

For Information

Legislative Council Panel on Housing

2018 Rent Review of Public Rental Housing

PURPOSE

This paper briefs Members on the outcome of the 2018 rent review conducted under the established rent adjustment mechanism for public rental housing (PRH) as stipulated in the Housing Ordinance (Cap. 283).

THE REVIEW

2. The existing PRH rent adjustment mechanism is stipulated under Section 16A of the Housing Ordinance which came into effect on 1 January 2008. Section 16A provides that the Hong Kong Housing Authority (HA) shall conduct a rent review every two years¹ and vary the PRH rent according to the change in the income index between the first and second periods covered by the review. For the 2018 rent review, the income index (computed by the Commissioner for Census and Statistics on the basis of the data from the “Survey on Household Income of PRH Tenants” conducted by HA) for the second period (i.e. 2017) of the rent review is higher than that for the first period (i.e. 2015) by 11.59%. In accordance with the PRH rent adjustment mechanism stipulated in the Housing Ordinance, the proposed rent adjustment under the 2018 PRH rent review is +10%, with effect from 1 September 2018. The details of this rent review are set out in the attached **Memorandum** for HA’s Subsidised Housing Committee (SHC).

3. Members are invited to note the outcome of the review, which will be considered by the SHC at its meeting on 17 July 2018.

Housing Department
July 2018

¹ Section 16A(1)(b) of the Housing Ordinance stipulates that HA “shall review the relevant rent as soon as practicable after the second anniversary of the expiry date of the second period for the last review”.

**Memorandum for the Subsidised Housing Committee of
the Hong Kong Housing Authority**

2018 Rent Review of Public Rental Housing

PURPOSE

This paper seeks Members' endorsement of the outcome of the 2018 rent review conducted under the rent adjustment mechanism for public rental housing (PRH) as stipulated in the Housing Ordinance (Cap. 283).

RECOMMENDATION

2. Members are recommended to approve the outcome of the 2018 rent review in accordance with Section 16A(4) of the Housing Ordinance (paragraph 14 below).

EXISTING PRH RENT ADJUSTMENT MECHANISM

3. The existing PRH rent adjustment mechanism is stipulated under Section 16A of the Housing Ordinance which came into effect on 1 January 2008. Section 16A provides that the Hong Kong Housing Authority (HA) shall conduct a rent review every two years^{Note 1} and vary the PRH rent according to the change in the income index between the first and second periods covered by the review. Section 16A(4) provides that HA,

- (a) "if satisfied on a review of the relevant rent that the income index for the second period is higher than the income index for the first period by more than 0.1%, shall as soon as practicable after the

Note 1 Section 16A(1)(b) of the Housing Ordinance stipulates that HA "shall review the relevant rent as soon as practicable after the second anniversary of the expiry date of the second period for the last review".

review increase the relevant rent by the rate of the increase of the income index or 10%, whichever is less”; and

- (b) “if satisfied on a review of the relevant rent that the income index for the second period is lower than the income index for the first period by more than 0.1%, shall as soon as practicable after the review reduce the relevant rent by the rate of reduction of the income index”.

Based on the above statutory provisions, HA is required to adjust the PRH rent in strict accordance with the stipulated mechanism.

4. The mechanism provides an **objective basis for HA to determine when PRH rent should be adjusted and by how much, taking into account tenants’ affordability**. It also helps promote the long-term sustainability of the PRH programme. Background information on the rent adjustment mechanism, as well as the methodology for data collection and computation is at **Annex A**.

5. After Section 16A of the Housing Ordinance was enacted in June 2007, HA reduced the PRH rent by 11.6% in August 2007, which corresponded to the change in average income of PRH tenants between January to December 1997, and April 2005 to March 2006. After Section 16A came into effect on 1 January 2008, HA conducted a rent review in 2010^{Note 2}, 2012, 2014 and 2016 respectively. In each review, the Subsidised Housing Committee (SHC) of HA considered the report of the Commissioner for Census and Statistics (C for C&S) and endorsed the outcome, and the rent adjustment came into effect on 1 September. The rent adjustments since the enactment of Section 16A of the Housing Ordinance are summarised below –

Note 2 Section 16A(1)(a) of the Housing Ordinance stipulates that HA shall “review the relevant rent as soon as practicable after 1 January 2010”. In relation to the first rent review to be conducted after 1 January 2010, Section 16A(8) of the Housing Ordinance defines the first period as a period of 12 months expiring on 31 December 2007, and the second period as a period of 12 months expiring on 31 December 2009.

	Change in Income Index	Adjustment of PRH rent	Effective date of new rent
Enactment of Section 16A of the Housing Ordinance	-	-11.6%	August 2007
2010 review	+4.68%	+4.68%	September 2010
2012 review	+16.24%	+10%	September 2012
2014 review	+19.27%	+10%	September 2014
2016 review	+16.11%	+10%	September 2016

OUTCOME OF THE 2018 RENT REVIEW

6. For the 2018 rent review, the first period for the purpose of computing the income index is the 12 months in 2015, while the second period is the 12 months in 2017. The Census and Statistics Department (C&SD) has confirmed that the data collected through the “Survey on Household Income of Public Rental Housing Tenants” (the Income Survey) conducted by HA accurately reflect the household income of PRH tenants in both 2015 and 2017. The survey data have been used to compute the income index for PRH tenants accordingly. Distribution of survey data and details of households excluded from the computation of the mean monthly household income are set out in the ensuing paragraphs.

Sample distribution

7. Monthly sampling of 2 000 PRH households for the first and second periods was conducted in accordance with the actual distribution of household size each month as shown at **Annex B1** and **Annex B2** respectively.

8. By design of the proportionate stratified systematic random sampling, the distribution of tenant household sample by PRH estate and by district corresponds to the actual distribution of all PRH households. A comparison of the tenant household sample and actual distribution of households by district and by estate for the first and second periods is at **Annex C1** and **Annex C2** respectively.

Exclusion of non-representative households

9. A total of 24 000 PRH households were sampled in each of the first and second periods. The response rate was 98.4% and 98.5% for 2015 and 2017 respectively. The remaining 1.6% and 1.5% involved 385 incomplete cases for 2015 and 356 incomplete cases for 2017. These tenants were unable to provide all the information requested in the declaration form, and all were verified by the Housing Department (HD) to have reasonable grounds (such as chronic illness, overseas employment or study, imprisonment, etc.) for not being able to provide the information required.

----- 10. According to the methodology spelt out at Annex A and as shown at **Annex D1**, in the 2015 Income Survey, 737 “well-off tenants”,^{Note 3} 446 other households with income higher than the upper outlying levels, and 4 529 Comprehensive Social Security Assistance (CSSA) households were excluded from the computation of the income index, accounting for 3.1%, 1.9% and 19.3% of the completed sample respectively. Upon exclusion of these three categories of non-representative households, another 109 invalid sampling units (i.e. deceased tenants and those who terminated their tenancies) and the 385 incomplete cases mentioned in paragraph 9 above, the sample size for computing the income index is 17 794 for 2015.

Note 3 HA’s Housing Subsidy Policy (HSP) and the Policy on Safeguarding Rational Allocation of Public Housing Resources (SRA) are commonly referred to as the “Well-off Tenants Policies”. Under the “Well-off Tenants Policies”, households after living in PRH for ten years are required to declare their household income and assets, and thereafter biennially. Those with a household income equivalent to two to three times of the PRH income limits have to pay 1.5 times net rent plus rates. Those with household income equivalent to three to five times of the PRH income limits are required to pay double net rent plus rates. PRH households with total household income or net assets value exceeding the prescribed limits (i.e. five times and 100 times of the PRH income limits respectively), as well as those who have private domestic property ownership in Hong Kong, are required to vacate their PRH flats.

Households who are required to vacate their PRH flats but have a temporary housing need may apply for a fixed-term licence to stay in the PRH for a period of not more than 12 months, during which time a licence fee equivalent to the double net rent plus rates or market rent, whichever is the higher, is charged. “Well-off tenants” are PRH tenants who are paying additional rent (i.e. 1.5 times or double net rent plus rates, or market rent).

----- 11. As shown at **Annex D2**, in the 2017 Income Survey, 807 “well-off tenants”, 525 other households with income higher than the upper outlying levels, and 4 216 CSSA households were excluded from the computation of the income index, accounting for 3.4%, 2.2% and 17.9% of the completed sample respectively. Upon exclusion of these three categories of non-representative households, another 96 invalid sampling units and the 356 incomplete cases as mentioned in paragraph 9 above, the sample size for computing the income index is 18 000 for 2017. C&SD considers the resultant sample sizes for both the first and second periods form a sound basis for the compilation of the income index.

Computation of mean monthly household income

12. Applying a standard statistical method to gross up the survey data above, C&SD computed the household size distribution of PRH tenants which forms a set of weights for computing the overall mean monthly household income and hence the income index for the rent review. Details of the two periods are at **Annex D1** and **Annex D2** respectively.

13. The mean monthly household income of PRH tenants in the first period (i.e. 2015) is \$20,566 and this index is set at 100. The adjusted mean monthly household income in the second period (i.e. 2017) is \$22,950. The index of the second period is therefore 111.59. C&SD has conducted various quality checks and computed the income index with reference to the income data for the first and second periods in its independent capacity. Findings of the quality checks performed by C&SD and the computation of income index are
----- appended at the C for C&S’ report on the 2018 rent review exercise at **Annex E**.

14. As mentioned in paragraph 3 above, Section 16A(4)(a) of the Housing Ordinance stipulates that if the income index for the second period is higher than that for the first period by more than 0.1%, HA shall increase the PRH rent by the rate of increase of the income index or 10%, whichever is less. Since the income index for the second period is **higher** than that for the first period **by 11.59%**, rent adjustment under the 2018 PRH rent review is **+10%**.

IMPACT OF RENT ADJUSTMENT ON TENANTS

15. A total of about 756 600 households were residing in PRH as at December 2017. Among them, about 119 900 (or 16%) were CSSA households. The remainder consisted of about 594 800 households (or 79%)

who were paying normal rent; about 17 100 households (or 2%) receiving assistance under HA’s Rent Assistance Scheme (RAS) and paying either 50% or 75% of the normal rent; and about 24 800 “well-off tenants” (or 3%) who were paying additional rent.

16. The average monthly rent as at December 2017 was \$1,880, and an adjustment of +10% means **an increase of about \$188 on average**. As at December 2017, the monthly rent ranged from \$346 to \$4,690. The upward rent adjustment will hence **range from \$34 to \$469**, as tabulated below –

Monthly rent increase Note 4	No. of households Note 5*	Percentage among all PRH households Note 5
+\$34 to \$100	33 300	5%
+\$101 to \$150	161 700	25%
+\$151 to \$200	186 000	29%
+\$201 to \$250	108 200	17%
+\$251 to \$300	87 300	14%
+\$301 to \$350	43 700	7%
+\$351 to \$469	16 400	3%

Notes

* Figures rounded to the nearest hundred.

IMPLEMENTATION DATE

17. Section 16A(4) of the Housing Ordinance stipulates that HA shall adjust PRH rent as soon as practicable after the rent review, whereas Section 16A(5)(b) provides that HA shall not vary the relevant rent before the second anniversary of the date of the last variation. In all the previous rent reviews under the current mechanism, the new rent came into effect on 1 September. We therefore propose that the rent adjustment in accordance with the outcome of the current rent review exercise should take effect from 1 September 2018.

Note 4 The rent increase distribution range as shown is calculated on the basis of normal rent (i.e. rent inclusive of net rent and rates) payable by PRH tenants. For those additional rent paying households who are required to pay 1.5 or 2 times of the net rent, the distribution of the actual rent payable upon rent adjustment for them may be different.

Note 5 CSSA households are excluded, as their rent is fully covered by the Government in most cases.

ASSISTANCE TO TENANTS

(a) Whether to grant rent waiver

18. In the previous rent reviews conducted under the current mechanism, there were calls for HA to offer rent waiver to PRH tenants. In the 2014 rent review, SHC laid down the principle that granting a rent waiver to all tenants irrespective of whether tenants are in need may not be the best use of public money. It may also not be the most equitable, when there continues to be a growing demand on HA's resources from applicants who are waiting for PRH units. Instead, there should be targeted assistance to those tenants who are in need (see paragraphs 21 – 23 below). Hence, HA did not grant any rent waiver in the 2014 and 2016 rent reviews^{Note 6}.

