

Commission on Poverty

**Study on the Effect of Taxation and Social Benefits
on Household Income Distribution**

Purpose

This paper provides the background, an overview of the framework of analysis, as well as the highlights of the results of the above study. The technical paper on the study is at the Appendix.

Background

2. At the meeting of the Commission on Poverty (CoP) in January 2006, Members noted that a range of public policies were in place to alleviate the burden of low-income families, viz. housing, salary tax system, education, medical services and other social services¹. Nevertheless, Members noted that how these policies affected the low-income families could not be reflected in the available statistics. In order to improve the understanding of low-income families and to better reflect the economic well-being of different income groups, the meeting agreed to conduct a study to take into account the impacts of Government's transfers and benefits on household income distribution.

3. To this end, a study on the effect of taxation and social benefits on household income distribution was conducted by the Census and Statistics Department based on the data collected from the General Household Survey (GHS) in 2005. References have also been made to similar studies in other countries (including the United States of America, the United Kingdom, Australia, Canada and Singapore), where the concept of post-transfer income (after taking into account taxation and social benefits provided by the Government) in addition to gross income are employed in studying the economic well-being of households.

¹ For more details, please refer to CoP Paper 1/2006 "Policies in Assisting Low-income Employees" available at the CoP website.

Framework of Analysis

4. In analyzing the effect of taxation and social benefits on household income distribution, all households in Hong Kong were first divided into ten decile groups according to their household income obtained from work and capital gain / investment (e.g. rental income, dividend and interest). Adjustments in household income were then made by taking into account the effect of:

- (a) cash transfer received from the Government (e.g. Comprehensive Social Security Assistance (CSSA) allowance), organizations (e.g. scholarship) and persons living outside the households (e.g. contributions from sons / daughters living separately);
- (b) salaries tax and property tax payable to the Government; and
- (c) social benefits provided by the Government, including education, medical and housing benefits.

Highlights of Analysis

Overall Impact

5. Before adjustment (i.e. pre-transfer income), it was observed that the 10% of households with the highest income (those in the top decile group) had an average household income of around \$1,054,400 while households in the lowest decile group had no household income at all. In terms of the share of total income, households in the top decile group accounted for 39% of total income in contrast to 0% for households in the lowest decile group.

6. After adjustment, it was noted that the post-transfer income increased for all decile groups except that for the top decile group (see Figure 2 of Appendix). The average annual household income for households in the top decile group dropped from \$1,054,400 (pre-transfer income) to \$981,800 (post-transfer income). On the other hand, the corresponding income for households in the lowest decile group increased significantly from \$0 to \$96,600. The average post-transfer household income for households in the 2nd to 9th decile groups also increased, but at a declining rate. In terms of the share of total income, the share of income for the top decile group decreased from 39% to 31% while that for the lowest decile group increased from 0% to 3%.

Impact of Taxation and Social Benefits

7. The impact of taxation and social benefits is different across different income decile groups (see Table 2 of Appendix). In general, less social benefits were received as household income increased. Households in the lowest four decile groups paid 0% taxes while households in the top decile group paid 82% of the total imputed tax comprising salaries tax and property tax. The lowest two decile groups received around one-third of the imputed total selected social benefits and cash transfer, including 90% of the CSSA benefits.

Sub-group Analysis

8. Further analysis on selected groups of households with certain socio-economic characteristics was conducted, including (a) non-elderly households without pre-transfer household income (“non-elderly no-income” households); (b) elderly households; and (c) working-poor households. It was noted that the household income for these groups were adjusted upwards significantly: “non-elderly no-income” households received an average of \$123,900 in transfers, while those for elderly and working-poor households were \$70,100 and \$102,100 respectively.

Way Forward

9. The study represents the first attempt to analyse the impacts of Government’s transfers and benefits on household income distribution. It aims to enhance public understanding on the well-being of households with different incomes and socio-economic characteristics, and to facilitate a better analysis by the Government on the impact of its public policies which aim to help alleviate poverty. As in other statistical analysis, there are data limitations and the analysis was conducted based on the best available information.

10. While income from work/investment is the ultimate way to help those with working abilities to move out of poverty, cash transfer, taxation and social benefits all have a redistributive impact and assist households in the lowest decile groups to meet the requirements of daily living such as housing, education and medical needs.

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Social Statistics Branch
Census & Statistics Department

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Study on the Effect of Taxation and Social Benefits on Household Income Distribution

Introduction

The Government has been attaching great importance to preventing and alleviating poverty by implementing certain fiscal measures, that include applying progressive income tax and increasing public spending on the various social and community services.

2. For low income households, the level of original cash income alone cannot truly reflect their poverty situation as the expenditure pattern and living standard of low income households are affected additionally by the amount of public services and welfare support they are receiving. Thus, analyses of low income households should also take into account the impacts of Government's transfers and benefits on the income of these households.

3. In general, households at the top end of the income spectrum pay more taxes than the social benefits they receive, while the reverse is true for those at the lower end.

