

## Legislative Council Panel on Housing

### New Rent Adjustment Mechanism for Public Rental Housing

#### PURPOSE

This paper presents the outcome of the first rent review under the new rent adjustment mechanism for public rental housing (PRH).

#### BACKGROUND

2. In November 2006, the Housing Authority (HA) approved the Report on the Review of Domestic Rent Policy, which recommended the formulation of a new income-based rent adjustment mechanism to replace the previous statutory 10% median rent-to-income ratio cap. The Housing (Amendment) Ordinance 2007 (the Amendment Ordinance) introduced a new mechanism to provide for upward or downward adjustment of PRH rent according to the changes in the household income of PRH tenants. Under the new rent adjustment mechanism, tenants' affordability is the factor used to determine PRH rent. The mechanism provides an objective basis for the HA to determine when and to what extent PRH rent should be adjusted, using a framework that reflects tenants' affordability. The new rent adjustment mechanism helps promote the long-term sustainability of the PRH programme.

3. The Amendment Ordinance was passed by the Legislative Council in June 2007 and came into operation on 1 January 2008. To provide a starting point for the new rent adjustment mechanism to operate effectively, the HA reduced the PRH rent by 11.6% from August 2007. Background information on the previous and the new rent adjustment mechanisms, as well as the methodology for data collection and computation under the new rent adjustment mechanism, are set out at **Annex A**.

## **TRANSPARENCY AND OPENNESS**

4. Throughout the process, including the conduct of the rent review, and the enactment and implementation of the Amendment Ordinance, steps have been taken to involve and inform stakeholders and the public as appropriate. The Ad Hoc Committee on the Review of Domestic Rent Policy of HA (the Committee) launched an extensive public consultation exercise between March and June 2006 to gauge the public's views on its findings. The findings and recommendations of the Committee to improve the PRH rent system, including the compilation method for the income index, were detailed in the Report on the Review of Domestic Rent Policy which was made available to the public. The Legislative Council Bills Committee on Housing (Amendment) Bill 2007 (the Bills Committee) discussed the matter in depth over 12 meetings from February 2007 to May 2007 and agreed the data collection and compilation method.

5. Since the passage of the Amendment Ordinance, the HA has launched on-going publicity on the new rent adjustment mechanism and on the collection of PRH household income data through various channels, such as the Estate Management Advisory Committees (EMAC) newsletters, posters, leaflets and the internet, as well as through video clips on the HA's website and the Housing Channel. The HA has also explained the purpose of the data collection to resident representatives and local District Council members at the meetings of EMAC so as to enhance public awareness. Besides, we have also set up a dedicated team responsible for income data collection for the "Survey on Household Income of PRH Tenants" (the Income Survey). Sampled households are given details about the Income Survey in the income declaration form and if they have any queries relating to filling of the forms, our staff stand ready to provide assistance.

6. On 7 January 2010 and 1 March 2010, the Transport and Housing Bureau briefed the Legislative Council Panel on Housing on the progress of the first rent review under the new rent adjustment mechanism vide Paper No. CB (1) 796/09-10(03) and Paper No. CB (1) 1059/09-10(01).

## **OUTCOME OF FIRST RENT REVIEW**

7. The compilation work in relation to the first rent review exercise has now been completed. The Census & Statistics Department (C&SD), on the basis of the evidence obtained in the quality checks, has confirmed that the survey data accurately reflects the household income of PRH tenants in both 2007 and 2009. The survey data has accordingly been used to compute the

income index for PRH tenants for the first rent review. Distribution of survey data and details of households excluded from the computation of the mean monthly household income are set out in the paragraphs below.

(i) Sample Distribution

8. Sampling for the first and second periods was done in accordance with the actual distribution of household size each month as shown in **Annex B1** and **Annex B2** respectively.

9. By design of the proportionate stratified systematic sampling, the distribution of sampled households by PRH estate and by district corresponds to the actual distribution for all PRH households. A comparison of the 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.

(ii) Exclusion of Non-representative Households

10. A total of 24 000 PRH households were sampled in each of the first and second periods, hence the first rent review involved income data collected from a total of 48 000 PRH households. Among these 48 000 sampled PRH households which participated in the Income Survey in 2007 and 2009, the response rate stood at 98.7% and 97.8% respectively. The remaining 1% to 2% involved 316 cases and 513 cases for 2007 and 2009 respectively. They were unable to provide the information requested in the declaration form, and all were verified by the HD to have reasonable grounds (such as chronic illness, overseas employment or study, or imprisonment), save for two cases where the tenants, without justifications, refused to return the income declaration form as required under section 25(1) of the Housing Ordinance. The two tenants concerned were prosecuted and fined by the Court on conviction respectively in 2009 and 2010.

11. According to the methodology as spelt out in Annex A, in the data collected in the 2007 Income Survey, 910 well-off tenants, 513 other households with income higher than the upper outlying levels, and 5 640 Comprehensive Social Security Assistance (CSSA) households respectively were excluded from the computation of the income index, accounting for 3.9%, 2.2% and 24.0% of the completed sample. Upon exclusion of the three categories of non-representative households and 202 invalid sampling units (i.e. deceased tenants and those who terminated their tenancies), the resulting sample size is 16 735 for 2007.

12. As for 2009, 939 well-off tenants, 545 other households with income higher than the upper outlying levels, and 5 367 CSSA households respectively are excluded from the computation of the income index, accounting for 4.0%, 2.3% and 23.0% of the completed sample. Upon exclusion of the three categories of non-representative households and 155 invalid sampling units, the resulting sample size is 16 994 for 2009. 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.

### (iii) Computation of Mean Monthly Household Income

13. With the exclusion of the three categories of non-representative PRH households and invalid sampling units mentioned above, as well as the application of statistical method to gross up the survey data, 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. The details for the two periods are at **Annex D1** and **Annex D2** respectively.

14. As reported in Panel Paper No CB (1) 1059/09-10(01), the mean monthly household income of PRH tenants in the first period (i.e. 2007) is \$13,233 and this index is set at 100. All the income data and the relevant documentary proof for the second period have now been collected and vetted. The adjusted mean monthly household income of PRH tenants in the second period (i.e. 2009) is \$13,852. The index of the second period is therefore 104.68. 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. The findings of the quality checks performed by C&SD and the computation of income index are appended at the Commissioner for Census and Statistics (C for C&S)'s report on the first rent review exercise at **Annex E**.

15. As the C for C&S's report shows, by comparing the indices of the first and second periods, the level of adjustment in PRH rent is **+4.68%** for the first rent review. As stipulated in section 16A(6) of the Amendment Ordinance, in varying the relevant rent, the HA may round down the amount of the relevant rent to the nearest dollar.

## IMPACT ON PRH TENANTS

16. Among a total of 680 000 households residing in PRH as at March 2010, there are about 150 800 (or 22%) CSSA households. The remaining consists of 493 500 households (or 73%) who are paying normal rent, 11 700 households (or 2%) receiving assistance under the HA's Rent Assistance Scheme (RAS) to pay either 50% or 75% of the normal rent, and 23 800 "well-off tenants" (or 4%) who are paying additional rent.

17. The average monthly rent is \$1,331, and an adjustment of +4.68% means an increase of **\$62** on average. In terms of range, the current range of rent is from \$248 to \$3,368, i.e., increases ranging from **\$11 to \$157**.