19. For the current rent review, there are once again calls for rent waiver. In considering whether rent waiver should be offered to tenants, Members may find the following factors relevant –

(a) Affordability of the rent adjustment to PRH tenants

- (i) **PRH tenants' mean household income has increased more than the rent increase.** Their mean household income increased in the past two years from \$20,566 to \$22,950 (i.e. an increase of \$2,384 or 11.59%), as compared with the rent increase of \$188 on average.
- (ii) **Over the years, owing to the 10% cap on rent increase under the rent adjustment mechanism, the increase in tenants' household income has far exceeded the increase in rent.** Specifically, HA reduced the PRH rent by 11.6% in August 2007 to provide a starting point for the existing rent adjustment mechanism to operate effectively. In the rent review in 2010 (covering the period from 2007 to 2009), the increase in household income was 4.68% and PRH rent was

Note 6 In the first rent review conducted in 2010, HA granted a one-month rent waiver in order to alleviate the burden of PRH tenants who might not yet have benefited from the economic recovery then. In the 2012 rent review, HA adopted a "sharing of burden approach" by granting a one-month rent waiver to share the financial burden of PRH tenants.

increased by the same rate. The rates of increase in household income under the rent reviews in 2012 ^{Note 7}, 2014 ^{Note 8} and 2016 ^{Note 9} were 16.24%, 19.27% and 16.11% respectively. However, rent was only raised by 10% on each of the three occasions. In the current review covering the period from 2015 to 2017, while the household income has increased by 11.59%, PRH rent will only increase by 10%.

The income of PRH households has increased cumulatively by 88% ^{Note 10} from 2007 (the first period of the first rent review under the current mechanism) to 2017 (the second period of the current rent review). However, by adopting a 10% rent increase pursuant to the outcome of the current rent review, **PRH rent will have only increased by 53.3% cumulatively** over all five rent reviews conducted according to the existing rent adjustment mechanism.

Note 7 The 2012 rent review covered the change in income index from 2009 to 2011.

Note 8 The 2014 rent review covered the change in income index from 2011 to 2013.

Note 9 The 2016 rent review covered the change in income index from 2013 to 2015.

Note 10 This figure is obtained by comparing the income index of 2007 (set at 100) and the income index of 2017. In accordance with the methodology of the current rent adjustment mechanism, the household distribution of 2007 was used in computing the income index of 2017.

- (iii) **PRH tenants have been using a decreasing proportion of their income to pay rent.** As a crude comparison, the **ratio of the average PRH rent to the average PRH household income in 2007 was 9.97%, and has gradually decreased to 9.14%** ^{Note 11} **after the rent increase in accordance with the current review.** Although these figures are not the actual rent-to-income ratios, they do provide an indicative reference to the affordability of PRH tenants ^{Note 12}.
- (iv) As at end-December 2017, 3% of PRH tenants are “well-off tenants” and should be able to afford the rent increase. Another 16% are CSSA recipients, whose rent is fully covered by the Government in most cases.

Note 11 The calculation is as follows –

	2007	2017
Average PRH rent	\$1,319 (the first period of the 2010 rent review, i.e. the first rent review under the current mechanism)	$\$1,880 \times (1 + 10\%) =$ \$2,068 (after the +10% rent adjustment under the current rent review)
Average PRH household income	\$13,233 (calculated using the actual household distribution in 2007)	\$22,631 (calculated using the actual household distribution in 2017)
Average rent / Average household income	$\$1,319 / \$13,233 = 9.97\%$	$\$2,068 / \$22,631 = 9.14\%$

The above ratio (9.14%) is slightly higher than the ratio reported in the 2016 rent review (9.10%). The main reason behind the slight increase is that with the completion of more new PRH estates from 2015 to 2017, the proportion of newly completed PRH units within the total PRH stock has increased slightly. Also, a significant number of these new units were located in the Urban District with a relatively larger average flat size. The higher rents of these new units have led to a slightly higher average PRH rent (hence resulting in a higher ratio of average PRH rent to average PRH household income).

Note 12 This is only a crude comparison, as the coverage of “average PRH rent” and the “average PRH household income” is different. The “average PRH rent” is the average rent of a PRH unit under HA. It is flat-based and does not exclude non-representative households as in the calculation of “average PRH household income”, which is tenant-based with unrepresentative households excluded as calculated under the PRH rent review.

(b) Impact on HA’s financial position

- (i) Section 4(4) of the Housing Ordinance stipulates that “[t]he policy of the HA shall be directed to ensuring that the revenue accruing to it from its estates shall be sufficient to meet its recurrent expenditure on its estates.” As mentioned in paragraph 18 above, granting a rent waiver to all tenants irrespective of whether tenants are in need may not be the best use of public money.
- (ii) The financial implications of a rent waiver are substantial. A one-month rent waiver would require \$1.6 billion (based on the proposed new rent). Based on HA’s budget approved in January 2018, a 10% increase in PRH rent in September 2018 will reduce the deficit of the rental housing operating account from \$1.1 billion to about \$0.05 billion in 2018-19^{Note 13}. If HA were to provide a one-month rent waiver while increasing the rent by 10% in September 2018, the deficit of the rental housing 2018-19 operating account will be increased to about \$1.7 billion and the average monthly operating deficit for each PRH unit in 2018-19 will be increased from about \$114 to \$117 instead of being reduced to \$5 with the rent increase.

20. Irrespective of any rent waiver, tenants with genuine financial difficulties already have access to other forms of assistance offered by both HA and the Government. Details are in the ensuing paragraphs.

(b) Rent Assistance Scheme (RAS)

21. As far as targeted relief measures are concerned, HA operates RAS to help PRH tenants with temporary financial difficulties pay their rent. Depending on the level of their income, eligible applicants will be granted either 25% or 50% rent reduction.

22. HA reviews the operation of RAS and introduces enhancements to the scheme from time to time. As a result of past enhancement measures, **the**

Note 13 The 10% rent increase commencing in September 2018 will result in additional revenue of around \$1.05 billion in 2018-19.

number of RAS beneficiaries increased substantially by 42%, from about 12 300 as at July 2014 to about 17 500 as at May 2018. Details of RAS and relevant enhancements are at **Annex F**.

23. We will continue to review the operation of RAS and consider measures to further enhance the scheme as appropriate.

(c) Government's initiatives and measures

24. Apart from subsidised rent, PRH households also benefit from Government's initiatives and can apply for various Government's schemes which assist low-income families. Tenants with recurrent financial difficulties can apply for CSSA. Currently, around 16% of our tenants are CSSA recipients. Apart from such established government programme, new and additional initiatives include –

- (a) As one of the relief measures announced in the 2018-19 Budget, the Government will waive rates for all four quarters of 2018-19, subject to a ceiling of \$2,500 per quarter for each rateable property. HA passes on all the rates concession to PRH tenants, which is estimated to be \$2,447 million in total. The rates waived for the four quarters will on average amount to about 1.5 times of the existing monthly rent (i.e. before rent adjustment) ^{Note 14} paid by PRH tenants. The rates concession receivable by each tenant will range from about \$456 to \$9,336 in 2018-19;

Note 14 The monthly rates waived for the flat occupied as a percentage of monthly rent payable for each tenant (excluding those who are not paying normal rent, such as well-off tenants, tenants under RAS, etc.) is compiled. Taking the average of this percentage among the relevant tenants concerned (i.e. 12.9%) and multiplying it by 12 (months), it is estimated that the rates concession for a 12-month period is roughly equivalent to a reduction in rent for 1.5 months.

- (b) Under the Caring and Sharing Scheme^{Note 15} and other initiatives of the 2018-19 Budget^{Note 16}, eligible persons (including those living in PRH) would enjoy concessions and/or a one-off extra allowance with an aggregate amount of not less than \$4,000; and
- (c) The Working Family Allowance Scheme^{Note 17} (WFA) seeks to encourage self-reliance and ease inter-generational poverty. Under WFA, a household (including one-person households) meeting the working hour requirements, income and asset limits may apply for a Basic Allowance, Medium Allowance or Higher Allowance (full rates ranging from \$800 to \$1,200 per month). Each eligible child may also be eligible for a Child Allowance (full rate at \$1,000). Depending on the household income, the allowances may be granted at full rate, 3/4 rate or half rate.

Note 15 For details of the Caring and Sharing Scheme announced by the Government on 23 March 2018, please refer to the relevant information note ([https://www.wfsfaa.gov.hk/careandshare/pdf/FCRI\(2018-19\)2-e.pdf](https://www.wfsfaa.gov.hk/careandshare/pdf/FCRI(2018-19)2-e.pdf)). In short, eligible persons who are not required to pay salaries tax in 2017-18 and do not own any property in Hong Kong may apply for \$4,000; and those who do not own any property in Hong Kong and receive a salaries tax concession of less than \$4,000 in 2017-18 may apply for the difference between \$4,000 and the amount of the tax concession.

Note 16 Under the 2018-19 Budget, the Government will provide a one-off two-month extra allowance to social security recipients (including those of CSSA, Old Age Allowance, Old Age Living Allowance and Disability Allowance). Besides, if the amount of the above extra allowance is less than \$4,000, the social security recipients would receive the difference between \$4,000 and the amount of the relevant allowance.

Note 17 Previously known as the Low-income Working Family Allowance Scheme before 1 April 2018.

RENT ADJUSTMENT MECHANISM

25. There have been suggestions for reviewing the rent adjustment mechanism. For instance, in the course of the 2016 rent review, some Members of the Legislative Council's Panel on Housing considered that the mechanism should be reviewed to better reflect the affordability of PRH tenants in paying their rent. Some SHC members also suggested that the rent adjustment mechanism should be reviewed. In concluding the 2016 rent review, the SHC Chairman also indicated that it would be appropriate to revisit the mechanism which had been in operation for almost ten years.

26. We have examined the current rent adjustment mechanism as well as other suggested options such as adjusting PRH rent with reference to inflation, wage index and median rent-to-income ratio. An analysis is at **Annex G**. In summary, we note that the existing rent adjustment mechanism is more effective in assessing and ensuring PRH tenants' affordability than other suggestions. At a brainstorming session held on 8 June 2018, SHC Members exchanged views on the current mechanism and other suggested alternative rent adjustment options, and took note of the analysis and observations mentioned above.

FINANCIAL IMPLICATIONS

27. According to HA's budget approved in January 2018, the rental housing operating account is estimated to have a deficit of \$1.1 billion in 2018-19. Upon the PRH rent increase by 10% from September 2018 onwards, the deficit is estimated to reduce to \$0.05 billion in 2018-19.

PUBLIC REACTION AND PUBLICITY

28. Our proposed rent increase by 10% should generally be acceptable by the public at large, as it is derived according to the established mechanism based on PRH tenants' affordability. However, some PRH tenants may find the rate of increase to be on the high side. At the same time, other commentators will note that under the established mechanism, PRH rent has not become less affordable to tenants, as compared to the situation in 2007, and as compared to many people living in private housing. Notably, since the adoption of the current rent review mechanism, the income of PRH households has cumulatively increased by **88%**, as opposed to the cumulative increase in PRH rent by **53.3%** (see paragraph 19(a)(ii) above). As a crude comparison,

the average PRH rent would constitute only about **9.14%** of the average PRH household income upon the proposed rent adjustment (see paragraph 19(a)(iii) above). Furthermore, for PRH tenants who have temporary financial difficulties in rent payment, rent assistance is available through RAS.

29. Subject to SHC's endorsement of the outcome of the current rent review, we will issue a press release to set out SHC's decision on the level of rent adjustment. In accordance with past practice, PRH tenants will also be notified one month in advance of their new rent levels.

30. This paper is copied to members of HA and the Finance Committee concurrently for information.

DISCUSSION

31. At the SHC meeting to be held on 17 July 2018, Members will be requested to approve the outcome of the 2018 rent review in accordance with Section 16A(4) of the Housing Ordinance (paragraph 14 above).

Lennon WONG
Secretary, Subsidised Housing Committee
Tel. No.: 2761 5033
Fax No.: 2761 0019

c.c. Members of Housing Authority and Finance Committee

File Ref. : HD (CR) 4-4/SP/10-10/0-3
(Strategy Division)

Date of Issue : 5 July 2018

Background and methodology of the Rent Adjustment Mechanism

A. Background leading to the establishment of the current rent adjustment mechanism

It has been a long-established policy for HA to set the PRH rent at affordable levels. At the same time, under Section 4(4) of the Housing Ordinance, the policy of HA shall be directed to ensuring that the revenue accruing to it from its estates shall be sufficient to meet its recurrent expenditure on its estates.