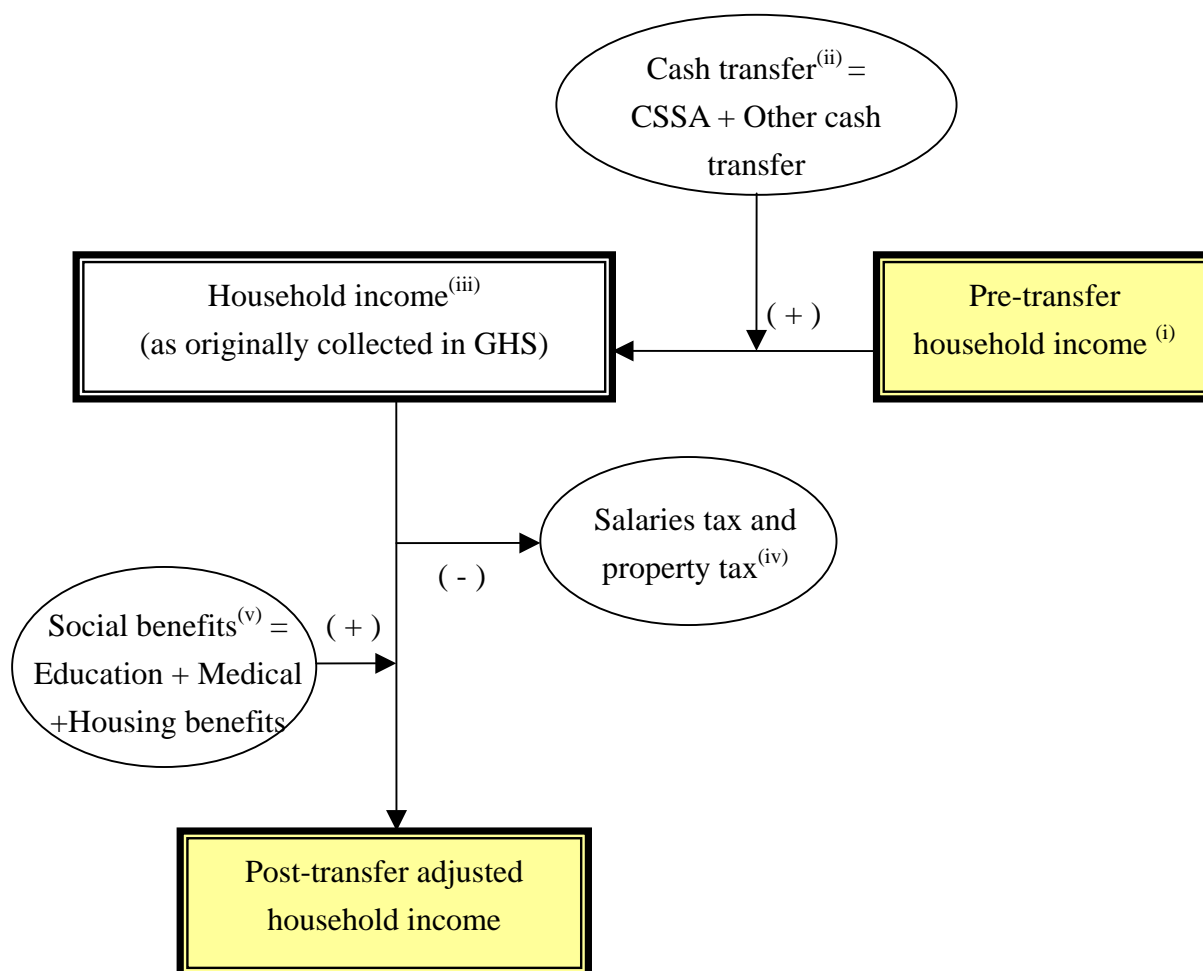
4. This study aims to examine the adjustment which should be made on household income to reflect the effects of taxation and social benefits among various groups of households in Hong Kong based on the data collected from the General Household Survey (GHS) in 2005. Figure 1 depicts the relationship of the concepts of household income in the study. A technical note on the detailed methodology used for adjusting the household income is at Annex 1.

Adjustments in Household Income

(A) Annualised Pre-transfer Household Income

5. Annualised Pre-transfer Household Income is the annualised income in cash of all members in a household before the deduction of taxes and addition of cash transfers from government / organizations / persons living outside the households (e.g. Comprehensive Social Security Assistance Scheme allowance, old age allowance, disability allowance and regular contributions from family members and relatives). It refers to income from employment, housing allowance, bonus, investment income and rental income.

Figure 1: Relationship of the Concepts of Household Income in the Study



- (i) Including only income from employment and capital gains / investment (e.g. rental income, dividend and interest).
- (ii) Including cash transfer from the Government (e.g. CSSA, old age allowance), organisations (e.g. scholarships) and persons living outside the household (e.g. contributions from sons/daughters living separately).
- (iii) Including income from employment and capital gains / investment as well as cash transfer.
- (iv) Including property tax for all household members with rental income.
- (v) Covering selected social benefits in-kind including education, housing and medical benefits.

6. To examine the income distribution in this measure, one may study the proportion of total original income received by various groups of households with different income ranges. As shown in Table 1, prior to government's redistribution actions in the form of taxes and social benefits and other cash transfers, the 10% of households with the highest income had a median annual household income of around \$830,400 while households in the two lowest deciles had zero median income. At this stage, the 10% of households with the highest income (those in the top decile group) accounted for 39% of all pre-transfer income, in contrast to a mere 0.4% for households in the bottom 20% of income. [Table 1]

(B) Annualised Post-transfer Adjusted Household Income

7. Annualised Post-transfer Adjusted Household Income is derived by first deducting the salaries tax and property tax, and then adding the annual cash transfers and government benefits received. The government benefits in kind covered in this study include the three major social benefits viz. education, medical and housing benefits. The following paragraphs describe briefly each of these adjustments.

Salaries Tax and Property Tax

8. Salaries tax in Hong Kong is, in general, progressive with the tax rates increased with income. Property tax is only applicable to those persons receiving rental income. It was noted that households in the highest two decile groups contributed more than 90% of total imputed payment on salaries tax and property tax based on the 2005 GHS data. Therefore, salaries tax and property tax have contributed considerably to achieve a more even income distribution. [Tables 2 and 4]

Education Benefits

9. Households in different decile groups, except those in the lowest one, are receiving similar amount of education benefits. This is possibly due to the fact that there are relatively more 1-person elderly households (33%) in the lowest decile group. [Tables 2 and 4]

Medical Benefits

10. The medical benefits in respect of utilization of clinical and hospitalization services in the public sector by an individual are estimated with reference to

his / her age, sex, type of housing and household income. Analysed by age, the imputed benefits in general are relatively higher in the early childhood, and lower in later childhood and throughout the young ages, but such benefits begin to rise again as from the middle ages. In terms of household characteristics, the imputed benefits are more concentrated in households with low monthly household income and those households living in public rental housing. [Tables 2, 4 and 5]