18. In terms of distribution, excluding CSSA households whose rent is paid by the Government, the impact of the rent increase<sup>1</sup> on the remaining 529 000 PRH households is broken down as follows: 6 000 (1%) will have a rent increase of \$20 or less per month; 78 300 (15%) with an increase of \$21 to \$40; 194 900 (37%) with an increase of \$41 to \$60; 117 600 (22%) with an increase of \$61 to \$80, 79 500 (15%) with an increase of \$81 to \$100; and 52 900 (10%) will have an increase over \$100 per month.

## OFFERING ASSISTANCE TO THOSE IN NEED

19. For those who cannot support themselves financially, CSSA provides a safety net to bring their income up to a prescribed level to meet their basic needs. As the PRH rent of CSSA recipients is paid by the Government (through payment by the Social Welfare Department direct to the HA), any rent adjustment would therefore have no significant impact on households with CSSA recipients.

20. Furthermore, the HA offers assistance to PRH tenants facing temporary financial difficulties through the Rent Assistance Scheme (RAS) (e.g. to those in between jobs). Households meeting the eligibility criteria (at **Annex F**) are eligible for rent reductions up to 50%.

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<sup>1</sup> 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 some 23 800 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.

21. HD has all along been actively rendering assistance to eligible tenants and will continue to do so via the following actions –

- (a) HD undertakes to expedite processing of RAS applications. Upon receipt of the application form and requisite information, HD will complete the processing of applications and notify the tenants within two weeks;
- (b) For applications received on or before the 15th of each month, rent assistance will be provided with retrospective effect for that month (by crediting the tenants' rent account);
- (c) HD will continue to step up publicity of the RAS through various channels, e.g. the radio, Housing Channel, EMAC newsletter, etc.; and
- (d) HD will also remind tenants with rent arrears on the availability of the RAS by mail. In this respect, HD will in particular reach out to households with elderly and disabled members. HD will highlight in the reminder that staff of HD stand ready to assist the elderly and disabled households in their RAS applications where necessary.

## **LATEST POSITION**

22. On 15 July 2010, the Subsidised Housing Committee (SHC) considered the Commissioner's report and endorsed the outcome of the first rent review exercise under the new rent adjustment mechanism as stipulated in section 16A of the Housing Ordinance.

23. The SHC noted that as stipulated in section 16A(4) of the Housing Ordinance, the HA if satisfied that the income index for the second period is higher than that for the first period by more than 0.1%, shall as soon as practicable after the review increase the relevant rent by the rate of increase of the income index or 10%, whichever is less. Taking into account the time needed for preparatory work, including computer system adjustment, verification of tenancy records, etc., the rent adjustment may take effect from 1 September 2010 earliest. PRH tenants will be notified one month in advance of their new rent levels.

24. The SHC also noted that with the rent increase of 4.68%, the new rent levels would still be lower than that of 1997 by around 7.5%. For tenants in need, the SHC noted the measures already in place to assist specific groups, namely, CSSA for those who cannot support themselves financially, and RAS for those in short-term financial difficulties.

25. Section 17 of the Housing Ordinance provides that “the HA may remit, in whole or in part and for such period as it thinks fit, the payment of any rent, premium or other consideration payable under any lease.” At the meeting on 15 July, SHC Members had an extensive discussion on whether any special, one-off mitigation measures would be necessary. Different views were expressed. The SHC will meet again on July 22 to decide on whether there should be any mitigation measures and if so, to consider what measures should be implemented. We will summarise views and comments of Members of Legislative Council Panel on Housing on this issue for SHC members to take into account during their next meeting.

#### **ADVICE SOUGHT**

26. Members are invited to note the outcome of the first rent review.

**Transport and Housing Bureau  
July 2010**

## **Background and Methodology of the Rent Adjustment Mechanism**

### **A. The Need for Review**

It has been a long-established policy for the HA to set the PRH rent at affordable levels. At the same time, under section 4(4) of the Housing Ordinance, the 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.

2. Prior to 1998, the 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, the 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, the 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 the 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 a need to establish an objective and sustainable mechanism to form a basis for rent adjustments.

### **B. The New Mechanism**

3. Under the new PRH rent adjustment mechanism, the 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 Amendment Ordinance, if the income index for the second period is higher than that for the first period by more than 0.1%, the 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%, the HA shall reduce the PRH rent by the rate of reduction of the income index.



4. 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 relation to the first rent review, section 16A(8) of the Amendment 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. 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.

5. Section 16A(7)(b) of the Amendment Ordinance specifies that the Commissioner for Census and Statistics (C for C&S) shall, in relation to the compilation of the income index, compute the index. This includes the computation of the change in the income index between the first and second periods.

### **C. Data Collection and Computation**

6. Compilation of the income index involves both “data collection” and “data computation”. The income data of PRH households collected through the “Survey on Household Income of Public Rental Housing Tenants” (the Income Survey) is used as the basis for compiling the income index.

7. To collect the income data, a sample of 2 000 PRH households is randomly selected by the 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 a period of 12 months.

8. 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.

9. 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.

### *HA’s Role*

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

11. 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), i.e. 1-person households, 2-person households, 3-person households, 4-person households and households of 5 persons or more. 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 sampling** and has the merit of providing more precise estimates than the simple random sampling, given the same sample size.

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

- (a) The 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 the HA staff upon request to assist physically challenged tenants and the elderly to complete the forms;

- (b) The 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 the Housing Department (HD), and may be asked to provide documentary proof of income and other related information for verification of the declared income data;
- (c) The 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) The 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.

### ***Census and Statistics Department's Role***

13. The C&SD is responsible for (i) conducting quality checks on the work of HA in the Income Survey; and (ii) computing the income index in its independent capacity in accordance with section 16A(7)(b) of the Amendment Ordinance.

#### **(i) Quality check on the work of the HA in the Income Survey**

14. The C&SD has adopted various quality checks to ensure the impartiality, objectiveness and accuracy of the 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 the following:

- (a) Statistical testing is conducted by the 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 the C&SD for the HA to request them to submit income documentary proof to support that the information declared is true and correct. Some 1 200 households annually are covered by this additional verification. C&SD also conducts random check to confirm whether the HA has vetted the income documentary proof properly;
- (c) About 2% of the completed income declaration forms are selected by C&SD each month to check the accuracy of data input performed by the HA; and
- (d) C&SD carries out another round of checking on the HA's data validation work as mentioned in para. 12(d) to ensure that all necessary steps were taken.

(ii) Exclusion of Non-representative Households

15. The income index seeks to reflect changes in the household income of PRH tenants over the first and second periods and it should cover PRH households with normal income. In computing the income index, "non-representative" households with income deviating considerably from the normal PRH households are excluded, in accordance with the methodology agreed by the Bills Committee, to minimise distortion to the outcome of the computation. Such households include:

- (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 required to declare income under the so-called "well-off tenants" policy (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) *Comprehensive Social Security Assistance (CSSA) households:* CSSA is effectively a social security allowance provided by the Government, rather than income.

(iii) Computation of Mean Monthly Household Income

16. 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.

17. 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.

## 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 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 Administration 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 (on 17 April 2007, 10 May 2007, 25 May 2007, 30 May 2007 and 31 May 2007). While members were aware of the Administration's suggestion, some members were of the view that more stringent selection rules should be applied so that "mild outliers" should also be excluded.