2. Prior to 1998, HA used to review and adjust the rent of PRH units in batches biennially. Each batch comprised different number of units in different locations. In determining whether, and if so the extent to which, PRH rent should be adjusted, HA would take into account a number of factors, including tenants' affordability, consumer price movements, Government rates, wage movement, comparative estate values, running costs of the estates under review, HA's financial conditions, etc. In 1997, the Housing Ordinance was amended by way of a Private Members' Bill. The amended Ordinance came into effect in March 1998. The then Section 16(1A) of the Housing Ordinance imposed, inter alia, the requirement of the median rent-to-income ratio (MRIR) of all estates not exceeding 10% after any rent variation. The requirement did not provide an objective basis for HA to consider any rent adjustment, since increases in MRIR could be brought about by extraneous factors other than changes in PRH tenants' household income, such as an increase in the proportion of small households, elderly households or CSSA households, and improvement in the PRH allocation standard. There was thus a need to establish an objective and sustainable mechanism to form the basis for rent adjustments.

3. HA set up an Ad Hoc Committee in January 2001 to review its domestic rent policy. The objective of the review is to map out a rent policy that is affordable and flexible, provides greater choice to tenants, and contributes to the long-term sustainability of the public housing programme. In November 2006, HA approved the Report on the Review of Domestic Rent Policy, which recommended the formulation of the income-based rent adjustment mechanism to replace the previous statutory 10% MRIR cap.

B. The current mechanism

4. The Housing (Amendment) Bill 2007 (the Amendment Bill) introduced the current mechanism to provide for upward or downward adjustment of PRH rent according to the changes in the household income of PRH tenants. The Amendment Bill was passed by the Legislative Council in June 2007 and came into operation on 1 January 2008. To provide a starting point for the rent adjustment mechanism to operate effectively, HA reduced the PRH rent by 11.6% from August 2007¹.

5. Under the current PRH rent adjustment mechanism, HA shall conduct a rent review every two years and vary the PRH rent according to the change in the income index between the first and second periods covered by the review. As stipulated in Section 16A(4) of the Housing Ordinance, if the income index for the second period is higher than that for the first period by more than 0.1%, HA shall increase the PRH rent by the rate of increase of the income index or 10%, whichever is less. If the income index for the second period is lower than that for the first period by more than 0.1%, HA shall reduce the PRH rent by the rate of reduction of the income index.

6. Rent adjustments are made with reference to the change in the income index between the first and second periods of the rent review cycle. In accordance with Section 16A(8) of the Housing Ordinance, for the 2018 rent review, the first period is the period of 12 months expiring on 31 December 2015, and the second period is the period of 12 months expiring on 31 December 2017. Under Section 16A(7)(a), an income index for the first period reflects the level of the mean monthly household income of tenants over the first period and an income index for the second period reflects the level of the adjusted mean monthly household income of tenants over the second period. As stipulated in Section 16A(8), “adjusted mean monthly household income” means the mean monthly income of tenants assessed on the basis of the distribution of the household size of those tenants over the first period.

7. Section 16A(7)(b) of the Housing Ordinance specifies that C for C&S shall, in relation to the compilation of the income index, compute the

¹ In 2006, HA’s Ad Hoc Committee on Review of Domestic Rent Policy considered that for the income-based rent adjustment mechanism to operate effectively and fairly, the then PRH rent should be adjusted to a level considered appropriate and acceptable to the community. Since the level of PRH rent had remained unchanged from 1997 to 2006, a comparison of the income index of PRH tenants in the two periods of January - December 1997 and April 2005 - March 2006 was made, and the corresponding decrease in income of 11.6% was adopted as the basis for the rent reduction.

index. This includes the computation of the change in the income index between the first and second periods.

C. Data collection and computation

8. Compilation of the income index involves data collection and data computation. The income data of PRH households collected through the Income Survey is used as the basis for compiling the income index.

9. To collect the income data, a sample of 2 000 PRH households is randomly selected by HA each month and each sampled household receives a notification letter together with an income declaration form. The income declaration forms are served under Section 25(1) of the Housing Ordinance and declaration is mandatory. The declarable income includes remuneration from employment and self-employment, and other income (for example, interest and dividends). All sampled households are required by law to complete the forms. However, to mitigate the burden caused to the sampled households, no household is selected more than once within the two periods of January – December 2015 and January – December 2017.

10. For each sampled household, every family member listed in the tenancy records shall, in compliance with the relevant stipulations of the Ordinance, declare truthfully their monthly income. Explanatory notes are provided in the income declaration form to facilitate their provision of income data. The sampled households shall return the duly completed income declaration forms within the time specified. Information provided by tenants is treated in strict confidence and is solely used for compiling the income index. Households who knowingly make false statements of their particulars required in the income declaration forms, or refuse or fail to return the forms by the specified time, shall be guilty of an offence and will be liable to prosecution.

11. The compilation of the income index serves to assess the “pure income change” in the household income of PRH tenants during the rent review cycle, with a view to determining the extent of rent adjustment. To do this, the household size distribution of PRH tenants in the rent review cycle should remain unchanged, so that the impact on household income due to variations of household size distribution could be eliminated in computing the income index.

The role of HA

12. HA collects the income data from the sampled households. The sampling method and the data collection process were devised in consultation with C&SD to ensure the representativeness and accuracy of the Income Survey.

13. As far as sampling is concerned, a probability-based sampling method is adopted to randomly select 2 000 PRH tenants each month to participate in the Income Survey. PRH tenants are first categorised into five household size categories (i.e. five strata): 1-person households, 2-person households, 3-person households, 4-person households and households of 5 persons or above. Households are then drawn from each category according to the actual household size distribution of PRH tenants in a particular month. 2 000 households were sampled according to the actual household size distribution month by month. This method is known as **proportionate stratified systematic random sampling**. It provides more precise estimates than the simple random sampling.

14. In the course of data collection and processing, HA has adopted the following measures to safeguard the quality of data collected in the Income Survey –

- (a) HA responds to tenants' enquiries regarding any problems they encounter when completing the income declaration forms so as to minimise errors and omissions. Home visits are also conducted by HA staff upon request to assist physically challenged tenants and the elderly to complete the forms;
- (b) HA has carried out preliminary vetting of all the returned income declaration forms upon receipt from the sampled households. For those forms which were not duly completed or in need of further clarification, the households concerned were contacted by the staff of HD, and may be asked to provide documentary proof of income and other related information for verification of the declared income data;
- (c) HA has adopted a double data entry approach, i.e. the same set of data is input into the computer by two staff members separately. The two sets of data are then compared and matched with each other for verification to avoid manual input errors; and
- (d) HA has conducted computerised validation check on the input data of the Income Survey. Any discrepancies identified were verified with the sampled households concerned before providing the dataset to C&SD for computing the income index.

The role of C&SD

15. C&SD is responsible for conducting quality checks on the work of HA in the Income Survey; and computing the income index in its independent capacity in accordance with Section 16A(7)(b) of the Housing Ordinance.

(a) Quality check on the work of HA in the Income Survey

16. C&SD has adopted various quality checks to ensure the impartiality, objectiveness and accuracy of HA's work in the Income Survey. These measures serve to monitor and assess in a comprehensive manner the representativeness of the sampled PRH households, the correctness of the declared income and the accuracy of the input data. The objective is to ensure that the data adopted for the computation of the income index could truly reflect the household income of PRH tenants. These measures include -

- (a) statistical testing is conducted by C&SD to evaluate if the distribution of the sampled households is in line with the actual distribution of PRH tenants in terms of household size and geographical distribution, so as to ensure the representativeness of the samples;
- (b) about 5% of the sampled households who have declared income are randomly selected by C&SD for HA to request them to submit income documentary proof to support that the information declared is true and correct. Some 1 200 households in each of the first and second periods are covered by this additional verification. Furthermore, C&SD conducts random check to confirm whether HA has vetted the income documentary proof properly;
- (c) about 2% of the completed income declaration forms are randomly selected by C&SD each month to check the accuracy of data input performed by HA; and
- (d) C&SD carries out another round of checking on HA's data validation work as mentioned in paragraph 14(d) above to ensure that all necessary steps have been taken.

(b) Exclusion of non-representative households

17. The income index seeks to reflect changes in the household income of PRH tenants over the first and second periods. In computing the income

index, “non-representative” households with considerable income deviation are excluded, in accordance with the methodology noted by the Bills Committee scrutinising the Amendment Bill mentioned in paragraph 4 above, to minimise distortion to the outcome of the computation. Households excluded from computation of the income index are –

- (a) **“Well-off tenants”**: Tenants paying additional rent (commonly known as “well-off tenants”) are better off than other PRH households. Their inclusion in the coverage of the income index would raise the overall income level and hence cannot accurately reflect the affordability of PRH households in general;
- (b) **Other households with high “outlying” income**: Referring to those high-income households who are not “well-off tenants” paying additional rent (including those who have resided in PRH for less than 10 years). To assess the proportion of these households, the “John Tukey’s Outliers Filter Method”, a common statistical method, has been adopted for the treatment of outliers’ data. Applying this method to define the outliers of the income data in the Income Survey has excluded PRH households with income higher than the upper outlying levels (please see **Appendix** on the methodology); and
- (c) **CSSA households**: The level of CSSA is set by the Government. It does not reflect the income level of representative PRH tenant households.

(c) Computation of mean monthly household income

18. With the exclusion of the three categories of non-representative PRH households and invalid sampling units, as well as the application of statistical method to gross up the survey data, C&SD computes the household size distribution of PRH tenants which forms a set of weights for computing the overall mean monthly household income and hence the income index for the rent review.

19. The distribution in the first period forms the set of weights which remains unchanged over the second period. In statistical term, the mean monthly household income of the second period is “adjusted” based on the household size distribution of the first period in order to discount the impact on household income due to variation in household size distribution in the rent review cycle.

Appendix to Annex A

The John Tukey's Outliers Filter Method

Background

The "Report on the Review of Domestic Rent Policy" published by HA in end 2006 proposed to exclude CSSA and additional rent paying households from the coverage of the income index. It further suggested households with extreme income in each household size category be excluded from the calculation of the index to deal with the so-called "outliers".

2. At the third Bills Committee (which scrutinised the Housing (Amendment) Bill 2007) meeting held on 16 March 2007, Members raised concerns about the potential distortion to the resultant rate of rent adjustment under the new rent adjustment mechanism by high income households. The Government responded that, in addition to CSSA households and additional rent-paying households, the approximate top 1% household income in each household size group would also be excluded when calculating the weighted average household income.

3. The idea of excluding households with extremely high income was further discussed in subsequent Bills Committee meetings. While Members were aware of the Government's suggestion, some Members were of the view that more stringent selection rules should be applied so that "mild outliers" would also be excluded.

4. Upon further consultation with C&SD, the Government proposed to adopt the John Tukey's Outliers Filter Method to assess the proportion of households with outlying income levels. Based on the income pattern of PRH tenants back then, it was estimated that about top 4% and 5% households in each household size group would be excluded by applying the John Tukey's Outliers Filter Method. The suggested methodology was noted by the Bills Committee.

The Method

5. John Tukey's Outliers Filter Method was developed by John Wilder Tukey (1915-2000). This is a common and widely accepted statistical method for detecting outliers as it is applicable to different types of data set, without any assumptions on the statistical distribution or pattern of the data set.

6. The method determines the upper and lower outlier levels, based on the distribution of the whole set of original data. Those data higher than the upper level and those lower than the lower level are classified as outliers. As the two levels are determined from the original data set, there is no pre-determined percentage of data which will be classified as outliers.