Housing Benefits

11. The housing benefits received by households living in public rental housing are calculated as the difference between the rent paid by the households and the corresponding estimated private market rent. The imputed values are quite evenly distributed among the first six decile groups and begin to drop from the 7th decile group onward. [Tables 2 and 4]

Comprehensive Social Security Assistance (CSSA)

12. CSSA provides a safety net for households who cannot support themselves financially. It is designed to bring the recipients' income up to a prescribed level to meet their basic needs. The majority of the imputed CSSA benefits are received by households in the lowest two decile groups which take up some 90% of total CSSA benefits. [Tables 2 and 4]

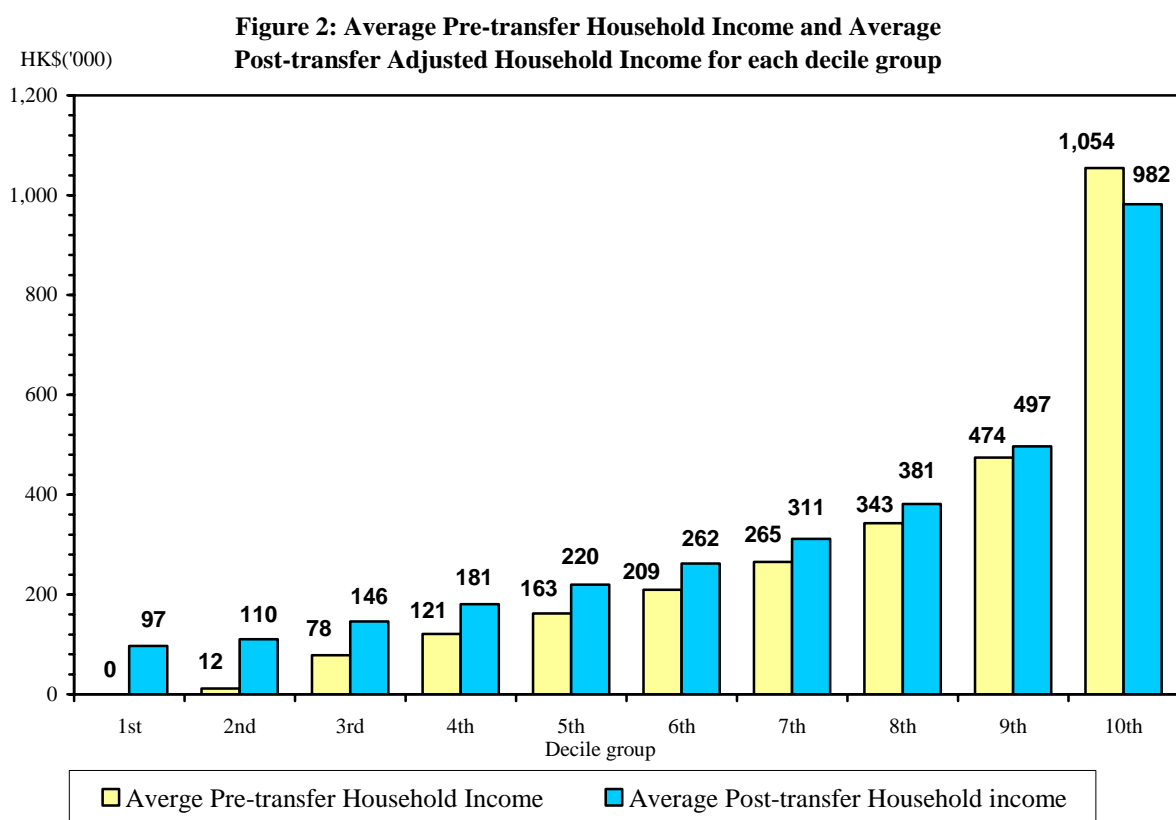
Results

13. After taking into account the effect of taxation, education, medical and housing benefits as well as cash transfer from government / organizations / persons living outside the households, the redistribution of income from high to low income households can be illustrated in an analysis of income decile groups.

14. Different types of benefits and taxes have different impacts on various decile groups. Based on the 2005 GHS data, while households in the highest decile group paid 82% of total imputed tax comprising salaries tax and property tax, households in the lowest decile group paid 0% of the taxes. On the contrary, less social benefits were received as the household income increased. The lowest two decile groups received around one-third of the imputed total selected social benefits and cash transfer from Government / organizations / other persons living outside the households. [Table 2]

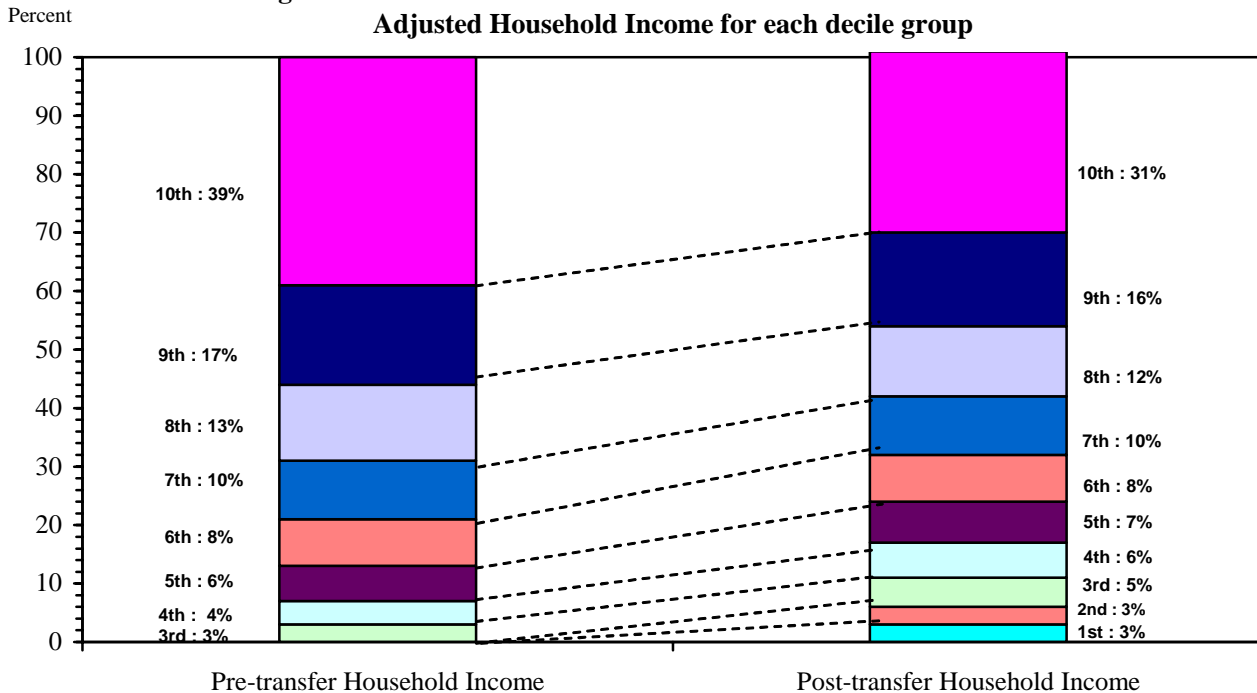
15. As shown in Table 5 and Figure 2, the adjustment of taxes and social