4. The Administration considered members' views, and, upon further consultation with C&SD, proposed in the Administration's Response dated 1 June 2007 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 accepted 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 statistical method for detecting outliers. It is widely accepted 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 smaller 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) Arrange the set of household income data from the survey in ascending order, i.e. from the lowest to the highest income.
- (b) Calculate the median, upper quartile or 75<sup>th</sup> percentile ( $x_{.75}$ ) and lower quartile or 25<sup>th</sup> 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) Calculate 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 2-person household group in 2007 is given below :

Minimum (\$)	Maximum (\$)	Lower quartile (25 <sup>th</sup> percentile) (\$)	Upper quartile (75 <sup>th</sup> percentile) (\$)	Interquartile range (IQR) (\$)
0	83,910	4,410	10,600	6,190

$$\begin{aligned} \text{The interquartile range (IQR)} &= \text{upper quartile} - \text{lower quartile} \\ &= 10,600 - 4,410 \\ &= 6,190 \end{aligned}$$

$$\begin{aligned} \text{The upper outlying level} &= \text{upper quartile} + 1.5 \times \text{IQR} \\ &= 10,600 + 1.5 \times 6,190 \\ &= 19,885 \end{aligned}$$

$$\begin{aligned} \text{The lower outlying level} &= \text{lower quartile} - 1.5 \times \text{IQR} \\ &= 4,410 - 1.5 \times 6,190 \\ &= -4,875 \end{aligned}$$

Similarly, upper and lower outlying levels for other household sizes can be computed. The results for 2007 are given below:

Household size	Lower outlying level (\$)	Upper outlying level (\$)
1P	-2,338	10,043
2P	-4,875	19,885
3P	-7,280	33,084
4P	-8,060	40,100
5P and above	-11,579	50,866



As for the 2009 data, the upper and lower outlying levels for determining the outliers are given below:

<b>Household size</b>	<b>Lower outlying level (\$)</b>	<b>Upper outlying level (\$)</b>
1P	-1,275	10,045
2P	-3,976	20,693
3P	-6,884	34,114
4P	-8,866	43,044
5P and above	-10,772	52,620

**Households with income exceeding the upper outlying level or less than the lower outlying level are considered as outliers. In reality, there are no households with negative income. As such, no households from the lower end of the actual income distribution are considered as outliers and excluded.**

## Annex B1

## Sample Distribution by Household Size in the First Period

Month of Declaration in 2007		Household Size					
		1P	2P	3P	4P	5P or above	Total
January	No. of Household	300	400	500	500	300	2 000
	%	(15.0)	(20.0)	(25.0)	(25.0)	(15.0)	(100.0)
February	No. of Household	305	417	490	498	290	2 000
	%	(15.3)	(20.9)	(24.5)	(24.9)	(14.5)	(100.0)
March	No. of Household	307	418	490	497	288	2 000
	%	(15.4)	(20.9)	(24.5)	(24.9)	(14.4)	(100.0)
April	No. of Household	310	419	489	496	286	2 000
	%	(15.5)	(21.0)	(24.5)	(24.8)	(14.3)	(100.0)
May	No. of Household	311	421	489	495	284	2 000
	%	(15.6)	(21.1)	(24.5)	(24.8)	(14.2)	(100.0)
June	No. of Household	312	422	490	494	282	2 000
	%	(15.6)	(21.1)	(24.5)	(24.7)	(14.1)	(100.0)
July	No. of Household	313	423	491	493	280	2 000
	%	(15.7)	(21.2)	(24.6)	(24.7)	(14.0)	(100.0)
August	No. of Household	314	424	491	492	279	2 000
	%	(15.7)	(21.2)	(24.6)	(24.6)	(14.0)	(100.0)
September	No. of Household	314	425	491	492	278	2 000
	%	(15.7)	(21.3)	(24.6)	(24.6)	(13.9)	(100.0)
October	No. of Household	315	426	491	491	277	2 000
	%	(15.8)	(21.3)	(24.6)	(24.6)	(13.9)	(100.0)
November	No. of Household	315	427	491	491	276	2 000
	%	(15.8)	(21.4)	(24.6)	(24.6)	(13.8)	(100.0)
December	No. of Household	315	428	491	491	275	2 000
	%	(15.8)	(21.4)	(24.6)	(24.6)	(13.8)	(100.0)
<b>Overall</b>	<b>No. of Household</b>	<b>3 731</b>	<b>5 050</b>	<b>5 894</b>	<b>5 930</b>	<b>3 395</b>	<b>24 000</b>
	<b>%</b>	<b>(15.5)</b>	<b>(21.0)</b>	<b>(24.6)</b>	<b>(24.7)</b>	<b>(14.1)</b>	<b>(100.0)</b>

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.

## Annex B2

**Sample Distribution by Household Size in the Second Period**

Month of Declaration in 2009		Household Size					
		1P	2P	3P	4P	5P or above	Total
January	No. of Household	323	444	497	479	257	2 000
	%	(16.2)	(22.2)	(24.9)	(24.0)	(12.9)	(100.0)
February	No. of Household	323	446	497	478	256	2 000
	%	(16.2)	(22.3)	(24.9)	(23.9)	(12.8)	(100.0)
March	No. of Household	324	447	497	477	255	2 000
	%	(16.2)	(22.4)	(24.9)	(23.9)	(12.8)	(100.0)
April	No. of Household	326	448	497	476	253	2 000
	%	(16.3)	(22.4)	(24.9)	(23.8)	(12.7)	(100.0)
May	No. of Household	326	450	498	475	251	2 000
	%	(16.3)	(22.5)	(24.9)	(23.8)	(12.6)	(100.0)
June	No. of Household	327	452	498	473	250	2 000
	%	(16.4)	(22.6)	(24.9)	(23.7)	(12.5)	(100.0)
July	No. of Household	328	454	499	471	248	2 000
	%	(16.4)	(22.7)	(25.0)	(23.6)	(12.4)	(100.0)
August	No. of Household	328	455	499	471	247	2 000
	%	(16.4)	(22.8)	(25.0)	(23.6)	(12.4)	(100.0)
September	No. of Household	329	455	500	470	246	2 000
	%	(16.5)	(22.8)	(25.0)	(23.5)	(12.3)	(100.0)
October	No. of Household	329	456	501	469	245	2 000
	%	(16.5)	(22.8)	(25.1)	(23.5)	(12.3)	(100.0)
November	No. of Household	330	457	502	467	244	2 000
	%	(16.5)	(22.9)	(25.1)	(23.4)	(12.2)	(100.0)
December	No. of Household	330	459	503	466	242	2 000
	%	(16.5)	(23.0)	(25.2)	(23.3)	(12.1)	(100.0)
<b>Overall</b>	<b>No. of Household</b>	<b>3 923</b>	<b>5 423</b>	<b>5 988</b>	<b>5 672</b>	<b>2 994</b>	<b>24 000</b>
	<b>%</b>	<b>(16.3)</b>	<b>(22.6)</b>	<b>(25.0)</b>	<b>(23.6)</b>	<b>(12.5)</b>	<b>(100.0)</b>

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 of PRH Households by district and estate between  
sampling units and overall distribution in 2007**