7. In the context of compilation of the Income Index, the actual calculation involves –

- (a) arranging the set of household income data from the survey in ascending order, i.e. from the lowest to the highest income.
- (b) calculating the median, upper quartile or 75th percentile ($x_{.75}$) and lower quartile or 25th percentile ($x_{.25}$) of the household income of the sampled households. The median is the income level which divides the sampled households into two equal halves, one with household income above the median and the other below the median. The upper quartile is the income level which is above 75% of the sampled households. In other words, 25% of the sampled households have income above the upper quartile. Similarly, the lower quartile is the income level above 25% of the sampled households.
- (c) calculating the interquartile range (IQR) by subtracting the lower quartile from the upper quartile, i.e. $IQR = x_{.75} - x_{.25}$. The IQR thus contains the middle 50% of sampled households in terms of household income.
- (d) the upper outlying level is determined as $1.5 \times IQR$ higher than the upper quartile, i.e. $x_{.75} + 1.5 \times IQR$

Any household with income higher than this level is considered an outlier.

- (e) the lower outlying level is determined as $1.5 \times IQR$ lower than the lower quartile. i.e. $x_{.25} - 1.5 \times IQR$

Any household with income lower than this level is considered an outlier.

8. An example of the calculation for 1-person household group in 2015 is set out below –

Minimum (\$)	Maximum (\$)	Lower quartile (25 th percentile) (\$)	Upper quartile (75 th percentile) (\$)	Interquartile range (IQR) (\$)
0	88,351	4,000	8,550	4,550

$$\begin{aligned} \text{The interquartile range (IQR)} &= \text{upper quartile} - \text{lower quartile} \\ &= 8,550 - 4,000 \\ &= 4,550 \end{aligned}$$

$$\begin{aligned} \text{The upper outlying level} &= \text{upper quartile} + 1.5 \times \text{IQR} \\ &= 8,550 + 1.5 \times 4,550 \\ &= 15,375 \end{aligned}$$

$$\begin{aligned} \text{The lower outlying level} &= \text{lower quartile} - 1.5 \times \text{IQR} \\ &= 4,000 - 1.5 \times 4,550 \\ &= -2,825 \end{aligned}$$

Similarly, upper and lower outlying levels for other household sizes can be computed. The results for 2015 are listed below –

Household size	Lower outlying level (\$)	Upper outlying level (\$)
1-person	-2,825	15,375
2-person	-8,539	34,765
3-person	-10,648	53,480
4-person	-11,135	67,161
5-person or above	-15,650	83,803

As for the 2017 data, the upper and lower outlying levels for determining the outliers are listed below –

Household size	Lower outlying level (\$)	Upper outlying level (\$)
1-person	-2,383	15,830
2-person	-9,318	37,960
3-person	-11,501	59,541
4-person	-13,256	77,261
5-person or above	-17,633	95,308

Households with income exceeding the upper outlying level or less than the lower outlying level are considered as outliers. In reality, there is no household with negative income. Therefore, no household from the lower end of the actual income distribution is considered as outlier and excluded.

Sample Distribution by Household Size in the First Period (2015)

Month of Declaration in 2015		Household Size					
		1P	2P	3P	4P	5P or above	Total
January	No. of Households	361	517	517	415	190	2 000
	%	(18.1)	(25.9)	(25.9)	(20.8)	(9.5)	(100.0)
February	No. of Households	362	517	517	415	189	2 000
	%	(18.1)	(25.9)	(25.9)	(20.8)	(9.5)	(100.0)
March	No. of Households	363	517	517	414	189	2 000
	%	(18.2)	(25.9)	(25.9)	(20.7)	(9.5)	(100.0)
April	No. of Households	363	518	517	414	188	2 000
	%	(18.2)	(25.9)	(25.9)	(20.7)	(9.4)	(100.0)
May	No. of Households	363	518	517	414	188	2 000
	%	(18.2)	(25.9)	(25.9)	(20.7)	(9.4)	(100.0)
June	No. of Households	364	519	517	413	187	2 000
	%	(18.2)	(26.0)	(25.9)	(20.7)	(9.4)	(100.0)
July	No. of Households	364	519	518	412	187	2 000
	%	(18.2)	(26.0)	(25.9)	(20.6)	(9.4)	(100.0)
August	No. of Households	365	519	518	412	186	2 000
	%	(18.3)	(26.0)	(25.9)	(20.6)	(9.3)	(100.0)
September	No. of Households	365	519	519	411	186	2 000
	%	(18.3)	(26.0)	(26.0)	(20.6)	(9.3)	(100.0)
October	No. of Households	366	519	520	410	185	2 000
	%	(18.3)	(26.0)	(26.0)	(20.5)	(9.3)	(100.0)
November	No. of Households	366	519	520	410	185	2 000
	%	(18.3)	(26.0)	(26.0)	(20.5)	(9.3)	(100.0)
December	No. of Households	366	519	520	410	185	2 000
	%	(18.3)	(26.0)	(26.0)	(20.5)	(9.3)	(100.0)
Overall	No. of Households	4 368	6 220	6 217	4 950	2 245	24 000
	%	(18.2)	(25.9)	(25.9)	(20.6)	(9.4)	(100.0)

Note:

Households were sampled according to the actual distribution of PRH households by household size, which varies from month to month. The percentages in brackets denote the distribution of sampled households in that month.

Sample Distribution by Household Size in the Second Period (2017)

Month of Declaration in 2017		Household Size					Total
		1P	2P	3P	4P	5P or above	
January	No. of Households	369	526	527	400	178	2 000
	%	(18.5)	(26.3)	(26.4)	(20.0)	(8.9)	(100.0)
February	No. of Households	370	526	528	399	177	2 000
	%	(18.5)	(26.3)	(26.4)	(20.0)	(8.9)	(100.0)
March	No. of Households	370	526	529	399	176	2 000
	%	(18.5)	(26.3)	(26.5)	(20.0)	(8.8)	(100.0)
April	No. of Households	371	526	531	397	175	2 000
	%	(18.6)	(26.3)	(26.6)	(19.9)	(8.8)	(100.0)
May	No. of Households	372	527	532	395	174	2 000
	%	(18.6)	(26.4)	(26.6)	(19.8)	(8.7)	(100.0)
June	No. of Households	373	528	532	394	173	2 000
	%	(18.7)	(26.4)	(26.6)	(19.7)	(8.7)	(100.0)
July	No. of Households	374	529	532	393	172	2 000
	%	(18.7)	(26.5)	(26.6)	(19.7)	(8.6)	(100.0)
August	No. of Households	374	529	533	392	172	2 000
	%	(18.7)	(26.5)	(26.7)	(19.6)	(8.6)	(100.0)
September	No. of Households	375	528	533	392	172	2 000
	%	(18.8)	(26.4)	(26.7)	(19.6)	(8.6)	(100.0)
October	No. of Households	376	529	533	391	171	2 000
	%	(18.8)	(26.5)	(26.7)	(19.6)	(8.6)	(100.0)
November	No. of Households	377	530	532	390	171	2 000
	%	(18.9)	(26.5)	(26.6)	(19.5)	(8.6)	(100.0)
December	No. of Households	377	531	532	390	170	2 000
	%	(18.9)	(26.6)	(26.6)	(19.5)	(8.5)	(100.0)
Overall	No. of Households	4 478	6 335	6 374	4 732	2 081	24 000
	%	(18.7)	(26.4)	(26.6)	(19.7)	(8.7)	(100.0)

Note:

Households were sampled according to the actual distribution of PRH households by household size, which varies from month to month. The percentages in brackets denote the distribution of sampled households in that month.

**Comparison of Distribution by District and Estate between
the Tenant Household Sample and the Actual Overall Distribution of
Tenant Households in the First Period (2015)**

	District *	Name of estate	Actual overall tenant households^		Tenant household sample	
			No.	%	No.	%
1.	CENTRAL & WESTERN	Sai Wan Estate	631	0.1	20	0.1
2.	EASTERN	Chai Wan Estate	1 595	0.2	52	0.2
		Fung Wah Estate	372	0.1	11	0.0**
		Hing Man Estate	1 973	0.3	65	0.3
		Hing Tung Estate	2 067	0.3	71	0.3
		Hing Wah (1) Estate	2 256	0.3	73	0.3
		Hing Wah (2) Estate	3 510	0.5	112	0.5
		Hong Tung Estate	462	0.1	14	0.1
		Model Housing Estate	661	0.1	28	0.1
		Oi Tung Estate	3 882	0.5	128	0.5
		Siu Sai Wan Estate	6 006	0.8	196	0.8
		Tsui Lok Estate	317	0.0	10	0.0
		Tsui Wan Estate	546	0.1	18	0.1
		Wan Tsui Estate	3 590	0.5	118	0.5
		Yiu Tung Estate	5 101	0.7	164	0.7
		Yue Wan Estate	2 163	0.3	76	0.3
3.	SOUTHERN	Ap Lei Chau Estate	4 313	0.6	136	0.6
		Lei Tung Estate	2 163	0.3	70	0.3
		Ma Hang Estate	901	0.1	21	0.1
		Shek Pai Wan Estate	5 162	0.7	173	0.7
		Tin Wan Estate	3 086	0.4	99	0.4
		Wah Fu (1) Estate	4 763	0.7	160	0.7
		Wah Fu (2) Estate	4 315	0.6	142	0.6
		Wah Kwai Estate	1 023	0.1	33	0.1
		4.	KOWLOON CITY	Ho Man Tin Estate	4 682	0.6
Hung Hom Estate	2 749			0.4	91	0.4
Kai Ching Estate	5 186			0.7	165	0.7
Ma Tau Wai Estate	2 055			0.3	71	0.3
Oi Man Estate	6 261			0.9	205	0.9
Sheung Lok Estate	347			0.0	7	0.0
Tak Long Estate	7 936			1.1	258	1.1
5.	KWUN TONG			Choi Fook Estate	3 424	0.5
		Choi Ha Estate	541	0.1	15	0.1
		Choi Tak Estate	5 722	0.8	187	0.8
		Choi Ying Estate	3 977	0.5	133	0.6**
		Hing Tin Estate	416	0.1	18	0.1
		Kai Tin Estate	2 224	0.3	78	0.3
		Kai Yip Estate	4 183	0.6	139	0.6
		Ko Cheung Court	1 798	0.2	61	0.3**
		Ko Yee Estate	1 183	0.2	41	0.2
		Kwong Tin Estate	2 262	0.3	74	0.3
		Lam Tin Estate	3 023	0.4	102	0.4
		Lei Yue Mun Estate	3 180	0.4	107	0.4
		Lok Wah North Estate	2 955	0.4	97	0.4
		Lok Wah South Estate	6 803	0.9	227	0.9

	District *	Name of estate	Actual overall tenant households [^]		Tenant household sample	
			No.	%	No.	%
		Lower Ngau Tau Kok Estate	4 223	0.6	138	0.6
		On Tin Estate	719	0.1	21	0.1
		Ping Shek Estate	4 545	0.6	147	0.6
		Ping Tin Estate	5 493	0.8	180	0.8
		Po Tat Estate	7 389	1.0	246	1.0
		Sau Mau Ping Estate	12 000	1.6	390	1.6
		Sau Mau Ping South Estate	3 979	0.5	129	0.5
		Shun Lee Estate	4 382	0.6	141	0.6
		Shun On Estate	2 953	0.4	101	0.4
		Shun Tin Estate	6 881	0.9	226	0.9
		Tak Tin Estate	1 992	0.3	66	0.3
		Tsui Ping North Estate	3 223	0.4	102	0.4
		Tsui Ping South Estate	4 659	0.6	153	0.6
		Upper Ngau Tau Kok Estate	6 571	0.9	214	0.9
		Wan Hon Estate	983	0.1	34	0.1
		Wo Lok Estate	1 919	0.3	61	0.3
		Yau Lai Estate	8 493	1.2	280	1.2
		Yau Tong Estate	3 553	0.5	120	0.5
6.	SHAM SHUI PO	Chak On Estate	1 811	0.2	57	0.2
		Cheung Sha Wan Estate	1 383	0.2	48	0.2
		Fortune Estate	2 087	0.3	64	0.3
		Fu Cheong Estate	5 953	0.8	197	0.8
		Hoi Lai Estate	4 889	0.7	157	0.7
		Lai Kok Estate	2 831	0.4	93	0.4
		Lai On Estate	1 334	0.2	42	0.2
		Lei Cheng Uk Estate	1 197	0.2	34	0.1**
		Nam Cheong Estate	675	0.1	25	0.1
		Nam Shan Estate	2 657	0.4	90	0.4
		Pak Tin Estate	7 404	1.0	244	1.0
		Shek Kip Mei Estate	8 891	1.2	290	1.2
		Tai Hang Tung Estate	1 997	0.3	67	0.3
		Un Chau Estate	7 577	1.0	251	1.0
		Wing Cheong Estate	1 469	0.2	44	0.2
7.	WONG TAI SIN	Choi Fai Estate	1 314	0.2	45	0.2
		Choi Hung Estate	7 368	1.0	247	1.0
		Choi Wan (1) Estate	5 787	0.8	187	0.8
		Choi Wan (2) Estate	2 931	0.4	98	0.4
		Chuk Yuen North Estate	1 244	0.2	44	0.2
		Chuk Yuen South Estate	5 980	0.8	192	0.8
		Fu Shan Estate	1 561	0.2	51	0.2
		Fung Tak Estate	1 214	0.2	37	0.2
		Lok Fu Estate	3 600	0.5	119	0.5
		Lower Wong Tai Sin (1) Estate	1 541	0.2	53	0.2
		Lower Wong Tai Sin (2) Estate	6 527	0.9	212	0.9
		Mei Tung Estate	2 343	0.3	80	0.3
		Shatin Pass Estate	1 274	0.2	37	0.2
		Tsz Ching Estate	7 994	1.1	262	1.1
		Tsz Hong Estate	1 994	0.3	65	0.3
		Tsz Lok Estate	6 112	0.8	203	0.8
		Tsz Man Estate	1 970	0.3	62	0.3
		Tung Tau (2) Estate	2 201	0.3	69	0.3
		Tung Wui Estate	1 305	0.2	46	0.2