benefits has the net effect of raising the average Annualised Post-transfer Adjusted Household Income across almost all decile groups, except the 10th decile group (i.e. households with the top 10% of household income). The average annualised household income of the households in the highest decile group dropped from \$1,054,400 (Pre-transfer Household Income) to \$981,800 (Post-transfer Adjusted Household Income). On the other hand, the corresponding income for households in the lowest decile group increased significantly from \$0 to \$96,600. The average post-transfer adjusted household income for the 2nd to 9th decile groups also increased, but at a declining rate. [Table 3 and Figure 2]



16. In terms of Annualised Pre-transfer Household Income, the share of all income received by households in the highest decile group was 39% (Table 2 and Figure 3). After adjustments for the selected taxes and social benefits, these households still received a significant, though smaller, share of 31% of all Post-transfer Adjusted Household Income. On the same basis of comparison, the income share for households in the lowest decile group however increased from 0% to 3%.

Figure 3 : Shares of Pre-transfer Household Income and Post-transfer Adjusted Household Income for each decile group



Note : The shares of pre-transfer household income for the 1st and 2nd decile group are 0%.

Further Analyses

(A) Excluding Foreign Domestic Helpers

17. For analysis excluding foreign domestic helpers, similar results are obtained. Details of the findings are illustrated in Tables 6 – 9.

(B) Socio-economic characteristics of various decile groups

18. Socio-economic characteristics of a household have strong impacts on its household income. Some analyses on the socio-economic characteristics of the households in various decile groups are presented in Annex 2.

(C) Sub-group analyses

19. Further analyses on some selected household sub-groups are provided in Annexes 3 – 5. These sub-groups include (i) non-elderly households without pre-transfer household income, (ii) elderly households and (iii) working-poor households. Impacts of the relevant taxes and benefits on the Post-transfer Adjusted Household Income of these sub-groups are highlighted in Figure 4.

Figure 4 : Impacts of the relevant taxes and benefits on the Post-transfer Adjusted Household Income by selected household sub-groups

	Average Pre-transfer household income (HK\$) (a)	Adjustment in income (HK\$) (b)	Average Post-transfer adjusted household income (HK\$) (c)=(a)+(b)	Adjustment as a percentage of pre-transfer income (d)=(b)÷(a)× 100%
(i) Non-elderly households without pre-transfer household income	0	123,900	123,900	N.A.
(ii) Elderly households	19,600	70,100	89,700	358%
(iii) Working-poor households	71,700	102,100	173,700	142%

20 Incorporating the effects of the selected taxes and social benefits, the annualised household incomes for these three particular groups of households have all been adjusted upwards significantly.

Limitations

21. Only salaries tax and property tax as well as three selected types of social benefits are included in the study while some other government revenues and expenditures are excluded. Firstly, those excluded taxes and social benefits may not be directly paid / received by households or individuals (e.g. profit tax). Secondly, they cannot be allocated to particular households or household members based on information available from GHS (e.g. residential care homes for the elderly). Nevertheless, the public expenditure spent on the three selected social benefits included in the study account for 55% of the total government expenditure in 2005-06.

22. Owing to the data limitations of the General Household Survey, the amount of income taxes paid by individual households and social benefits received by them could only be imputed based on the best available information.

23. While Gini Coefficient is a common measure of income disparity, it is not preferable to compile it from GHS data. The Gini Coefficient is quite sensitive to the two tails of income distribution, in particular the upper tail (i.e. the high income group). As there may be insufficient number of sampled households in the GHS falling in the upper tail, the Gini Coefficient estimated based on GHS data is less precise than that based on population census / by-census. As an established practice, population census / by-census data with a much larger sample size is usually used in analyzing income disparity.

24. It should also be noted that the GHS covers the land-based non-institutional population and hence those people living on board vessels and those living in institutions are excluded. The exclusion of these groups of people from the GHS, which account for around 1% of the total population, will to a slight extent distort the income distribution pattern.

**Table 1: Annualised Pre-transfer Household Income by Decile Group
(including foreign domestic helpers)**

Decile Group	Income Range (HK\$)	Median (HK\$)	Average (HK\$)	Share of income to total income received by all households
1 st	0	0	0	0%
2 nd	0 to <=50,400	0	11,800	0%
3 rd	50,400 to <=100,800	78,000	78,400	3%
4 th	100,800 to <=144,000	120,000	120,900	4%
5 th	144,000 to <=182,000	162,000	162,500	6%
6 th	182,000 to <=239,500	210,000	209,400	8%
7 th	239,500 to <=300,000	264,000	265,200	10%
8 th	300,000 to <=392,500	342,000	342,900	13%
9 th	392,500 to <=587,200	468,000	474,200	17%
10 th	>587,200	830,400	1,054,400	39%
Overall		182,000	272,000	100%

Note: Decile groups are formed by ranking all households in terms of their Annualised Pre-transfer Household Income and then dividing the households into ten groups of equal size.

