make the final verdict.

Table 11: Results of Accuracy Test

	Positive	Neutral	Negative
No. of Paragraphs Classified by Human Researchers	2,363	14,202	1,472
Net Value	21.76%	14.42%	2.92%

In this accuracy test, sentiment labels given by the first two researchers coincided with each other around 80% of the time. As shown in Table 11, 2,363 paragraphs were considered as ‘positive’ whereas 1,472 were classified as ‘negative.’

Sentiment scores for each group of paragraphs were then derived by the same lexicon model used in the construction of 1C2S MMI. In our model, the sentiment of a paragraph is assumed to be encapsulated in the proportion of positive words minus that of negative words - the higher the sentiment score, the more positive a paragraph is expected to be.

Table 11 also shows the average sentiment scores of these 3 groups of paragraphs. In particular, ‘positive’ paragraphs identified by the team of researchers have an average sentiment score of 21.76%, around 7.5 times as high as ‘negative’ paragraphs. In addition, the differences in average sentiment scores among these 3 groups are tested to be statistically significant via a multivariate regression model, suggesting that results given by the lexicon model are largely in line with judgements made by human researchers.

Appendix I: Different methods of constructing Index (A)

Index (A), the composite score of 1C2S from public's evaluation, is computed from scores of 9 sub-items. Conceptually, there are different ways to combine the 9 sub-items into a composite score. We have chosen the method of simple average, which simply gives equal weight to each sub-item. Conceptually, simple average may not be the best as different items may carry different weights. Here, we compare the method of simple average to two alternatives methods that are more sophisticated, namely, Principal Component Analysis and Factor Analysis. Table 1 shows the scores of Index (A) computed by the three methods. The results of the three methods are highly similar and we adopt the simple average as it is the most common and most easily understood.

Table 1: Score constructed from public survey with different methods (valid sample: 901)

	Score (1-7)	Score (0-10)
Simple Average	4.03	5.05
Principal Component Analysis	4.04	5.06
Factor Analysis	4	5

The results of all three methods are highly similar, largely due to the clustered nature of the public's assessments of the nine items (cf. the distributions of the nine items are highly correlated), which causes the core components or sub-items across all three methods to be highly similar.

Simple Average (of the Nine Items)

This is the most common method employed in constructing indices – its strength lies in its parsimony and accessibility; its weakness is that it assigns equal weighting to all items (i.e. it assumes equal importance for all items).

Principal Component Analysis

Principal Component Analysis is a statistical method that processes and simplifies data; it is the standard scientific method employed in constructing indices. Through statistical analysis, it extracts the data set's principal components and identifies their weights in a way that best explains the variations across the data; its flaw lies in the complex calculations involved, which render the method inaccessible to laypersons. After complex calculations, we have found that there is negligible difference between results arrived at by using the average approach, and the results acquired via Principal Component Analysis

Factor Analysis

Factor Analysis extracts common factors from the data, and shares a similar methodology with Principal Component Analysis. Its strength lies in its ability to identify hidden and representative factors amongst the many variables and group variables of a similar nature and converting the

same into a common factor, which reduces the total number of variables. Its weakness is that its complex calculations are difficult to navigate for laypersons. After complex calculations, we have found that there is negligible difference between the results arrived at by using the average approach, and the results acquired using Factor Analysis.

Given the similarity of the results from all three methods, we adopted the simplest and most commonly used method – i.e. the average of the nine items – in constructing the Index.