	District *	Name of estate	Actual overall tenant households [^]		Tenant household sample	
			No.	%	No.	%
		Upper Wong Tai Sin Estate	4 811	0.7	154	0.6**
		Wang Tau Hom Estate	5 775	0.8	190	0.8
8.	YAU TSIM MONG	Hoi Fu Court	2 779	0.4	92	0.4
9.	ISLANDS	Cheung Kwai Estate	456	0.1	16	0.1
		Fu Tung Estate	1 657	0.2	51	0.2
		Kam Peng Estate	252	0.0	8	0.0
		Lung Tin Estate	404	0.1	13	0.1
		Nga Ning Court	417	0.1	10	0.0**
		Ngan Wan Estate	433	0.1	14	0.1
		Yat Tung (1) Estate	5 576	0.8	186	0.8
		Yat Tung (2) Estate	6 342	0.9	205	0.9
10.	KWAI TSING	Cheung Ching Estate	4 821	0.7	160	0.7
		Cheung Fat Estate	1 145	0.2	37	0.2
		Cheung Hang Estate	4 334	0.6	142	0.6
		Cheung Hong Estate	8 186	1.1	267	1.1
		Cheung On Estate	1 219	0.2	40	0.2
		Cheung Wang Estate	4 243	0.6	138	0.6
		Easeful Court	509	0.1	19	0.1
		High Prosperity Terrace	758	0.1	28	0.1
		Kwai Chung Estate	13 528	1.8	440	1.8
		Kwai Fong Estate	6 193	0.8	199	0.8
		Kwai Hing Estate	324	0.0	14	0.1**
		Kwai Luen Estate	2 940	0.4	97	0.4
		Kwai Shing East Estate	6 217	0.8	206	0.9**
		Kwai Shing West Estate	5 212	0.7	169	0.7
		Lai King Estate	4 180	0.6	137	0.6
		Lai Yiu Estate	2 796	0.4	92	0.4
		On Yam Estate	5 217	0.7	173	0.7
		Shek Lei (1) Estate	4 773	0.7	155	0.6**
		Shek Lei (2) Estate	8 252	1.1	275	1.1
		Shek Yam East Estate	2 339	0.3	83	0.3
		Shek Yam Estate	2 634	0.4	81	0.3**
		Tai Wo Hau Estate	7 528	1.0	248	1.0
		Tsing Yi Estate	659	0.1	22	0.1
		Wah Lai Estate	1 427	0.2	45	0.2
11.	NORTH	Cheung Lung Wai Estate	717	0.1	21	0.1
		Cheung Wah Estate	1 742	0.2	58	0.2
		Ching Ho Estate	7 094	1.0	234	1.0
		Choi Yuen Estate	5 000	0.7	163	0.7
		Ka Fuk Estate	1 936	0.3	64	0.3
		Tai Ping Estate	264	0.0	7	0.0
		Tin Ping Estate	1 047	0.1	39	0.2**
		Wah Ming Estate	1 488	0.2	47	0.2
		Wah Sum Estate	1 474	0.2	52	0.2
		Yung Shing Court	1 704	0.2	51	0.2
12.	SAIKUNG	Choi Ming Court	2 786	0.4	93	0.4
		Hau Tak Estate	4 130	0.6	133	0.6
		Kin Ming Estate	6 989	1.0	229	1.0
		King Lam Estate	1 524	0.2	49	0.2
		Ming Tak Estate	1 461	0.2	43	0.2
		Po Lam Estate	1 669	0.2	61	0.3**
		Sheung Tak Estate	5 498	0.8	183	0.8
		Shin Ming Estate	1 962	0.3	66	0.3
		Tsui Lam Estate	1 516	0.2	51	0.2

	District *	Name of estate	Actual overall tenant households [^]		Tenant household sample	
			No.	%	No.	%
		Yee Ming Estate	1 884	0.3	60	0.3
13.	SHATIN	Chun Shek Estate	2 118	0.3	71	0.3
		Chung On Estate	2 722	0.4	85	0.4
		Fung Wo Estate	1 603	0.2	58	0.2
		Heng On Estate	827	0.1	23	0.1
		Hin Keng Estate	663	0.1	23	0.1
		Hin Yiu Estate	792	0.1	32	0.1
		Kwong Yuen Estate	1 189	0.2	35	0.1**
		Lee On Estate	3 605	0.5	125	0.5
		Lek Yuen Estate	3 192	0.4	95	0.4
		Lung Hang Estate	4 337	0.6	143	0.6
		Mei Lam Estate	4 077	0.6	136	0.6
		Mei Tin Estate	6 683	0.9	219	0.9
		Pok Hong Estate	1 126	0.2	35	0.1**
		Sha Kok Estate	6 260	0.9	208	0.9
		Shek Mun Estate	1 945	0.3	65	0.3
		Shui Chuen O Estate	1 091	0.1	33	0.1
		Sun Chui Estate	6 597	0.9	218	0.9
		Sun Tin Wai Estate	3 382	0.5	109	0.5
		Wo Che Estate	6 220	0.9	206	0.9
		Yan On Estate	2 574	0.4	81	0.3**
Yiu On Estate	979	0.1	38	0.2**		
14.	TAI PO	Fu Heng Estate	1 658	0.2	54	0.2
		Fu Shin Estate	2 249	0.3	77	0.3
		Kwong Fuk Estate	6 150	0.8	202	0.8
		Tai Wo Estate	1 791	0.2	60	0.3**
		Tai Yuen Estate	4 703	0.6	152	0.6
		Wan Tau Tong Estate	596	0.1	19	0.1
15.	TSUEN WAN	Cheung Shan Estate	1 605	0.2	53	0.2
		Fuk Loi Estate	3 094	0.4	103	0.4
		Lei Muk Shue (1) Estate	2 292	0.3	76	0.3
		Lei Muk Shue (2) Estate	4 263	0.6	141	0.6
		Lei Muk Shue Estate	3 877	0.5	126	0.5
		Shek Wai Kok Estate	6 320	0.9	211	0.9
16.	TUEN MUN	Butterfly Estate	5 326	0.7	179	0.7
		Fu Tai Estate	5 030	0.7	166	0.7
		Kin Sang Estate	538	0.1	17	0.1
		Leung King Estate	2 531	0.3	85	0.4**
		Lung Yat Estate	973	0.1	26	0.1
		On Ting Estate	5 001	0.7	162	0.7
		Po Tin Estate	5 862	0.8	189	0.8
		Sam Shing Estate	1 790	0.2	59	0.2
		Shan King Estate	5 821	0.8	192	0.8
		Tai Hing Estate	8 390	1.1	272	1.1
		Tin King Estate	872	0.1	30	0.1
		Wu King Estate	4 308	0.6	141	0.6
		Yau Oi Estate	9 092	1.2	298	1.2
17.	YUEN LONG	Grandeur Terrace	4 092	0.6	132	0.6
		Hung Fuk Estate	944	0.1	34	0.1
		Long Ping Estate	3 678	0.5	123	0.5
		Shui Pin Wai Estate	2 355	0.3	77	0.3
		Tin Chak Estate	3 977	0.5	128	0.5
		Tin Ching Estate	6 165	0.8	203	0.8
		Tin Heng Estate	5 747	0.8	190	0.8

	District *	Name of estate	Actual overall tenant households [^]		Tenant household sample	
			No.	%	No.	%
		Tin Shui (1) Estate	4 592	0.6	152	0.6
		Tin Shui (2) Estate	3 160	0.4	105	0.4
		Tin Tsz Estate	3 261	0.4	105	0.4
		Tin Wah Estate	3 664	0.5	120	0.5
		Tin Yan Estate	5 540	0.8	182	0.8
		Tin Yat Estate	3 324	0.5	110	0.5
		Tin Yiu (1) Estate	4 604	0.6	147	0.6
		Tin Yiu (2) Estate	3 806	0.5	127	0.5
		Tin Yuet Estate	4 153	0.6	139	0.6
		OVERALL	731 533	100.0	24 000	100.0

* The estates are grouped according to 17 districts for easy reference. There are no PRH estates in Wan Chai district.

** Chi-square tests were conducted to compare the actual overall distribution of the sample and that of the tenancy records by district and by estate. The results indicated that the differences between the actual and sampled distribution are insignificant.

[^] Refer to the average number of households for the 12 months in 2015.

Note:

Statistically, the sample distribution tallies with the actual distribution by design of the proportionate stratified systematic random sampling method. In other words, the sample effectively reflects the distribution of all PRH tenants by district and by estate.

**Comparison of Distribution by District and Estate between
the Tenant Household Sample and the Actual Overall Distribution of
Tenant Households in the Second Period (2017)**

	District *	Name of estate	Actual overall tenant households^		Tenant household sample	
			No	%	No.	%
1.	CENTRAL & WESTERN	Sai Wan Estate	631	0.1	16	0.1
2.	EASTERN	Chai Wan Estate	1 592	0.2	53	0.2
		Fung Wah Estate	347	0.0	13	0.1**
		Hing Man Estate	1 969	0.3	63	0.3
		Hing Tung Estate	2 061	0.3	67	0.3
		Hing Wah (1) Estate	2 259	0.3	69	0.3
		Hing Wah (2) Estate	3 494	0.5	109	0.5
		Hong Tung Estate	457	0.1	16	0.1
		Model Housing Estate	661	0.1	23	0.1
		Oi Tung Estate	3 869	0.5	125	0.5
		Siu Sai Wan Estate	6 006	0.8	187	0.8
		Tsui Lok Estate	316	0.0	14	0.1**
		Tsui Wan Estate	511	0.1	13	0.1
		Wah Ha Estate***	132	0.0	5	0.0
		Wan Tsui Estate	3 595	0.5	116	0.5
		Yiu Tung Estate	5 085	0.7	161	0.7
Yue Wan Estate	2 160	0.3	72	0.3		
3.	SOUTHERN	Ap Lei Chau Estate	4 319	0.6	137	0.6
		Lei Tung Estate	1 935	0.3	63	0.3
		Ma Hang Estate	903	0.1	28	0.1
		Shek Pai Wan Estate	5 156	0.7	163	0.7
		Tin Wan Estate	3 083	0.4	103	0.4
		Wah Fu (1) Estate	4 753	0.6	157	0.7**
		Wah Fu (2) Estate	4 313	0.6	137	0.6
		Wah Kwai Estate	977	0.1	28	0.1
4.	KOWLOON CITY	Ho Man Tin Estate	4 670	0.6	145	0.6
		Hung Hom Estate	2 749	0.4	92	0.4
		Kai Ching Estate	5 179	0.7	163	0.7
		Ma Tau Wai Estate	2 056	0.3	62	0.3
		Oi Man Estate	6 258	0.8	198	0.8
		Sheung Lok Estate	345	0.0	13	0.1**
		Tak Long Estate	8 128	1.1	253	1.1
5.	KWUN TONG	Choi Fook Estate	3 414	0.5	104	0.4**
		Choi Ha Estate	484	0.1	16	0.1
		Choi Tak Estate	5 724	0.8	187	0.8
		Choi Ying Estate	3 974	0.5	125	0.5
		Hing Tin Estate	369	0.0	9	0.0
		Kai Tin Estate	2 220	0.3	75	0.3
		Kai Yip Estate	4 184	0.6	130	0.5**
		Ko Cheung Court	1 796	0.2	55	0.2
		Ko Yee Estate	1 186	0.2	43	0.2
		Kwong Tin Estate	2 266	0.3	73	0.3
		Lam Tin Estate	3 018	0.4	93	0.4
		Lei Yue Mun Estate	3 592	0.5	114	0.5
		Lok Wah North Estate	2 948	0.4	97	0.4
Lok Wah South Estate	6 807	0.9	213	0.9		