**Table 2: Distribution of Average Annualised Pre-transfer / Post-transfer Adjusted Household Income, Taxes and Social Benefits by Decile Group
(including foreign domestic helpers)**

Decile Group	Average Pre-transfer Household Income		Average Salaries Tax and Property Tax*		Average Cash Transfer Other than CSSA		Average CSSA Allowance		Average Education Benefits		Average Medical Benefits		Average Housing Benefits		Average Post-transfer Household Income	
	Average		Average		Average		Average		Average		Average		Average		Average	
	(HK\$)	% [#]	(HK\$)	% [#]	(HK\$)	% [#]	(HK\$)	% [#]	(HK\$)	% [#]	(HK\$)	% [#]	(HK\$)	% [#]	(HK\$)	% [#]
	(a)		(b)		(c)		(d)		(e)		(f)		(g)		(h) [@]	
1 st	0	0	0	0	36,600	27	23,300	48	13,300	5	18,200	14	5,100	13	96,600	3
2 nd	11,800	0	0	0	37,400	28	20,200	42	17,600	7	17,800	13	5,000	13	110,000	3
3 rd	78,400	3	0	0	14,600	11	3,700	8	27,500	11	16,100	12	6,000	16	146,400	5
4 th	120,900	4	0	0	7,900	6	0	0	31,700	12	14,800	11	5,500	14	180,800	6
5 th	162,500	6	200	0	6,600	5	0	0	32,300	13	13,400	10	5,100	13	219,600	7
6 th	209,400	8	600	0	6,400	5	0	0	29,500	12	13,500	10	4,600	12	262,700	8
7 th	265,200	10	1,900	1	5,900	4	0	0	27,800	11	11,000	8	3,300	9	311,300	10
8 th	342,900	13	5,800	4	6,600	5	0	0	24,600	10	10,500	8	2,400	6	381,100	12
9 th	474,200	17	17,200	12	5,600	4	0	0	23,800	9	9,400	7	1,000	3	496,800	16
10 th	1,054,400	39	115,900	82	6,900	5	0	0	27,100	11	9,300	7	0	0	981,800	31
Overall	272,000	100	14,200	100	13,500	100	4,800	100	25,500	100	13,400	100	3,800	100	318,800	100

Notes: Decile groups are formed by ranking all households in terms of their Annualised Pre-transfer Household Income and then dividing the households into ten groups of equal size.

* Salaries tax and property tax account for 98% and 2% of the total tax receipts from these two categories of tax respectively.

Refer to the amount received/paid by households in individual decile groups as a percentage of the total amount received/paid by all households.

@ (h) = (a) – (b) + (c) + (d) + (e) + (f) + (g)

**Table 3: Annualised Pre-transfer Household Income and Annualised Post-transfer Adjusted Household Income by Decile Group
(including foreign domestic helpers)**

Decile Group	Average Pre-transfer Household Income (HK\$) (a)	Average Household Income (collected from the GHS)# (HK\$) (b)	Total Average Adjustment* in Income (HK\$) (c)	Average Post-transfer Adjusted Household Income (HK\$) (d)=(a)+(c)	% Change in Average Pre-transfer Household Income due to Adjustment (e)=(c)÷(a)×100%
1 st	0	59,900	96,600	96,600	N.A.
2 nd	11,800	69,500	98,200	110,000	830%
3 rd	78,400	96,700	68,000	146,400	87%
4 th	120,900	129,400	59,900	180,800	50%
5 th	162,500	169,200	57,100	219,600	35%
6 th	209,400	215,900	53,300	262,700	25%
7 th	265,200	271,100	46,100	311,300	17%
8 th	342,900	349,500	38,200	381,100	11%
9 th	474,200	479,800	22,600	496,800	5%
10 th	1,054,400	1,061,300	-72,600	981,800	-7%
Overall	272,000	290,200	46,800	318,800	17%

Notes: Decile groups are formed by ranking all households in terms of their Annualised Pre-transfer Household Income and then dividing the households into ten groups of equal size.

* Total average adjustment is calculated by subtracting the average salaries tax and property tax paid by all households in a particular decile group from the sum of average CSSA allowance, average other cash transfer, average education benefits, average medical benefits and average housing benefits received by that decile group.

Pre-transfer household income plus cash transfer (cash transfer other than CSSA + CSSA)

**Table 4: Percentage Share of Taxes and Social Benefits Contributed to Total Adjustments by Decile Group
(including foreign domestic helpers)**

Decile Group	Total Average Adjustment in income (HK\$)	Percentage Share to Total Average Adjustment						Total (%)
		Salaries Tax and Property Tax* (%)	Cash Transfer Other than CSSA (%)	CSSA Allowance (%)	Education Benefits (%)	Medical Benefits (%)	Housing Benefits (%)	
1 st	96,600	0	38	24	14	19	5	100
2 nd	98,200	0	38	21	18	18	5	100
3 rd	68,000	0	22	5	40	24	9	100
4 th	59,900	0	13	0	53	25	9	100
5 th	57,100	0	11	0	57	23	9	100
6 th	53,300	-1	12	0	55	25	9	100
7 th	46,100	-4	13	0	60	24	7	100
8 th	38,200	-15	17	0	64	27	6	100
9 th	22,600	-76	25	0	106	42	4	100
10 th #	-72,600	-159	9	0	37	13	0	-100
Overall	46,800	-30	29	10	54	29	8	100

Notes: Decile groups are formed by ranking all households in terms of their Annualised Pre-transfer Household Income and then dividing the households into ten groups of equal size.

* Salaries tax and property tax account for 98% and 2% of the total tax receipts calculated from these two categories of tax respectively.

The adjustment for taxation and social benefits has the effect of reducing post-transfer adjusted household income for households in the 10th decile group, i.e. negative average total adjustment.