District*	Name of Estate	Actual Overall Households		Sampled Households	
		No.	%	No.	%
1. CENTRAL & WESTERN	Sai Wan Estate	635	0.1	29	0.1
2. EASTERN	Fung Wah Estate	440	0.1	21	0.1
	Hing Man Estate	1 969	0.3	76	0.3
	Hing Tung Estate	2 117	0.3	80	0.3
	Hing Wah (1) Estate	2 257	0.3	84	0.4**
	Hing Wah (2) Estate	3 474	0.5	129	0.5
	Hong Tung Estate	468	0.1	17	0.1
	Model Housing Estate	657	0.1	23	0.1
	Oi Tung Estate	3 085	0.5	112	0.5
	Siu Sai Wan Estate	5 983	0.9	224	0.9
	Tsui Lok Estate	315	0.0	16	0.1**
	Tsui Wan Estate	667	0.1	21	0.1
	Wan Tsui Estate	3 582	0.6	130	0.5**
	Yiu Tung Estate	5 195	0.8	189	0.8
	Yue Wan Estate	2 143	0.3	80	0.3
3. SOUTHERN	Ap Lei Chau Estate	4 283	0.7	157	0.7
	Lei Tung Estate	2 949	0.5	108	0.5
	Ma Hang Estate	897	0.1	32	0.1
	Shek Pai Wan Estate	3 532	0.5	130	0.5
	Tin Wan Estate	3 066	0.5	114	0.5
	Wah Fu (1) Estate	4 748	0.7	175	0.7
	Wah Fu (2) Estate	4 284	0.7	161	0.7
	Wah Kwai Estate	1 222	0.2	44	0.2
	Wong Chuk Hang Estate***	918	0.1	33	0.1
4. KOWLOON CITY	Ho Man Tin Estate	4 677	0.7	171	0.7
	Hung Hom Estate	824	0.1	29	0.1
	Ma Tau Wai Estate	2 049	0.3	74	0.3
	Oi Man Estate	6 227	1.0	229	1.0
	Sheung Lok Estate	333	0.1	17	0.1
5. KWUN TONG	Choi Ha Estate	699	0.1	22	0.1
	Hing Tin Estate	575	0.1	19	0.1
	Kai Tin Estate	2 273	0.4	87	0.4
	Kai Yip Estate	4 173	0.6	155	0.6
	Ko Cheung Court	1 792	0.3	66	0.3
	Ko Yee Estate	1 181	0.2	45	0.2
	Kwong Tin Estate	2 224	0.3	82	0.3
	Lei Yue Mun Estate	2 627	0.4	101	0.4
	Lok Wah North Estate	2 932	0.5	113	0.5
	Lok Wah South Estate	6 791	1.1	250	1.0**
	Lower Ngau Tau Kok (2) Estate	3 494	0.5	129	0.5
	On Tin Estate	718	0.1	27	0.1
	Ping Shek Estate	4 470	0.7	164	0.7
	Ping Tin Estate	5 458	0.8	204	0.9**
	Po Tat Estate	7 388	1.1	273	1.1
	Sau Mau Ping Estate	11 982	1.9	446	1.9
	Shun Lee Estate	4 347	0.7	160	0.7
Shun On Estate	2 905	0.4	104	0.4	

District*	Name of Estate	Actual Overall Households		Sampled Households	
		No.	%	No.	%
	Shun Tin Estate	6 823	1.1	251	1.0**
	Tak Tin Estate	2 319	0.4	84	0.4
	Tsui Ping North Estate	3 618	0.6	135	0.6
	Tsui Ping South Estate	4 686	0.7	173	0.7
	Upper Ngau Tau Kok Estate	2 102	0.3	78	0.3
	Wan Hon Estate	978	0.2	40	0.2
	Wo Lok Estate	1 905	0.3	72	0.3
	Yau Lai Estate	2 525	0.4	99	0.4
	Yau Tong Estate	3 542	0.5	125	0.5
	6. SHAM SHUI PO	Chak On Estate	1 789	0.3	65
Fortune Estate		2 097	0.3	75	0.3
Fu Cheong Estate		5 894	0.9	220	0.9
Hoi Lai Estate		4 837	0.7	184	0.8**
Lai Kok Estate		2 809	0.4	104	0.4
Lai On Estate		1 374	0.2	54	0.2
Lei Cheng Uk Estate		1 529	0.2	52	0.2
Nam Cheong Estate		843	0.1	34	0.1
Nam Shan Estate		2 616	0.4	96	0.4
Pak Tin Estate		8 311	1.3	311	1.3
Shek Kip Mei Estate		4 726	0.7	169	0.7
So Uk Estate		4 476	0.7	163	0.7
Tai Hang Tung Estate		1 973	0.3	77	0.3
Un Chau Estate		2 692	0.4	100	0.4
7. WONG TAI SIN		Choi Fai Estate	1 296	0.2	46
	Choi Hung Estate	7 313	1.1	272	1.1
	Choi Wan (1) Estate	5 695	0.9	213	0.9
	Choi Wan (2) Estate	2 881	0.4	110	0.5**
	Chuk Yuen North Estate	1 593	0.2	65	0.3**
	Chuk Yuen South Estate	5 976	0.9	221	0.9
	Fu Shan Estate	1 559	0.2	56	0.2
	Fung Tak Estate	1 523	0.2	54	0.2
	Lok Fu Estate	3 583	0.6	132	0.6
	Lower Wong Tai Sin (1) Estate	1 940	0.3	70	0.3
	Lower Wong Tai Sin (2) Estate	6 539	1.0	245	1.0
	Mei Tung Estate	635	0.1	27	0.1
	Tsz Ching Estate	7 992	1.2	297	1.2
	Tsz Hong Estate	1 995	0.3	76	0.3
	Tsz Lok Estate	6 125	0.9	225	0.9
	Tsz Man Estate	1 943	0.3	71	0.3
	Tung Tau (1) Estate	871	0.1	35	0.1
	Tung Tau (2) Estate	2 762	0.4	104	0.4
	Upper Wong Tai Sin Estate	4 109	0.6	155	0.6
	Wang Tau Hom Estate	5 747	0.9	214	0.9
8. YAU TSIM MONG	Hoi Fu Court	2 745	0.4	99	0.4
9. ISLANDS	Cheung Kwai Estate	457	0.1	18	0.1
	Fu Tung Estate	1 637	0.3	49	0.2**
	Kam Peng Estate	245	0.0	14	0.1**
	Lung Tin Estate	355	0.1	14	0.1
	Nga Ning Court	418	0.1	16	0.1
	Ngan Wan Estate	395	0.1	18	0.1
	Yat Tung (1) Estate	5 355	0.8	199	0.8
	Yat Tung (2) Estate	5 532	0.9	206	0.9
10. KWAI TSING	Cheung Ching Estate	4 722	0.7	180	0.8**