	District *	Name of estate	Actual overall tenant households^		Tenant household Sample	
			No.	%	No.	%
		Lower Ngau Tau Kok Estate	4 774	0.6	153	0.6
		On Tai Estate***	541	0.1	21	0.1
		On Tat Estate***	8 948	1.2	292	1.2
		On Tin Estate	720	0.1	20	0.1
		Ping Shek Estate	4 531	0.6	142	0.6
		Ping Tin Estate	5 485	0.7	177	0.7
		Po Tat Estate	7 385	1.0	237	1.0
		Sau Mau Ping Estate	11 967	1.6	383	1.6
		Sau Mau Ping South Estate	3 974	0.5	130	0.5
		Shun Lee Estate	4 366	0.6	141	0.6
		Shun On Estate	2 960	0.4	91	0.4
		Shun Tin Estate	6 869	0.9	226	0.9
		Tak Tin Estate	1 873	0.2	59	0.2
		Tsui Ping North Estate	3 029	0.4	93	0.4
		Tsui Ping South Estate	4 686	0.6	154	0.6
		Upper Ngau Tau Kok Estate	6 556	0.9	206	0.9
		Wan Hon Estate	982	0.1	27	0.1
		Wo Lok Estate	1 914	0.3	64	0.3
		Yau Lai Estate	8 471	1.1	269	1.1
		Yau Tong Estate	3 549	0.5	113	0.5
6.	SHAM SHUI PO	Chak On Estate	1 807	0.2	57	0.2
		Cheung Sha Wan Estate	1 380	0.2	40	0.2
		Fortune Estate	2095	0.3	70	0.3
		Fu Cheong Estate	5 928	0.8	185	0.8
		Hoi Lai Estate	4 884	0.6	148	0.6
		Lai Kok Estate	2 829	0.4	93	0.4
		Lai On Estate	1 329	0.2	43	0.2
		Lei Cheng Uk Estate	1 102	0.1	31	0.1
		Nam Cheong Estate	597	0.1	19	0.1
		Nam Shan Estate	2 665	0.4	88	0.4
		Pak Tin Estate	7 374	1.0	231	1.0
		Shek Kip Mei Estate	8 884	1.2	287	1.2
		So Uk Estate***	2 716	0.4	89	0.4
		Tai Hang Tung Estate	1 996	0.3	63	0.3
		Un Chau Estate	7 562	1.0	241	1.0
		Wing Cheong Estate	1 478	0.2	57	0.2
7.	WONG TAI SIN	Choi Fai Estate	1 316	0.2	40	0.2
		Choi Hung Estate	7 358	1.0	235	1.0
		Choi Wan (1) Estate	5 790	0.8	184	0.8
		Choi Wan (2) Estate	2 923	0.4	92	0.4
		Chuk Yuen North Estate	1 132	0.2	40	0.2
		Chuk Yuen South Estate	5 985	0.8	188	0.8
		Fu Shan Estate	1 563	0.2	46	0.2
		Fung Tak Estate	1 117	0.1	35	0.1
		Lok Fu Estate	3 595	0.5	109	0.5
		Lower Wong Tai Sin (1) Estate	1 423	0.2	44	0.2
		Lower Wong Tai Sin (2) Estate	6 540	0.9	205	0.9
		Mei Tung Estate	2 414	0.3	77	0.3
		Shatin Pass Estate	1 275	0.2	41	0.2
		Tsz Ching Estate	7 989	1.1	251	1.0**
		Tsz Hong Estate	1 994	0.3	63	0.3
		Tsz Lok Estate	6 096	0.8	197	0.8
		Tsz Man Estate	1 966	0.3	61	0.3
		Tung Tau (2) Estate	1 988	0.3	62	0.3

	District *	Name of estate	Actual overall tenant households^		Tenant household Sample	
			No.	%	No.	%
		Tung Wui Estate	1 306	0.2	36	0.2
		Upper Wong Tai Sin Estate	4 810	0.6	153	0.6
		Wang Tau Hom Estate	5 781	0.8	181	0.8
8.	YAU TSIM MONG	Hoi Fu Court	2 778	0.4	92	0.4
9.	ISLANDS	Cheung Kwai Estate	457	0.1	15	0.1
		Fu Tung Estate	1 655	0.2	60	0.3**
		Kam Peng Estate	252	0.0	8	0.0
		Lung Tin Estate	430	0.1	11	0.0**
		Nga Ning Court	416	0.1	15	0.1
		Ngan Wan Estate	434	0.1	10	0.0**
		Yat Tung (1) Estate	5 567	0.7	177	0.7
		Yat Tung (2) Estate	6 344	0.8	198	0.8
10.	KWAI TSING	Cheung Ching Estate	4 823	0.6	148	0.6
		Cheung Fat Estate	1 045	0.1	37	0.2**
		Cheung Hang Estate	4 338	0.6	143	0.6
		Cheung Hong Estate	8 176	1.1	265	1.1
		Cheung On Estate	1 095	0.1	35	0.1
		Cheung Wang Estate	4 247	0.6	133	0.6
		Easeful Court	509	0.1	18	0.1
		High Prosperity Terrace	758	0.1	22	0.1
		Kwai Chung Estate	13 516	1.8	427	1.8
		Kwai Fong Estate	6 189	0.8	197	0.8
		Kwai Hing Estate	297	0.0	6	0.0
		Kwai Luen Estate	2 963	0.4	95	0.4
		Kwai Shing East Estate	6 217	0.8	198	0.8
		Kwai Shing West Estate	5 206	0.7	168	0.7
		Lai King Estate	4 172	0.6	136	0.6
		Lai Yiu Estate	2 794	0.4	90	0.4
		On Yam Estate	5 208	0.7	165	0.7
		Shek Lei (1) Estate	4 784	0.6	150	0.6
		Shek Lei (2) Estate	8 263	1.1	262	1.1
		Shek Yam East Estate	2 345	0.3	77	0.3
		Shek Yam Estate	2 631	0.3	84	0.4**
		Tai Wo Hau Estate	7 525	1.0	246	1.0
		Tsing Yi Estate	586	0.1	22	0.1
		Wah Lai Estate	1 427	0.2	41	0.2
11.	NORTH	Cheung Lung Wai Estate	1 353	0.2	45	0.2
		Cheung Wah Estate	1 575	0.2	46	0.2
		Ching Ho Estate	7 118	0.9	220	0.9
		Choi Yuen Estate	5 004	0.7	159	0.7
		Ka Fuk Estate	1 935	0.3	60	0.3
		Tai Ping Estate	206	0.0	5	0.0
		Tin Ping Estate	926	0.1	31	0.1
		Wah Ming Estate	1 306	0.2	41	0.2
		Wah Sum Estate	1 474	0.2	48	0.2
		Yung Shing Court	1 704	0.2	56	0.2
12.	SAI KUNG	Choi Ming Court	2 787	0.4	88	0.4
		Hau Tak Estate	4 137	0.5	131	0.5
		Kin Ming Estate	6 991	0.9	229	1.0**
		King Lam Estate	1 414	0.2	43	0.2
		Ming Tak Estate	1 458	0.2	52	0.2
		Po Lam Estate	1 495	0.2	48	0.2
		Sheung Tak Estate	5 476	0.7	173	0.7
		Shin Ming Estate	1 962	0.3	63	0.3
		Tsui Lam Estate	1 353	0.2	45	0.2

	District *	Name of estate	Actual overall tenant households^		Tenant household Sample	
			No.	%	No.	%
13.	SHATIN	Yee Ming Estate	2 044	0.3	65	0.3
		Chun Shek Estate	2 116	0.3	68	0.3
		Chung On Estate	2 716	0.4	86	0.4
		Fung Wo Estate	1 600	0.2	45	0.2
		Heng On Estate	696	0.1	27	0.1
		Hin Keng Estate	569	0.1	22	0.1
		Hin Yiu Estate	791	0.1	30	0.1
		Kwong Yuen Estate	1 074	0.1	34	0.1
		Lee On Estate	3 605	0.5	119	0.5
		Lek Yuen Estate	3 197	0.4	101	0.4
		Lung Hang Estate	4 334	0.6	141	0.6
		Mei Lam Estate	4 069	0.5	130	0.5
		Mei Tin Estate	6 682	0.9	209	0.9
		Pok Hong Estate	1 038	0.1	36	0.2**
		Sha Kok Estate	6 235	0.8	196	0.8
		Shek Mun Estate	1 947	0.3	57	0.2**
		Shui Chuen O Estate	9 796	1.3	322	1.3
		Sun Chui Estate	6 576	0.9	205	0.9
		Sun Tin Wai Estate	3 376	0.4	108	0.5**
		Wo Che Estate	6 216	0.8	194	0.8
		Yan On Estate	2 568	0.3	83	0.3
Yiu On Estate	868	0.1	29	0.1		
14.	TAI PO	Fu Heng Estate	1 515	0.2	47	0.2
		Fu Shin Estate	2 021	0.3	70	0.3
		Kwong Fuk Estate	6 155	0.8	196	0.8
		Po Heung Estate***	449	0.1	10	0.0**
		Tai Wo Estate	1 605	0.2	46	0.2
		Tai Yuen Estate	4 700	0.6	150	0.6
		Wan Tau Tong Estate	524	0.1	21	0.1
15.	TSUEN WAN	Cheung Shan Estate	1 601	0.2	52	0.2
		Fuk Loi Estate	3 097	0.4	98	0.4
		Lei Muk Shue (1) Estate	2 285	0.3	69	0.3
		Lei Muk Shue (2) Estate	4 244	0.6	139	0.6
		Lei Muk Shue Estate	3 874	0.5	119	0.5
		Shek Wai Kok Estate	6 307	0.8	202	0.8
16.	TUEN MUN	Butterfly Estate	5 326	0.7	172	0.7
		Fu Tai Estate	5 028	0.7	155	0.6**
		Kin Sang Estate	495	0.1	13	0.1
		Leung King Estate	2 346	0.3	69	0.3
		Lung Yat Estate	985	0.1	30	0.1
		On Ting Estate	4 998	0.7	160	0.7
		Po Tin Estate	5 112	0.7	168	0.7
		Sam Shing Estate	1 791	0.2	57	0.2
		Shan King Estate	5 478	0.7	173	0.7
		Tai Hing Estate	8 385	1.1	271	1.1
		Tin King Estate	764	0.1	20	0.1
		Wu King Estate	4 310	0.6	134	0.6
		Yau Oi Estate	9 087	1.2	287	1.2
17.	YUEN LONG	Grandeur Terrace	4 088	0.5	131	0.5
		Hung Fuk Estate	4 840	0.6	154	0.6
		Long Ching Estate***	410	0.1	17	0.1
		Long Ping Estate	3 097	0.4	98	0.4
		Long Shin Estate***	829	0.1	28	0.1
		Shui Pin Wai Estate	2 352	0.3	75	0.3

	District *	Name of estate	Actual overall tenant households [^]		Tenant household Sample	
			No.	%	No.	%
		Tin Chak Estate	3 973	0.5	121	0.5
		Tin Ching Estate	6 165	0.8	200	0.8
		Tin Heng Estate	5 746	0.8	183	0.8
		Tin Shui (1) Estate	4 587	0.6	144	0.6
		Tin Shui (2) Estate	3 154	0.4	104	0.4
		Tin Tsz Estate	3 265	0.4	106	0.4
		Tin Wah Estate	3 662	0.5	111	0.5
		Tin Yan Estate	5 528	0.7	174	0.7
		Tin Yat Estate	3 321	0.4	110	0.5**
		Tin Yiu (1) Estate	4 601	0.6	148	0.6
		Tin Yiu (2) Estate	3 808	0.5	118	0.5
		Tin Yuet Estate	4 141	0.5	131	0.5
OVERALL			753 799	100.0	24 000	100.0

- * The estates are grouped according to 17 districts for easy reference. There are no PRH estates in Wan Chai district.
- ** Chi-square tests were conducted to compare the actual overall distribution of the sample and that of the tenancy records by district and by estate. The results indicated that the differences between the actual and sampled distribution are insignificant.
- *** Denotes new estates not included in Annex C1.
- [^] Refer to the average number of households for the 12 months in 2017.