**Table 5: Imputed Annual Medical Benefits (Clinical and Hospitalization Services)
by Selected Socio-economic Characteristics**

Socio-economic characteristics	Imputed medical benefits (HK\$)
<u>Sex</u>	
Male	4,200
Female	4,000
<u>Age Group</u>	
0-4	3,300
5-14	1,500
15-24	2,200
25-49	2,500
50-64	5,700
65 and above	14,000
<u>Type of Housing</u>	
Public rental housing	5,200
Subsidized sales flats	3,700
Private housing	3,600
<u>Monthly Household Income</u>	
Less than \$5,000	9,700
\$5,000 - \$9,999	6,300
\$10,000 - \$19,999	3,800
\$20,000 - \$29,999	3,000
\$30,000 or above	2,500

Note : The figures are for illustration purpose only, as the exact amount of medical benefits for a particular household member is calculated by taking into account the four variables together.

Source : The Thematic Household Survey conducted during May to July 2002.

**Table 6: Annualised Pre-transfer Household Income by Decile Group
(excluding foreign domestic helpers)**

Decile Group	Income Range (HK\$)	Median (HK\$)	Average (HK\$)	Share of income to total income received by all households
1 st	0	0	0	0%
2 nd	0 to <=48,600	0	8,800	0%
3 rd	48,600 to <=99,200	78,000	78,000	3%
4 th	99,200 to <=143,000	120,000	120,400	4%
5 th	143,000 to <=180,000	162,000	161,900	6%
6 th	180,000 to <=236,400	208,000	208,100	8%
7 th	236,400 to <=300,000	260,000	263,000	10%
8 th	300,000 to <=385,500	336,000	338,800	13%
9 th	385,500 to <=577,000	462,000	466,800	17%
10 th	>577,000	816,000	1,037,500	39%
Overall		180,000	268,300	100%

Note: Decile groups are formed by ranking all households in terms of their Annualised Pre-transfer Household Income and then dividing the households into ten groups of equal size.

**Table 7: Distribution of Average Annualised Pre-transfer / Post-transfer Adjusted Household Income, Taxes and Social Benefits by Decile Group
(excluding foreign domestic helpers)**

Decile Group	Average Pre-transfer Household Income		Average Salaries Tax and Property Tax*		Average Cash Transfer Other than CSSA		Average CSSA Allowance		Average Education Benefits		Average Medical Benefits		Average Housing Benefits		Average Post-transfer Household Income	
	Average	%#	Average	%#	Average	%#	Average	%#	Average	%#	Average	%#	Average	%#	Average	%#
	(HK\$)		(HK\$)		(HK\$)		(HK\$)		(HK\$)		(HK\$)		(HK\$)		(HK\$)	
	(a)		(b)		(c)		(d)		(e)		(f)		(g)		(h)	
1 st	0	0	0	0	39,000	29	22,400	46	13,100	5	18,200	14	5,000	13	97,600	3
2 nd	8,800	0	0	0	35,800	27	21,100	44	17,900	7	17,600	13	5,200	13	106,400	3
3 rd	78,000	3	0	0	14,400	11	3,700	8	27,500	11	16,200	12	6,000	16	145,900	5
4 th	120,400	4	0	0	7,900	6	0	0	31,900	13	14,800	11	5,500	14	180,400	6
5 th	161,900	6	200	0	6,700	5	0	0	32,300	13	13,300	10	5,100	13	219,100	7
6 th	208,100	8	600	0	6,400	5	0	0	29,500	12	13,300	10	4,600	12	261,300	8
7 th	263,000	10	1,800	1	5,800	4	0	0	27,900	11	10,900	8	3,400	9	309,200	10
8 th	338,800	13	5,700	4	7,300	5	0	0	25,200	10	10,300	8	2,400	6	378,200	12
9 th	466,800	17	17,400	12	5,000	4	0	0	23,400	9	8,900	7	1,100	3	487,700	15
10 th	1,037,500	39	116,100	82	6,300	5	0	0	26,800	10	8,200	6	0	0	962,800	31
Overall	268,300	100	14,200	100	13,500	100	4,800	100	25,500	100	13,200	100	3,800	100	315,000	100

Notes: Decile groups are formed by ranking all households in terms of their Annualised Pre-transfer Household Income and then dividing the households into ten groups of equal size.

* Salaries tax and property tax account for 98% and 2% of the total tax receipts from these two categories of tax respectively.

Refer to the amount received/paid by households in individual decile groups as a percentage of the total amount received/paid by all households.

@ (h) = (a) – (b) + (c) + (d) + (e) + (f) + (g)

Table 8: Annualised Pre-transfer Household Income and Annualised Post-transfer Adjusted Household Income by Decile Group (excluding foreign domestic helpers)

Decile Group	Average Pre-transfer Household Income (HK\$) (a)	Average Household Income (collected from the GHS)# (HK\$) (b)	Total Average Adjustment * in Income (HK\$) (c)	Average Post-transfer Adjusted Household Income (HK\$) (d)=(a) + (c)	% Change in Pre-transfer Household Income due to Adjustment (e)=(c)÷(a)×100%
1 st	0	61,400	97,600	97,600	N.A.
2 nd	8,800	65,700	97,600	106,400	1 109%
3 rd	78,000	96,100	67,800	145,900	87%
4 th	120,400	128,900	60,100	180,400	50%
5 th	161,900	168,800	57,200	219,100	35%
6 th	208,100	214,500	53,200	261,300	26%
7 th	263,000	268,800	46,200	309,200	18%
8 th	338,800	346,000	39,400	378,200	12%
9 th	466,800	471,700	21,000	487,700	4%
10 th	1,037,500	1,043,900	-74,700	962,800	-7%
Overall	268,300	286,600	46,600	315,000	17%

Notes: Decile groups are formed by ranking all households in terms of their Annualised Pre-transfer Household Income and then dividing the households into ten groups of equal size.

* Total average adjustment is calculated by subtracting the average salaries tax and property tax paid by all households in a particular decile group from the sum of average CSSA allowance, average other cash transfer, average education benefits, average medical benefits and average housing benefits received by that decile group.