District*	Name of Estate	Actual Overall Households		Sampled Households		
		No.	%	No.	%	
	<b>Cheung Fat Estate</b>	1 495	0.2	48	0.2	
	<b>Cheung Hang Estate</b>	4 346	0.7	165	0.7	
	<b>Cheung Hong Estate</b>	7 999	1.2	300	1.3**	
	<b>Cheung On Estate</b>	1 602	0.2	59	0.2	
	<b>Cheung Wang Estate</b>	4 244	0.7	160	0.7	
	<b>Easeful Court</b>	508	0.1	20	0.1	
	<b>High Prosperity Terrace</b>	757	0.1	30	0.1	
	<b>Kwai Chung Estate</b>	11 562	1.8	429	1.8	
	<b>Kwai Fong Estate</b>	6 228	1.0	236	1.0	
	<b>Kwai Hing Estate</b>	376	0.1	14	0.1	
	<b>Kwai Shing East Estate</b>	6 174	1.0	228	1.0	
	<b>Kwai Shing West Estate</b>	5 001	0.8	183	0.8	
	<b>Lai King Estate</b>	4 127	0.6	153	0.6	
	<b>Lai Yiu Estate</b>	2 717	0.4	101	0.4	
	<b>On Yam Estate</b>	5 211	0.8	197	0.8	
	<b>Shek Lei (1) Estate</b>	4 672	0.7	176	0.7	
	<b>Shek Lei (2) Estate</b>	6 300	1.0	233	1.0	
	<b>Shek Yam East Estate</b>	2 354	0.4	87	0.4	
	<b>Shek Yam Estate</b>	2 628	0.4	104	0.4	
	<b>Tai Wo Hau Estate</b>	7 386	1.1	275	1.1	
	<b>Tsing Yi Estate</b>	882	0.1	33	0.1	
	<b>Wah Lai Estate</b>	1 422	0.2	49	0.2	
	<b>11. NORTH</b>	<b>Cheung Wah Estate</b>	2 411	0.4	87	0.4
		<b>Ching Ho Estate</b>	2 313	0.4	81	0.3**
<b>Choi Yuen Estate</b>		4 986	0.8	176	0.7**	
<b>Ka Fuk Estate</b>		1 984	0.3	72	0.3	
<b>Tai Ping Estate</b>		412	0.1	14	0.1	
<b>Tin Ping Estate</b>		1 486	0.2	54	0.2	
<b>Wah Ming Estate</b>		2 085	0.3	79	0.3	
<b>Wah Sum Estate</b>		1 466	0.2	54	0.2	
<b>Yung Shing Court</b>		1 699	0.3	65	0.3	
<b>12. SAI KUNG</b>		<b>Choi Ming Court</b>	2 781	0.4	106	0.4
	<b>Hau Tak Estate</b>	4 161	0.6	156	0.7**	
	<b>Kin Ming Estate</b>	6 994	1.1	258	1.1	
	<b>King Lam Estate</b>	1 890	0.3	64	0.3	
	<b>Ming Tak Estate</b>	1 511	0.2	59	0.2	
	<b>Po Lam Estate</b>	2 246	0.3	84	0.4**	
	<b>Sheung Tak Estate</b>	5 489	0.8	209	0.9**	
	<b>Tsui Lam Estate</b>	2 067	0.3	77	0.3	
<b>13. SHATIN</b>	<b>Chun Shek Estate</b>	2 110	0.3	80	0.3	
	<b>Chung On Estate</b>	2 772	0.4	104	0.4	
	<b>Heng On Estate</b>	1 204	0.2	45	0.2	
	<b>Hin Keng Estate</b>	974	0.2	33	0.1**	
	<b>Hin Yiu Estate</b>	791	0.1	28	0.1	
	<b>Kwong Yuen Estate</b>	1 630	0.3	60	0.3	
	<b>Lee On Estate</b>	3 596	0.6	134	0.6	
	<b>Lek Yuen Estate</b>	3 160	0.5	114	0.5	
	<b>Lung Hang Estate</b>	4 291	0.7	163	0.7	
	<b>Mei Lam Estate</b>	4 020	0.6	149	0.6	
	<b>Mei Tin Estate</b>	3 116	0.5	110	0.5	
	<b>Pok Hong Estate</b>	1 425	0.2	53	0.2	
	<b>Sha Kok Estate</b>	6 169	1.0	229	1.0	
	<b>Sun Chui Estate</b>	6 557	1.0	244	1.0	
	<b>Sun Tin Wai Estate</b>	3 330	0.5	120	0.5	
<b>Wo Che Estate</b>	6 199	1.0	233	1.0		

District*	Name of Estate	Actual Overall Households		Sampled Households		
		No.	%	No.	%	
14. TAI PO	Yiu On Estate	1 336	0.2	54	0.2	
	Fu Heng Estate	2 145	0.3	81	0.3	
	Fu Shin Estate	2 816	0.4	105	0.4	
	Kwong Fuk Estate	6 143	1.0	227	0.9**	
	Tai Wo Estate	2 412	0.4	87	0.4	
	Tai Yuen Estate	4 685	0.7	176	0.7	
	Wan Tau Tong Estate	802	0.1	30	0.1	
15. TSUEN WAN	Cheung Shan Estate	1 574	0.2	60	0.3**	
	Fuk Loi Estate	3 102	0.5	116	0.5	
	Lei Muk Shue (1) Estate	2 278	0.4	81	0.3**	
	Lei Muk Shue (2) Estate	4 107	0.6	157	0.7**	
	Lei Muk Shue Estate	3 877	0.6	140	0.6	
	Shek Wai Kok Estate	6 240	1.0	225	0.9**	
16. TUEN MUN	Butterfly Estate	5 217	0.8	195	0.8	
	Fu Tai Estate	5 016	0.8	195	0.8	
	Kin Sang Estate	673	0.1	29	0.1	
	Leung King Estate	3 379	0.5	126	0.5	
	On Ting Estate	4 922	0.8	181	0.8	
	Po Tin Estate	4 977	0.8	184	0.8	
	Sam Shing Estate	1 705	0.3	62	0.3	
	Shan King Estate	6 494	1.0	245	1.0	
	Tai Hing Estate	8 155	1.3	300	1.3	
	Tin King Estate	1 159	0.2	43	0.2	
	Wu King Estate	4 273	0.7	154	0.6**	
	Yau Oi Estate	8 718	1.3	323	1.3	
	17. YUEN LONG	Grandeur Terrace	4 082	0.6	156	0.7**
		Long Ping Estate	5 506	0.9	207	0.9
Shui Pin Wai Estate		2 340	0.4	88	0.4	
Tin Chak Estate		3 982	0.6	148	0.6	
Tin Heng Estate		5 724	0.9	207	0.9	
Tin Shui (1) Estate		4 561	0.7	169	0.7	
Tin Shui (2) Estate		3 145	0.5	120	0.5	
Tin Tsz Estate		3 288	0.5	121	0.5	
Tin Wah Estate		3 613	0.6	136	0.6	
Tin Yan Estate		5 241	0.8	193	0.8	
Tin Yat Estate		3 313	0.5	122	0.5	
Tin Yiu (1) Estate		4 574	0.7	177	0.7	
Tin Yiu (2) Estate		3 793	0.6	139	0.6	
Tin Yuet Estate		4 115	0.6	153	0.6	
<b>OVERALL</b>		646 224	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.

\*\*\* Wong Chuk Hang Estate in Southern District (p.1) was demolished in September 2007 and hence not included in Annex B2.

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

## Annex C2

**Comparison of distribution of Households by district and estate between  
sampling units and overall distribution in 2009**