Note:

Statistically, the sample distribution tallies with the actual distribution by design of the proportionate stratified systematic random sampling method. In other words, the sample effectively reflects the distribution of all PRH tenants by district and by estate.

**Distribution of Households in relation to
the Computation of Income Index in the First Period (2015)**

Household size	No. of sampling units	Non-representative households			Sampling units for computation of the income index ⁽¹⁾	No. of households after grossing up ⁽²⁾	Weighting after grossing up
		“Well-off tenants”	Other households with high outlying income	CSSA households			
1P	4 368	56	179	1 743	2 391	71 885	13.014%
2P	6 220	144	132	1 357	4 460	138 289	25.035%
3P	6 217	237	69	708	5 081	157 734	28.555%
4P	4 950	199	47	442	4 123	129 054	23.363%
5P or above	2 245	101	19	279	1 739	55 422	10.033%
Overall	24 000	737	446	4 529	17 794	552 385	100%

- (1) Figures are calculated by excluding non-representative households (i.e. “well-off tenants”, other households with high outlying income and CSSA households), the 385 incomplete cases and the 109 invalid sampling units (see paragraphs 9 and 10 of the main paper).
- (2) A standard grossing up statistical method is applied to calculate the number of PRH households of different sizes. The proportion of PRH households of each size would be used as weights to compute the monthly average household income of PRH tenants as a whole.

**Distribution of Households in relation to
the Computation of Income Index in the Second Period (2017)**

Household size	No. of sampling units	Non-representative households			Sampling units for computation of the income index ⁽¹⁾	No. of households after grossing up ⁽²⁾	Weighting after grossing up
		“Well-off tenants”	Other households with high outlying income	CSSA households			
1P	4 478	57	231	1 712	2 450	76 459	13.298%
2P	6 335	170	154	1 260	4 700	148 441	25.817%
3P	6 374	244	89	650	5 265	168 404	29.290%
4P	4 732	224	41	352	3 980	128 501	22.349%
5P or above	2 081	112	10	242	1 605	53 160	9.246%
Overall	24 000	807	525	4 216	18 000	574 964	100%

- (1) Figures are calculated by excluding non-representative households (i.e. “well-off tenants”, other households with high outlying income and CSSA households), the 356 incomplete cases and the 96 invalid sampling units (see paragraphs 9 and 11 of the main paper).
- (2) A standard grossing up statistical method is applied to calculate the number of PRH households of different sizes. The proportion of PRH households of each size would be used as weights to compute the monthly average household income of PRH tenants as a whole.

As stipulated in Section 16A(8) of the Housing Ordinance, “adjusted mean monthly household income” refers to the mean monthly income of tenants assessed on the basis of the distribution of the household size of those tenants over the first period. Hence for this rent review, the weighting in **Annex D1** will be used instead of the weighting in this Annex for computing the adjusted overall mean monthly household income. The weighting in this Annex will be used in the next rent review exercise.

**Report on Quality Check on Survey Data and
Computation of Income Index for the 2018 Rent Review
Performed by the Census and Statistics Department**

In accordance with section 16A(7)(b) of the Housing Ordinance, the Commissioner for Census and Statistics shall compute the income index for the purpose of the rent review. Data for computing the income index are obtained from the “Survey on Household Income of Public Rental Housing (PRH) Tenants” (the Income Survey) conducted by the Hong Kong Housing Authority (HA).

Quality checks on the income data

2. The Census and Statistics Department (C&SD) has implemented a host of quality check measures to ensure impartiality, objectiveness and accuracy during the data collection and data processing of the Income Survey. The purpose is to evaluate and confirm the data quality of the Income Survey including representativeness of the samples, correctness of the declared income data and accuracy of data input.

3. A summary of the quality checks on the income data performed by C&SD for the first period (i.e. 2015) and the second period (i.e. 2017) of the 2018 rent review is given in **Table 1**.

4. Based on evidence obtained in the quality checks, C&SD concludes that the survey data accurately reflect the household income of PRH tenants in both 2015 and 2017. The survey data can be used to compute the income index for PRH tenants for the 2018 rent review.

Computation of income index for the 2018 rent review

5. In accordance with section 16A(7)(b) of the Housing Ordinance, C&SD has computed for the 2018 rent review the mean monthly household income for the first period (i.e. 2015) and the mean monthly household income for the second period (i.e. 2017) computed with reference to the distribution of households by size in 2015, using the data of the Income Surveys for the respective years. The results are presented in **Table 2** and **Table 3** respectively. The income indices for PRH tenants in both 2015 and 2017 are also computed

and presented in the tables. For ease of reference, the mean monthly household income for 2017 computed with reference to the distribution of households by size in 2015 will be referred to as the “adjusted mean monthly household income for 2017” in **Table 3**.

Census and Statistics Department
June 2018

Table 1 of Annex E

**Quality Checks on Income Data
Performed by Census and Statistics Department**

No.	Check	Description	Checking Results
(1)	Evaluation of the representativeness of the sample in terms of household size and geographical distribution	<ul style="list-style-type: none"> ● The samples of PRH households selected in 2015 and 2017 were studied and compared with the overall distribution of the tenancy records of the Housing Department (HD) of the respective years by household size and by district and estate. ● Statistical tests (Chi-square test) were conducted and the results showed that the distribution of the sample was basically the same as that of the tenancy records, and hence the samples of the Income Survey in both 2015 and 2017 were representative. 	<p>Conclusion: Checked in order</p> <p>Remarks:</p> <ul style="list-style-type: none"> ● Distribution of the sample was statistically comparable to that of tenancy records.

No.	Check	Description	Checking Results
(2)	Correctness of declared income data against documentary proof	<ul style="list-style-type: none"> ● A 5% sample of households who had declared income were randomly selected by C&SD for the checking. ● HD then requested these households to submit income documentary proof to support that the information declared was true and correct. ● To verify whether the checking by HD was carried out properly, C&SD randomly selected those cases checked by HD to see if the checking was in order. 	<p>Conclusion: Checked in order</p> <p>Remarks:</p> <ul style="list-style-type: none"> ● No tenants knowingly made false statements in the Income Survey. ● The differences between the declared income data and the data obtained from documentary proof, which had been suitably rectified for inclusion in the computation of income index, were of very small and similar magnitudes in 2015 and 2017, hence had virtually no impact on the computation of income index. ● No irregularities on the checking performed by HD had been found.

No.	Check	Description	Checking Results
(3)	Accuracy of data input by HD	<ul style="list-style-type: none"> ● A double data entry approach, i.e. the same set of data being input into the computer by two staff members independently, was implemented. These two sets of data were then compared and matched with each other for verification to avoid manual input errors. ● A 2% sample was randomly selected by C&SD for checking the accuracy of data input performed by HD. 	<p>Conclusion: Checked in order</p> <p>Remarks:</p> <ul style="list-style-type: none"> ● No data input errors had been found.
(4)	Evaluation of data validation conducted by HD	<ul style="list-style-type: none"> ● Computerised validation checks were performed by HD on the inputted data so as to identify those data in need of further clarification with the households concerned. ● C&SD carried out an independent round of data validation and checks to see if HD had verified all those cases in need of further clarification with the households concerned. 	<p>Conclusion: Checked in order</p> <p>Remarks:</p> <ul style="list-style-type: none"> ● HD had confirmed / clarified all cases in need of further clarification with the households concerned before preparing the dataset for computation of income index by C&SD.

Table 2 of Annex E

**Mean Monthly Household Income of PRH Tenants
in the First Period of the 2018 Rent Review ^[Note]**

Household size	Mean monthly household income	% distribution of household size (weights)
1-person	\$6,179	13.014%
2-person	\$13,618	25.035%
3-person	\$21,951	28.555%
4-person	\$28,259	23.363%
5-person or above	\$34,710	10.033%
		100.0%

Overall mean monthly household income

\$20,566

Computed as follows:

$$\begin{aligned}
 & \$6,179 \times 13.014\% + \$13,618 \times 25.035\% + \$21,951 \times 28.555\% + \\
 & \$28,259 \times 23.363\% + \$34,710 \times 10.033\% \\
 = & \quad \mathbf{\$20,566}
 \end{aligned}$$

Index for the first period is set at 100.

Note:

Please note that income figures in the above table have been rounded to the nearest integer and the weights presented in percentage have been rounded to the nearest three decimal places. Such arrangement is solely for presentation purpose. In practice, income figures and weights are all computed in full figures.

Rent Assistance Scheme

Eligibility criteria

HA offers assistance to PRH tenants facing temporary financial difficulties through the Rent Assistance Scheme (RAS). Non-elderly households whose income levels meet the two different sets of thresholds will be eligible for rent reduction of either 25% or 50%. Elderly households meeting the eligibility criteria are eligible for rent reduction of 50%. The detailed criteria are as follows –

	Non-elderly Households		Elderly Households (All members aged 60 or above)
Rent reduction	50%	25%	50%
Income	(a) <50% PRHIL <u>or</u> (b) RIR>25% <u>or</u> (c) 50% - 70% PRHIL <u>and</u> RIR>15%	(a) 50% - <70% PRHIL <u>or</u> (b) RIR >18.5% - 25%	(a) <70% PRHIL <u>or</u> (b) RIR>18.5%

Notes:

PRHIL = PRH income limit

RIR = Rent-to-income ratio

Administrative arrangements

2. HD actively renders assistance to eligible tenants via the following actions –

- (a) upon receipt of the application form and requisite information, HD will complete the processing of applications and notify the tenants within two weeks;
- (b) reminds tenants with rent arrears on the availability of RAS in the rent chasing letters. It is also stated in the rent adjustment notification letters to tenants that RAS is available. In this respect, HD in particular reaches out to households with elderly and disabled members. HD highlights in the notification letters that

staff of HD stand ready to assist tenant households with elderly and disabled family members in their RAS applications where necessary; and

- (c) widely publicises RAS through various channels, e.g. social media (such as YouTube); posters and leaflets; the radio; Housing Channel; HA/HD's web site; HA's mobile app "iHousing"; and the Estate Management Advisory Committee (EMAC) newsletter, etc.

Enhancements to RAS

3. We review the operation of RAS from time to time and implement enhancements to the publicity of RAS and its application process so that more tenants who are in need would know about the scheme and benefit from it. Details are set out in the ensuing paragraphs.

Strengthening the publicity of RAS

4. To further enhance publicity of RAS, we have rolled out the following new measures –

- (a) distributed RAS leaflets (which set out in detail the eligibility criteria and application procedures) to all PRH tenants paying normal rent together with the rent adjustment notification letters issued for the rent adjustment in 2014 and 2016;
- (b) publicised the availability and policy of RAS at EMAC meetings, and solicited assistance from non-government organisations, local District Council members and EMAC members to refer tenants in need to estate offices for rent assistance;
- (c) displayed eye-catching stands/notices publicising RAS at conspicuous location at the Customer Service Counter/waiting hall of estate offices;
- (d) adopted a caring and proactive approach in reaching out to tenants in need, in particular the elderly and single parent families, during the biennial flat inspection or during other home visits for tenancy management, checking of repairs etc.; and

- (e) arranged easy pull banners on RAS to be placed in EMAC activities in 2018/19, while bookmarks of RAS would be distributed to participants for further enhancing tenants' awareness on RAS.

Facilitating the application process

5. To facilitate tenants' application for RAS, we have implemented the following measures to provide assistance to applicants –

- (a) upon receipt of enquiry on RAS, estate staff would explain to the applicant the details of the policy, eligibility criteria, procedures, and supporting documents required for vetting; and
- (b) estate staff would also explain and provide assistance to tenants, in particular the elderly, who may have difficulties in understanding the application form.