Pre-transfer household income plus cash transfer (cash transfer other than CSSA + CSSA)

**Table 9: Percentage Share of Taxes and Social Benefits Contributed to Total Adjustments by Decile Group
(excluding foreign domestic helpers)**

Decile Group	Total Average Adjustment in Income (HK\$)	Percentage Share to Total Average Adjustment						Total (%)
		Salaries Tax and Property Tax* (%)	Cash Transfer Other than CSSA (%)	CSSA Allowance (%)	Education Benefits (%)	Medical Benefits (%)	Housing Benefits (%)	
1 st	97,600	0	40	23	13	19	5	100
2 nd	97,600	0	37	22	18	18	6	100
3 rd	67,800	0	21	6	41	24	9	100
4 th	60,100	0	13	0	53	25	9	100
5 th	57,200	0	12	0	56	23	9	100
6 th	53,200	-1	12	0	56	25	9	100
7 th	46,200	-4	13	0	60	24	7	100
8 th	39,400	-14	18	0	64	26	6	100
9 th	21,000	-83	24	0	111	43	5	100
10 th #	-74,700	-155	8	0	36	11	0	-100
Overall	46,600	-30	29	10	55	28	8	100

Notes: Decile groups are formed by ranking all households in terms of their Annualised Pre-transfer Household Income and then dividing the households into ten groups of equal size.

* Salaries tax and property tax account for 98% and 2% of the total tax receipts calculated from these two categories of tax respectively.

The adjustment for taxation and social benefits has the effect of reducing post-transfer adjusted household income for households in the 10th decile group.

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**Technical Note on the Methodology of the Study
on Estimating the Effects of Taxation and Social Benefits
on the Household Income Distribution**

I. Background

In income and poverty related studies, the concept of post-transfer income (after Government redistribution actions in the form of taxes and social benefits) rather than gross income should be more relevant as it would better reflect the economic well-being of households. To this end, the Commission on Poverty has expressed interest in conducting studies on income distribution based on pre and post-transfer income of households. This would enable the Commission to better gauge the poverty situation faced by the less well-off households and identify the right target groups in formulating specific anti-poverty measures.

2. Certain fiscal measures, including progressive income tax and public spending on the various social and community services, are often resorted to redistribute the income from the better-off households to the worse-off households. For low-income households, the level of cash income alone cannot truly reflect their situation of living as the expenditure pattern and living standard of low-income households are also affected by the amount of public services and welfare support they are receiving.

3. Thus, analyses on low-income households should take into account the impacts of Government's transfers and benefits on the income of households. This paper provides a brief account of the methods for estimating the post-transfer household income which could better reflect the economic well-being of households in Hong Kong.

II. Unit of analysis

4. The unit of analysis is domestic household. A domestic household is defined as a group of persons who live together and make common provision for essentials for living. These persons need not be related. If a person makes provision for essentials for living without sharing with other persons, he/she will be regarded as a one-person household.

III. Coverage

5. All records of domestic households enumerated in the General Household Survey (GHS) in 2005 were covered. The adjustment was made at record level.

6. Rotational replicate sample design is adopted in GHS such that households in about half of the sampled quarters in a survey month have been enumerated three months ago. It is considered technically acceptable to include both new and repeated records in the study. This is because each quarterly sample (with no records overlapped) is a representative sample and the pooling of the four quarterly samples (though not independent) can still give estimates to represent the average situation of the four quarters concerned statistically. The estimated number of records covered in this exercise will be about 80 000 households.

7. It should be noted that records of collective households, though enumerated in GHS, were not included in the study. Inmates of institutions and persons living on board vessels were excluded by virtue of the coverage of GHS.

IV. Concept of household income adopted in GHS and in the study

8. In GHS, monthly household income refers to the total cash income, including earnings from all jobs and other cash incomes, received in the last month by members of the household. The other cash incomes may include rental income, dividend and interest, education grants, scholarships, regular/monthly pensions, regular contribution from persons living outside the household (e.g. from sons/daughters who live separately), social security allowance (e.g. CSSA allowance), etc.

9. Although efforts have been made in collecting the data as accurate as possible, it is believed that the income as reported by some members of the household is in fact below the actual value in particular for other cash incomes. The underestimation in income by respondents should be borne in mind when interpreting the findings of the study.

10. As seen from the coverage, the monthly household income collected from GHS includes cash transfer from the Government and/or persons living outside the household. For the purpose of the study, the pre-transfer income will be compiled by taking out cash transfer such that it could better reflect the actual income received from work and/or asset (e.g. rental income, dividend and interest) only for individual households. In GHS, the amount of cash transfer (with a separate breakdown on the amount of CSSA allowance) is available and will be used to derive the pre-transfer income.

11. The monthly household income data as collected from GHS were

converted into an annualised value using the following formulae:

$$\text{Annualised household income (HI)} = (\text{MEE} - \text{MB}) * 12 + \text{AB} + \text{OCI} * 12$$

$$\text{Annualised pre-transfer household income (BTHI)} = \text{HI} - \text{CT} * 12$$

where *MEE* = employment earnings received by all members last month

MB = employment bonuses received by all members last month

AB = employment bonus received by all members in the past 12 months

OCI = other cash incomes received by all members last month

CT = Cash transfer received by all members from the Government and/or persons living outside the household last month

V. Scope of taxation and social benefits addressed in the study

12. As far as taxation is concerned, only salaries tax and property tax from household members are covered in the study. An imputed value of salaries tax and property tax paid by members of the household was deducted from the household income. More details about the imputation are shown in paragraphs 14-27 below.

13. As for social benefits, attempts were made in the study to allocate an imputed value of the indirect benefits for education, housing and health care services provided by the Government to individual households. The imputed value was added to derive the post-transfer adjusted household income (ATHI) as follows:

$$\text{ATHI} = \text{HI} - \text{ST} + \text{EB} + \text{HB} + \text{MB}$$

where *HI* = Annualised household income

ST = the imputed value of salaries tax and property tax

EB = the imputed value of education benefits enjoyed by members who were studying in kindergartens, primary schools, secondary schools and UGC-funded institutions during enumeration

HB = the imputed value of housing benefits enjoyed by the household (for those living in public rental housing only)

MB = the imputed value of medical benefits enjoyed by all members

More details about the imputation are shown in the relevant sections below.