District *	Name of Estate	Actual Households		Sampled Households	
		No.	%	No.	%
1. CENTRAL & WESTERN	Sai Wan Estate	621	0.1	20	0.1
2. EASTERN	Fung Wah Estate	415	0.1	17	0.1
	Hing Man Estate	1 939	0.3	69	0.3
	Hing Tung Estate	2 106	0.3	74	0.3
	Hing Wah (1) Estate	2 249	0.3	87	0.4**
	Hing Wah (2) Estate	3 444	0.5	116	0.5
	Hong Tung Estate	465	0.1	13	0.1
	Model Housing Estate	652	0.1	19	0.1
	Oi Tung Estate	3 734	0.6	133	0.6
	Siu Sai Wan Estate	5 969	0.9	216	0.9
	Tsui Lok Estate	318	0.0	13	0.1**
	Tsui Wan Estate	652	0.1	29	0.1
	Wan Tsui Estate	3 560	0.5	126	0.5
	Yiu Tung Estate	5 145	0.8	186	0.8
	Yue Wan Estate	2 119	0.3	82	0.3
3. SOUTHERN	Ap Lei Chau Estate	4 251	0.6	149	0.6
	Lei Tung Estate	2 896	0.4	97	0.4
	Ma Hang Estate	892	0.1	33	0.1
	Shek Pai Wan Estate	5 135	0.8	183	0.8
	Tin Wan Estate	3 062	0.5	111	0.5
	Wah Fu (1) Estate	4 685	0.7	172	0.7
	Wah Fu (2) Estate	4 283	0.6	152	0.6
	Wah Kwai Estate	1 179	0.2	42	0.2
	Wong Chuk Hang Estate	N.A.	N.A.	N.A.	N.A.
	4. KOWLOON CITY	Ho Man Tin Estate	4 672	0.7	166
Hung Hom Estate		824	0.1	33	0.1
Ma Tau Wai Estate		2 053	0.3	77	0.3
Oi Man Estate		6 225	0.9	223	0.9
Sheung Lok Estate		340	0.1	11	0.0**
5. KWUN TONG	Choi Ha Estate	654	0.1	24	0.1
	Choi Ying Estate***	3 844	0.6	138	0.6
	Hing Tin Estate	548	0.1	21	0.1
	Kai Tin Estate	2 261	0.3	80	0.3
	Kai Yip Estate	4 148	0.6	150	0.6
	Ko Cheung Court	1 792	0.3	63	0.3
	Ko Yee Estate	1 160	0.2	41	0.2
	Kwong Tin Estate	2 222	0.3	83	0.3
	Lam Tin Estate***	741	0.1	23	0.1
	Lei Yue Mun Estate	3 128	0.5	115	0.5
	Lok Wah North Estate	2 930	0.4	107	0.4
	Lok Wah South Estate	6 723	1.0	244	1.0
	Lower Ngau Tau Kok (2) Estate	1 980	0.3	70	0.3
	On Tin Estate	718	0.1	25	0.1
	Ping Shek Estate	4 454	0.7	159	0.7
	Ping Tin Estate	5 412	0.8	194	0.8
	Po Tat Estate	7 357	1.1	266	1.1
	Sau Mau Ping Estate	11 984	1.8	434	1.8
	Sau Mau Ping South Estate***	893	0.1	32	0.1



District *	Name of Estate	Actual Households		Sampled Households		
		No.	%	No.	%	
	Shun Lee Estate	4 356	0.7	152	0.6**	
	Shun On Estate	2 907	0.4	103	0.4	
	Shun Tin Estate	6 785	1.0	246	1.0	
	Tak Tin Estate	2 248	0.3	79	0.3	
	Tsui Ping North Estate	3 524	0.5	126	0.5	
	Tsui Ping South Estate	4 640	0.7	168	0.7	
	Upper Ngau Tau Kok Estate	3 999	0.6	144	0.6	
	Wan Hon Estate	971	0.1	34	0.1	
	Wo Lok Estate	1 905	0.3	69	0.3	
	Yau Lai Estate	4 196	0.6	147	0.6	
	Yau Tong Estate	3 543	0.5	134	0.6**	
	6. SHAM SHUI PO	Chak On Estate	1 775	0.3	67	0.3
		Fortune Estate	2 074	0.3	75	0.3
		Fu Cheong Estate	5 904	0.9	212	0.9
Hoi Lai Estate		4 861	0.7	172	0.7	
Lai Kok Estate		2 810	0.4	104	0.4	
Lai On Estate		1 360	0.2	52	0.2	
Lei Cheng Uk Estate		1 480	0.2	58	0.2	
Nam Cheong Estate		813	0.1	28	0.1	
Nam Shan Estate		2 615	0.4	93	0.4	
Pak Tin Estate		8 348	1.3	299	1.2**	
Shek Kip Mei Estate		4 836	0.7	176	0.7	
So Uk Estate		1 250	0.2	44	0.2	
Tai Hang Tung Estate		1 961	0.3	72	0.3	
Un Chau Estate		5 773	0.9	209	0.9	
7. WONG TAI SIN		Choi Fai Estate	1 290	0.2	48	0.2
		Choi Hung Estate	7 334	1.1	267	1.1
	Choi Wan (1) Estate	5 709	0.9	207	0.9	
	Choi Wan (2) Estate	2 864	0.4	103	0.4	
	Chuk Yuen North Estate	1 525	0.2	57	0.2	
	Chuk Yuen South Estate	5 904	0.9	209	0.9	
	Fu Shan Estate	1 536	0.2	59	0.2	
	Fung Tak Estate	1 468	0.2	56	0.2	
	Lok Fu Estate	3 575	0.5	120	0.5	
	Lower Wong Tai Sin (1) Estate	1 880	0.3	66	0.3	
	Lower Wong Tai Sin (2) Estate	6 526	1.0	235	1.0	
	Mei Tung Estate	633	0.1	20	0.1	
	Tsz Ching Estate	7 958	1.2	290	1.2	
	Tsz Hong Estate	1 992	0.3	69	0.3	
	Tsz Lok Estate	6 126	0.9	222	0.9	
	Tsz Man Estate	1 939	0.3	70	0.3	
	Tung Tau (1) Estate	820	0.1	27	0.1	
	Tung Tau (2) Estate	2 628	0.4	94	0.4	
	Upper Wong Tai Sin Estate	4 130	0.6	148	0.6	
	Wang Tau Hom Estate	5 739	0.9	208	0.9	
8. YAU TSIM MONG	Hoi Fu Court	2 761	0.4	100	0.4	
9. ISLANDS	Cheung Kwai Estate	453	0.1	18	0.1	
	Fu Tung Estate	1 642	0.2	60	0.3**	
	Kam Peng Estate	245	0.0	14	0.1**	
	Lung Tin Estate	348	0.1	16	0.1	
	Nga Ning Court	417	0.1	16	0.1	
	Ngan Wan Estate	409	0.1	16	0.1	
	Yat Tung (1) Estate	5 480	0.8	192	0.8	
Yat Tung (2) Estate	6 068	0.9	220	0.9		

District *	Name of Estate	Actual Households		Sampled Households		
		No.	%	No.	%	
10. KWAI TSING	Cheung Ching Estate	4 758	0.7	166	0.7	
	Cheung Fat Estate	1 435	0.2	51	0.2	
	Cheung Hang Estate	4 315	0.6	151	0.6	
	Cheung Hong Estate	8 072	1.2	294	1.2	
	Cheung On Estate	1 533	0.2	55	0.2	
	Cheung Wang Estate	4 241	0.6	148	0.6	
	Easeful Court	508	0.1	21	0.1	
	High Prosperity Terrace	758	0.1	26	0.1	
	Kwai Chung Estate	13 298	2.0	478	2.0	
	Kwai Fong Estate	6 223	0.9	224	0.9	
	Kwai Hing Estate	377	0.1	14	0.1	
	Kwai Shing East Estate	6 157	0.9	217	0.9	
	Kwai Shing West Estate	5 083	0.8	180	0.8	
	Lai King Estate	4 113	0.6	144	0.6	
	Lai Yiu Estate	2 756	0.4	100	0.4	
	On Yam Estate	5 222	0.8	189	0.8	
	Shek Lei (1) Estate	4 741	0.7	169	0.7	
	Shek Lei (2) Estate	7 313	1.1	264	1.1	
	Shek Yam East Estate	2 361	0.4	80	0.3**	
	Shek Yam Estate	2 623	0.4	95	0.4	
	Tai Wo Hau Estate	7 365	1.1	264	1.1	
	Tsing Yi Estate	862	0.1	33	0.1	
	Wah Lai Estate	1 425	0.2	53	0.2	
	11. NORTH	Cheung Wah Estate	2 311	0.3	80	0.3
Ching Ho Estate		6 273	0.9	230	1.0**	
Choi Yuen Estate		4 895	0.7	176	0.7	
Ka Fuk Estate		1 964	0.3	69	0.3	
Tai Ping Estate		391	0.1	15	0.1	
Tin Ping Estate		1 395	0.2	45	0.2	
Wah Ming Estate		1 992	0.3	68	0.3	
Wah Sum Estate		1 465	0.2	56	0.2	
Yung Shing Court		1 690	0.3	59	0.2**	
12. SAI KUNG		Choi Ming Court	2 774	0.4	99	0.4
		Hau Tak Estate	4 152	0.6	150	0.6
	Kin Ming Estate	6 975	1.0	249	1.0	
	King Lam Estate	1 810	0.3	68	0.3	
	Ming Tak Estate	1 502	0.2	53	0.2	
	Po Lam Estate	2 199	0.3	78	0.3	
	Sheung Tak Estate	5 480	0.8	195	0.8	
	Tsui Lam Estate	1 876	0.3	64	0.3	
13. SHATIN	Chun Shek Estate	2 096	0.3	70	0.3	
	Chung On Estate	2 764	0.4	99	0.4	
	Heng On Estate	1 176	0.2	48	0.2	
	Hin Keng Estate	929	0.1	31	0.1	
	Hin Yiu Estate	789	0.1	37	0.2**	
	Kwong Yuen Estate	1 598	0.2	56	0.2	
	Lee On Estate	3 587	0.5	131	0.5	
	Lek Yuen Estate	3 158	0.5	110	0.5	
	Lung Hang Estate	4 303	0.6	159	0.7**	
	Mei Lam Estate	4 037	0.6	148	0.6	
	Mei Tin Estate	5 434	0.8	195	0.8	
	Pok Hong Estate	1 359	0.2	51	0.2	
	Sha Kok Estate	6 155	0.9	228	1.0**	
	Shek Mun Estate***	366	0.1	11	0.0**	
	Sun Chui Estate	6 541	1.0	237	1.0	
Sun Tin Wai Estate	3 348	0.5	123	0.5		