Helping existing RAS beneficiaries

(a) Effective date of rent relief

6. Prior to August 2014, for applications received on or after 16th of a month, RAS would be effective from the first day of the following month. To enable tenants in need to receive timely rent assistance, from September 2014 onwards, rent assistance has been granted to all successful applicants with retrospective effect from the first day of the month, regardless of whether the applications are received in the first or second half of the month.

(b) Reducing the frequency of eligibility review

7. Before September 2016, HA reviewed the eligibility of RAS beneficiaries annually to determine whether rent assistance should continue to be granted to them. Starting from September 2016, **the frequency of review of RAS eligibility has been reduced from once every year to once every two years.**¹ The arrangement relieves households from preparing income documents for vetting of their eligibility every year. It also reduces the chance of tenants with financial difficulties considering the application procedures too complicated and thus refraining from applying. With the less frequent

¹ As endorsed by SHC at its meeting on 8 July 2016 (vide SHC Paper No. 33/2016).

eligibility review, random checking of eligibility of households has been conducted to guard against possible abuse of RAS.

(c) Extending the requirement to move to cheaper accommodation

8. In the past, after receiving rent assistance for three consecutive years, non-elderly RAS beneficiaries living in newer block types² were required to move to cheaper accommodation in the same district, if suitable flats were available. Starting from September 2016, **the requirement of moving to cheaper accommodation has been relaxed from three to four consecutive years.**¹

² These refer to Harmony blocks and rental flats converted from the Home Ownership Scheme/Private Sector Participation Scheme/Buy-or-Rent Option and blocks completed in or after 1992.

**SHC's Informal Session on 8 June 2018
- Comparative Analysis of
the Current Rent Adjustment Mechanism and Other Suggestions**

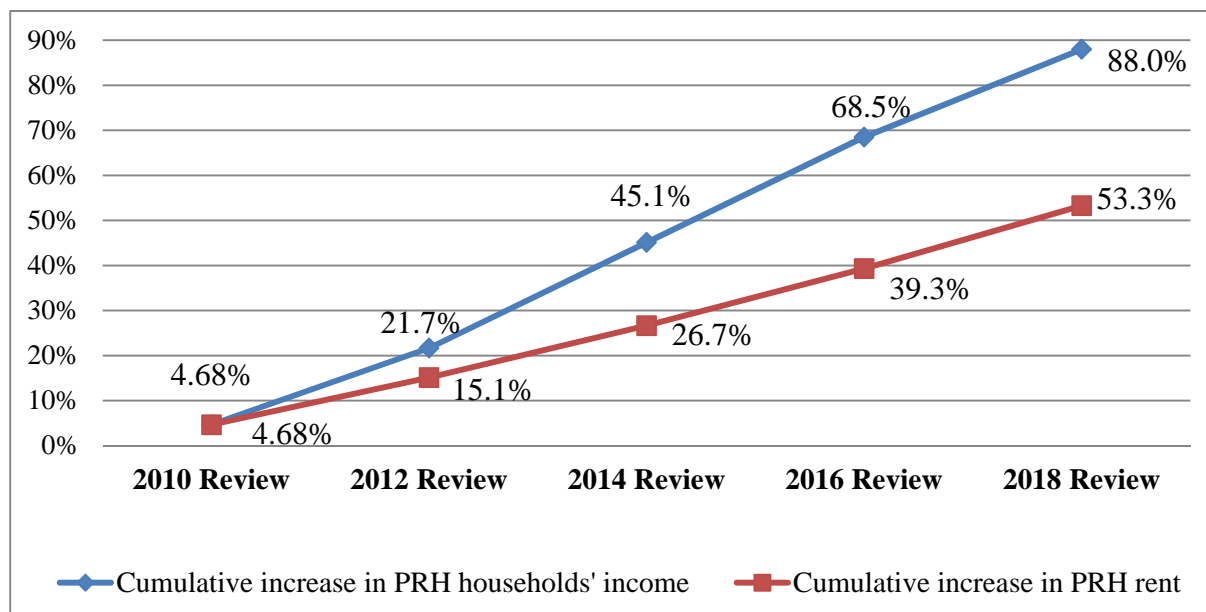
Existing rent adjustment mechanism

The current rent adjustment mechanism is the result of an extensive review conducted by HA from 2001 to 2006 (**the 2001 – 2006 Review**). In the course of the review, HA had explored various options to revise the PRH rent adjustment mechanism, and the three-month public consultation revealed that **the public generally supported an income-based rent adjustment mechanism**, which could provide a stronger connection between future rent adjustments and tenants' affordability. When mapping out the new rent adjustment mechanism, HA further considered that PRH rent should be adjusted to provide an appropriate starting point for the mechanism to operate fairly and effectively. As a result, HA reduced the PRH rent across-the-board by 11.6%¹ in August 2007.

2. Under the current mechanism as stipulated in Section 16A of the Housing Ordinance, HA can only raise PRH rent when there is an increase in PRH tenants' income. In the case of income increase, the rate of rent increase is capped by 10%; while there is no floor for rent reduction in the case of income decrease. Past records indicate that PRH tenants have been using a decreasing proportion of their income to pay rent since the adoption of the current mechanism. As explained in paragraph 19(a)(ii) of the paper, the cumulative increase in PRH households' income has far exceeded the cumulative increase in PRH rent. The income of PRH households has cumulatively increased by **88%** from 2007 (the first period of the first rent review conducted under the existing rent adjustment mechanism) to 2017 (the second period of the current rent review). However, upon the rent increase under the current rent review, PRH rent will have only increased cumulatively by **53.3%** over all five rent reviews conducted according to the existing mechanism –

¹ The rent reduction by 11.6% was based on the income change among PRH households between January – December 1997 and April 2005 – March 2006.

Comparison between the cumulative increase in PRH households' income and PRH rent



3. As a crude comparison, the ratio of average PRH rent to average PRH household income has been gradually decreasing since the adoption of the current mechanism, from **9.97%** in 2007 to **9.14%** after the rent increase under the current review².

4. The analysis in paragraphs 2 and 3 above suggests that the current mechanism has been effective in ensuring the affordability of rent adjustment among PRH tenants. In the long run, since the rate of rent increase will either be at or lower than the rate of income increase in each rent adjustment exercise, the rent affordability of PRH tenants will only stand to improve instead of worsening.

Suggested revisions to the existing mechanism

(a) Adjusting PRH rent with reference to inflation

5. There have been suggestions that the inflation factor, expressed in terms of the Consumer Price Index (CPI), should be taken into account when adjusting PRH rent so as to better cater for the “actual” affordability of PRH tenants.

² For details, please refer to paragraph 19(a)(iii), footnote 11 and footnote 12 of the main paper.

Adjusting PRH rent according to changes in CPI(A)³

6. One suggestion is to adjust the PRH rent according to the changes in CPI(A). During the 2001 – 2006 Review, **adjustment by inflation according to CPI(A)** was among the options explored by HA. However, it was observed that CPI could only reflect changes in the price level of consumer goods and services rather than changes in income, hence could not reflect tenants’ affordability. Hence, this option **did not gain public support**.

7. It should be noted that the **trend and rate of changes in CPI have no relationship with changes in income**. There have been cases where household income reduced in times of inflation. For instance, according to the year-on-year change in the fourth quarter of 2009, the following set of data was recorded –

	Median monthly household income of public rental housing households	CPI(A)
Year-on-year change in Q4 2009 ⁴	-7.9%	+3.4%

If we were to adjust PRH rent in accordance with CPI(A), PRH rent should be adjusted upward by 3.4% despite a considerable drop in income. Such an adjustment would appear unreasonable as it would have no regard to tenants’ affordability.

Adjusting PRH rent according to changes in tenants’ real income

8. There is another suggestion that affordability of PRH tenants could be measured in terms of changes in tenants’ “real income”, i.e. nominal income adjusted by CPI. However, **rent adjustment based on changes in “real income” cannot reflect tenants’ affordability. It might even undermine tenants’ affordability, especially in times of deflation**. This could be illustrated in the following assessment of its applicability and implications under both inflationary and deflationary circumstances –

³ CPI(A) is compiled based on the expenditure patterns of households in the relatively low expenditure ranges, and cover some 50% of households in Hong Kong. This index is considered suitable for reflecting the price levels that have the most direct bearing on PRH tenants.

⁴ As a broad illustration, the figures on year-on-year change are derived from the median monthly household income (rounded to the nearest hundred) and CPI(A) (with 2014/15 as the base period) currently published on C&SD’s website.

- (i) At times of inflation, if tenants' income increases, the increase in their "real income" would be artificially suppressed upon adjustment by CPI, as illustrated below –

	Nominal income	CPI	"Real income" upon adjustment by CPI
The first period	\$10,000	100	\$10,000
The second period	\$11,500	108	$\$11,500 \div (108/100) = \$10,648$
Percentage change	+ 15%	+ 8%	+ 6.48%

PRH rent would only be increased by 6.48% even though income has increased by 15%.

- (ii) At times of deflation, if tenants' income decreases, their "real income" may still record an increase. PRH rent would need to be increased even though the household income has decreased, as illustrated below –

	Nominal income	CPI	"Real income" upon adjustment by CPI
The first period	\$10,000	100	\$10,000
The second period	\$9,500	92	$\$9,500 \div (92/100) = \$10,326$
Percentage change	- 5%	- 8%	+ 3.26%

PRH rent would be increased by 3.26% even though the household income has dropped by 5%.

- (iii) If tenants' income increases at times of deflation, their "real income" will increase by a greater extent. Hence PRH rent will be increased by more than the percentage increase in household income, as illustrated below –

	Nominal income	CPI	"Real income" upon adjustment by CPI
The first period	\$10,000	100	\$10,000
The second period	\$10,500	95	$\$10,500 \div (95/100) = \$11,053$
Percentage change	+ 5%	- 5%	+ 10.53%

Even though income has increased by 5% only, PRH rent would be increased by 10.53%.

(b) Adjusting PRH rent with reference to changes in wage index

9. There has been another suggestion that PRH rent may be adjusted with reference to wage index (in particular the real wage index⁵), which is compiled by C&SD through its wage enquiry in the Labour Earnings Survey.

10. Unlike the income index under the existing mechanism, **the wage index (in either real or nominal terms) is not intended to, and cannot, reflect the income changes of PRH households.** The wage index seeks to measure the change in labour price. It cannot be used directly to reflect the affordability of PRH tenants because –

- (i) the wage index only covers wages of employees up to the supervisory level (i.e. managerial and professional employees are excluded). As the related wage information is collected from business establishments, self-employed persons are not covered in the index. Breakdowns by employees' housing types (i.e. whether or not they are PRH tenants) are not available since such information is not collected;
- (ii) as the wage index is meant to measure the change in labour price, it only reflects the change in the amount of money earned by employees in their normal hours of work. It covers fixed salary but excludes other earnings (e.g. overtime payments and discretionary bonuses); and
- (iii) the wage index also does not cover income unrelated to their employment (e.g. interest, dividend, other allowances, etc.) and cannot reflect the changes in household income due to changes in the number of working members within a household.

11. On the other hand, the income index uses tenants' overall household income as the basis, which covers all income of the PRH household members, i.e. employment income (including the fixed salary and variable pay of employed and self-employed persons) and other income. This approach better reflects tenants' affordability.

⁵ Real wage index is derived by deflating the nominal wage index by CPI(A).

(c) Adjusting PRH rent with reference to median rent-to-income ratio (MRIR)

12. Prior to the 2001 – 2006 Review, the then Section 16(1A) of the Housing Ordinance imposed, inter alia, a requirement that the **MRIR** of all estates should not exceed 10% after any rent variation. Following detailed study and deliberations, the 2001 – 2006 Review concluded that this requirement **could not provide a fair and objective basis for rent adjustment mainly because MRIR could be distorted by a host of extraneous factors other than changes in PRH tenants’ household income**. Such factors include –

- (i) the ratios of smaller households and elderly households living in PRH since their household income is generally lower than that of larger households;
- (ii) the proportion of CSSA households among PRH tenants since CSSA payments are counted as part of the tenants’ household income. Moreover, since the rent of CSSA households is covered by CSSA payments, such households do not have rent affordability issue; and
- (iii) improvement in PRH allocation standard which results in larger average living space per person but also a higher rent level.

13. On the other hand, the income index compiled under the current mechanism, which discounts the effects of the change in household size distribution and assesses the “pure income changes” of PRH tenants, provides a more objective and fairer income indicator for the purpose of rent adjustment.