District *	Name of Estate	Actual Households		Sampled Households		
		No.	%	No.	%	
14. TAI PO	Wo Che Estate	6 190	0.9	221	0.9	
	Yiu On Estate	1 291	0.2	47	0.2	
	Fu Heng Estate	2 112	0.3	78	0.3	
	Fu Shin Estate	2 703	0.4	94	0.4	
	Kwong Fuk Estate	6 129	0.9	220	0.9	
	Tai Wo Estate	2 370	0.4	86	0.4	
	Tai Yuen Estate	4 663	0.7	165	0.7	
	Wan Tau Tong Estate	802	0.1	30	0.1	
15. TSUEN WAN	Cheung Shan Estate	1 584	0.2	58	0.2	
	Fuk Loi Estate	3 083	0.5	108	0.5	
	Lei Muk Shue (1) Estate	2 286	0.3	76	0.3	
	Lei Muk Shue (2) Estate	4 209	0.6	153	0.6	
	Lei Muk Shue Estate	3 866	0.6	139	0.6	
	Shek Wai Kok Estate	6 267	0.9	229	1.0**	
16. TUEN MUN	Butterfly Estate	5 226	0.8	193	0.8	
	Fu Tai Estate	5 010	0.8	178	0.7**	
	Kin Sang Estate	662	0.1	25	0.1	
	Leung King Estate	3 322	0.5	122	0.5	
	On Ting Estate	4 933	0.7	180	0.8**	
	Po Tin Estate	6 199	0.9	224	0.9	
	Sam Shing Estate	1 722	0.3	58	0.2**	
	Shan King Estate	6 555	1.0	232	1.0	
	Tai Hing Estate	8 159	1.2	292	1.2	
	Tin King Estate	1 109	0.2	40	0.2	
	Wu King Estate	4 291	0.6	158	0.7**	
	Yau Oi Estate	8 851	1.3	317	1.3	
	17. YUEN LONG	Grandeur Terrace	4 065	0.6	143	0.6
		Long Ping Estate	4 788	0.7	178	0.7
Shui Pin Wai Estate		2 327	0.3	90	0.4**	
Tin Chak Estate		3 938	0.6	142	0.6	
Tin Ching Estate***		3 568	0.5	124	0.5	
Tin Heng Estate		5 705	0.9	205	0.9	
Tin Shui (1) Estate		4 534	0.7	164	0.7	
Tin Shui (2) Estate		3 139	0.5	111	0.5	
Tin Tsz Estate		3 271	0.5	118	0.5	
Tin Wah Estate		3 595	0.5	130	0.5	
Tin Yan Estate		5 295	0.8	189	0.8	
Tin Yat Estate		3 295	0.5	120	0.5	
Tin Yiu (1) Estate		4 547	0.7	163	0.7	
Tin Yiu (2) Estate		3 780	0.6	142	0.6	
Tin Yuet Estate		4 068	0.6	146	0.6	
<b>OVERALL</b>		666 993	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 completed after 2007 and hence not included in Annex B1.

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

## Annex D1

### Distribution of Households excluded from the Computation of Income Index in the First Period

Household Size	No. of sampling units (a)	Well-off tenants (b)	Other households with high outlying income (c)	CSSA households (d)	Invalid sampling units <sup>(1)</sup> (e)	Sampling units for computation of the income index (f) =(a) –[(b)+(c) + (d)+(e)]	No. of households and weighting after grossing up <sup>(2)</sup> (g)
<b>1P</b>	3 731	50	166	1 700	84	1 731	47 701 (10.620%)
<b>2P</b>	5 050	124	172	1 487	35	3 232	87 334 (19.443%)
<b>3P</b>	5 894	274	77	1 013	35	4 495	120 364 (26.796%)
<b>4P</b>	5 930	286	72	821	32	4 719	126 248 (28.106%)
<b>5P or above</b>	3 395	176	26	619	16	2 558	67 533 (15.035%)
<b>Overall</b>	24 000	910	513	5 640	202	16 735	449 180 (100%)

(1) Include deceased tenants and those who terminated their tenancies

(2) The monthly household size distribution of PRH households, as well as the proportion of well-off tenants, other households with high outlying income, and CSSA households, vary from month to month. To reflect this phenomenon in the computation of Income Index, the weighting by household size should not be computed by simply converting the figures in column (f) into percentages.

Instead, monthly estimates of column (g) for each household size are first derived by discounting the total number of households in each household size with the corresponding percentages of households in categories (b) to (e) identified in the sample. The monthly figures for the 12 months are then added up and divided by 12 to compute the “monthly average grossed up figure” for each household size. The results are shown in column (g).

The overall total (449 180) represents the average number of PRH households in the 12-month period less the four categories of households excluded from the computation. The proportion of different household sizes in column (g) then form the resulting set of weights (e.g. the weighting for 1P households in 2007 is  $47\,701 / 449\,180 \times 100\% = 10.620\%$ , and so on). This set of weights (i.e. the bracketed percentages in column (g)) is then used for computing the overall mean monthly household income for the first period.

**Distribution of Households excluded from  
the Computation of Income Index in the Second Period**

<b>Household Size</b>	<b>No. of sampling units (a)</b>	<b>Well-off tenants (b)</b>	<b>Other households with high outlying income (c)</b>	<b>CSSA households (d)</b>	<b>Invalid sampling units<sup>(1)</sup> (e)</b>	<b>Sampling units for computation of the income index (f) =(a) –[(b)+(c) + (d)+(e)]</b>	<b>No. of households and weighting after grossing up<sup>(2)</sup> (g)</b>
<b>1P</b>	3 923	46	182	1 782	71	1 842	51 919 (11.061%)
<b>2P</b>	5 423	146	217	1 454	26	3 580	98 886 (21.067%)
<b>3P</b>	5 988	304	55	959	25	4 645	128 365 (27.347%)
<b>4P</b>	5 672	292	65	708	20	4 587	126 384 (26.925%)
<b>5P or above</b>	2 994	151	26	464	13	2 340	63 838 (13.600%)
<b>Overall</b>	24 000	939	545	5 367	155	16 994	469 393 (100%)

(1) Include deceased tenants and those who terminated their tenancies

(2) Please see footnote (2) of Annex D1 on grossing up. The overall total (469 393) represents the average number of PRH households in the 12-month period less the four categories of households excluded from the computation. The proportion of different household sizes in column (g) then form the resulting set of weights for the second period (e.g. the weighting for 1P households in 2009 is  $51\,919 / 469\,393 \times 100\% = 11.061\%$ , and so on).

As stipulated in Section 16A(8), “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 the set of weights (i.e. the bracketed percentages) in column (g) above is not used for computing the adjusted overall mean monthly household income in this rent review exercise but will be used in the next rent review exercise.

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

In accordance with Section 16A(7)(b) of the Housing (Amendment) Ordinance 2007, the Commissioner for Census and Statistics shall compute the income index for the purpose of the rent review. Data for computing the income index is obtained from the “Survey on Household Income of Public Rental Housing Tenants” (the Income Survey) conducted by the Housing Authority (HA).

**Quality checks on the income data**

2. The Census and Statistics Department (C&SD) has implemented a range 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. 2007) and the second period (i.e. 2009) of the First 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 2007 and 2009. The survey data can be used to compute the income index for PRH tenants for the First Rent Review.

**Computation of income index for the First Rent Review**

5. In accordance with Section 16A of the Housing (Amendment) Ordinance 2007, C&SD has computed for the First Rent Review the mean monthly household income for the first period (i.e. 2007) and the mean monthly household income for the second period (i.e. 2009) computed with reference to the distribution of households by size in 2007 using the data of the Income Surveys for the respective years. The results are presented in Tables 2 and 3 respectively. The income

index for PRH tenants in both 2007 and 2009 is also computed and presented in the tables. For ease of reference, the mean monthly household income for 2009 computed with reference to the distribution of households by size in 2007 will be referred to as the “adjusted mean monthly household income for 2009” in Table 3.

Census and Statistics Department

8 July 2010

**Quality Checks 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"><li>● The samples of PRH households selected in 2007 and 2009 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.</li><li>● Statistical tests were conducted and the results showed that the distribution of the samples resembled that of the tenancy records, and hence the samples of the Income Survey in both 2007 and 2009 were representative.</li></ul>	Conclusion: Check in order Remarks: <ul style="list-style-type: none"><li>● Distribution of the sample was statistically comparable to that of tenancy records.</li></ul>
(2)	Correctness of declared income data against documentary proof	<ul style="list-style-type: none"><li>● A 5% sample of households who had declared income were randomly selected by C&amp;SD for the check.</li><li>● The HD then requested these households to submit income documentary proof to support that the information declared was true and correct.</li><li>● To verify whether the checking by HD was carried out properly, C&amp;SD randomly selected those cases checked by HD to see if the checking was in order.</li></ul>	Conclusion: Check in order Remarks: <ul style="list-style-type: none"><li>● No tenants knowingly making false statements in the Income Survey.</li><li>● The differences between the declared income data and the data obtained from documentary proof, which had been suitably rectified before their inclusion in the computation of income index, were of very small and similar magnitudes in 2007 and 2009, hence had virtually no impact in the computation of income index.</li></ul>



No.	Check	Description	Checking Results
			<ul style="list-style-type: none"> <li>● No irregularities on the checking performed by HD were found.</li> </ul>
(3)	Accuracy of data input by HD	<ul style="list-style-type: none"> <li>● A double data entry approach, i.e. the same set of data was input into the computer by two staff members separately, was implemented. The two sets of data were then compared and matched with each other for verification to avoid manual input errors.</li> <li>● A 2% sample was randomly selected by C&amp;SD for checking the accuracy of data input performed by HD.</li> </ul>	<p>Conclusion: Check in order</p> <p>Remarks:</p> <ul style="list-style-type: none"> <li>● A few data input errors had been spotted, which had been suitably rectified before their inclusion in the computation of income index, but the magnitude was negligible and they had virtually no impact in the computation of the income index.</li> </ul>
(4)	Evaluation of data validation conducted by HD	<ul style="list-style-type: none"> <li>● 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.</li> <li>● C&amp;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.</li> </ul>	<p>Conclusion: Check in order</p> <p>Remarks:</p> <ul style="list-style-type: none"> <li>● 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&amp;SD.</li> </ul>

**Table 2 to Annex E**

**Mean Monthly Household Income of PRH Tenants  
in the First Period of the First Rent Review <sup>[Note]</sup>**

<b>Household size</b>	<b>Mean monthly household income</b>	<b>% Distribution of household size (weights)</b>
1-person	\$3,883	10.620%
2-person	\$7,948	19.443%
3-person	\$13,340	26.796%
4-person	\$16,568	28.106%
5-person or above	\$20,245	15.035%
		<b>100.0%</b>

**Overall mean monthly household income                      \$13,233**

Computed as follows:

$$\begin{aligned} & \$3,883 \times 10.620\% + \$7,948 \times 19.443\% + \$13,340 \times 26.796\% + \$16,568 \times 28.106\% + \\ & \$20,245 \times 15.035\% \\ = & \mathbf{\$13,233} \end{aligned}$$

**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 by the default number of decimal places in the computer system.**

**Table 3 to Annex E**

**Adjusted Mean Monthly Household Income of PRH Tenants  
in the Second Period of the First Rent Review <sup>[Notes]</sup>**

<b>Household size</b>	<b>Mean monthly household income</b>	<b>% Distribution of household size (weights of the first period)</b>
1-person	\$4,258	10.620%
2-person	\$8,521	19.443%
3-person	\$13,876	26.796%
4-person	\$17,265	28.106%
5-person or above	\$21,101	15.035%
		<b>100.0%</b>

**Overall adjusted mean monthly household income** **\$13,852**

Computed as follows:

$$\begin{aligned} & \$4,258 \times 10.620\% + \$8,521 \times 19.443\% + \$13,876 \times 26.796\% + \$17,265 \times \\ & 28.106\% + \$21,101 \times 15.035\% \\ = & \mathbf{\$13,852} \end{aligned}$$

**Index for the second period**

$$\begin{aligned} = & \$13,852 / \$13,233 \times 100 \\ = & \mathbf{104.68} \end{aligned}$$

**Notes:**

**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 by the default number of decimal places in the computer system.**

**In accordance with Section 16A of the Housing (Amendment) Ordinance 2007, the HA shall increase or reduce the PRH rent by the rate of change of the income index if the income index for the second period is higher or lower than that of the first period by more than 0.1%. The computation on the rate of change is based on the default number of decimal places in the computer system. In order to show with certainty whether the rate of change is more than 0.1%, the income index is rounded to the nearest two decimal places.**

### The Rent Assistance Scheme

The 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)
<b>Rent Reduction</b>	<b>50%</b>	<b>25%</b>	<b>50%</b>
<b>Income</b>	(a) <50% WLIL or (b) RIR>25% or (c) 50% - <70% WLIL and RIR>15%	(a) 50% - <70% WLIL or (b) RIR >18.5% - 25%	(a) <70% WLIL or (b) RIR>18.5%

WLIL = Waiting List Income Limits

RIR = Rent-to-Income Ratio