VI. Methodology for adjusting household income

Salaries tax and property tax

14. No data on salaries tax and property tax are collected in GHS. The amount of salaries tax paid by each member of a household who is classified as employed was estimated by reference to its personal record, following the calculation adopted by the Inland Revenue Department with some simplifications. The assessment year adopted for the study was 2005-2006 financial year. Similarly, the amount of property tax paid by each member of a household, who was a property owner and received rental income, was either in the elected personal assessment or property tax whichever was lower. While the assessment year (covering April 2005-March 2006) is not exactly the same as the reference period of the GHS data (covering January-December 2005), no adjustment is considered necessary to account for such a slight difference.

15. In deriving the “Net Chargeable Income” for calculating salaries tax, the household head was considered as being qualified for selected types of deductions/allowances in addition to the basic allowance. These include deduction from mandatory contributions to recognized retirement schemes², single parent allowance³ and deduction from home loan interest⁴. In addition, the household head or his / her spouse was assumed to be entitled to married person’s allowance⁵, dependent children allowance⁶ and dependent brother/sister allowance⁷ whoever had higher income. All other household members were assumed to be qualified for the basic allowance, deduction from mandatory contributions to recognized retirement schemes and single parent allowance. Regarding the dependent parents/grandparents allowance⁸, the household members with higher income after deduction of other allowances or

² *Based on the imputed amount of MPF contributions.*

³ *Applicable only if the marital status is unmarried/widowed/separated/divorced and has at least one child living together.*

⁴ *Applicable only if the households are with mortgage or loan on their owner-occupied quarter. The required data is derived from the Thematic Household Survey (THS) on the home mortgage interest payment.*

⁵ *Applicable only if the household head is married and his/her spouse has no income from employment.*

⁶ *Based on the number of children living together, their respective marital status and age, and whether studying full-time.*

⁷ *Based on the number of brothers/sisters living together, their respective marital status and age, and whether studying full-time.*

⁸ *Based on the number of parents/grandparents living together and their respective age.*

deductions were considered as being qualified. The remaining allowances and deductions such as disabled dependant allowance, deduction from self-education expenses, deduction from approved charitable donations and deduction from elderly residential care expenses were not incorporated in the computation.

16. Salaries tax charged shall not exceed the standard rate of tax applied to the net total income allowance i.e. total assessable income less total deductions only. The salaries tax paid by the entire household would then be derived by summing up the taxes paid by all household members.

17. Property owners who received rental income were assessed to property tax. In the imputation process, rental income was either in the elected personal assessment or property tax whichever was lower.

Education benefits

18. Information on whether each household member was studying full-time or part-time and his/her highest level of educational attainment attended was enquired and coded in GHS.

19. All members who reported themselves as studying (except those studying distance-learning courses) at the reference moment were assumed to have enjoyed education benefits irrespective of whether they were studying in government or private schools, studying locally or overseas as such information is not available from GHS.

20. The education benefits received by a household member who was studying were imputed by reference to his/her highest educational attainment attended and a unit cost for each of the five levels of education, viz. kindergarten education, primary education, secondary education (including matriculation), and sub-degree and undergraduate education. The education benefit received by that household member was calculated with reference to the number of children attending school, their level of study and estimated education benefits per student. The estimated education benefits per student for each level of study were obtained from the Education and Manpower Bureau and the University Grants Committee.

21. As regards households with members studying kindergartens (covering those aged 3 and above assuming that they were studying in K1-K3), their eligibility for applying the Kindergarten and Child Care Centre Fee Remission

Scheme (KCFRS) were assessed individually using the GHS income data. All eligible households were assumed to have received KCFRS in this study as there was no separate reporting on the amount of remission received in GHS income data. According to the Student Financial Assistance Agency, the weighted average fees of non-profit-making kindergartens are \$1,315 for half-day session and \$2,298 for whole-day session. As information on whether the kindergarten students were attending whole-day session or half-day session was not available in GHS, an averaging approach was adopted with the remission amount imputed based on a weighted average of the weighted average fees of half-day and whole-day kindergartens and the remission categories which the households belonged to. It should be noted that the KCFRS was extended to cover children attending full-time nursery classes in child care centres from September 2005 onwards. As the scheme was extended in the latter part of 2005, no adjustment was made for those households concerned in this study.

Housing benefits

22. The assessment only covered housing benefits enjoyed by households living in public rental flats. While there is actually no transfer payment or expenses made for housing benefits (as the Housing Authority (HA) is self-financed), a marginal analysis approach was adopted by estimating the opportunity cost to the Government if a public rental flat was leased in a hypothetical open market for public rental flats.

23. For each of the households living in public rental flats, a market rent was imputed on the basis of the average floor area of the public rental flat for each building (from the administrative records of HA), the district where the building was located, and the average private sector rent per unit area known from the Rating and Valuation Department (R&VD). Since the size of flat measured by internal floor area for HA, as opposed to saleable area adopted by R&VD, a conversion factor of “0.9” was used to convert the saleable area to internal floor area for comparison. In the imputation process, the average ratio of normal rent to the market rent was assumed to be same for all public rental flats for each building and no allowance for quality difference between public and private housing had been made.

24. The difference between the imputed market rent and the actual rent paid by the household as collected in GHS was taken as the amount of public housing benefits received by that household.

Medical benefits

25. All household members were assumed to receive medical benefits on clinical and hospitalization services. The medical benefits received by a household member were imputed by multiplying an estimated utilisation rate for an individual's personal profile (e.g. age, sex, type of housing and household income) and the average public expense per usage of clinical and hospitalization services. The required data were derived from the Thematic Household Survey (THS) on the pattern with respect to clinical and hospitalization services. Although THS did not cover persons who have been passed away, no adjustment is considered necessary to account for such a small number.

26. In the imputation process, the utilisation rates were assumed to be the same for all persons of similar personal profile.

27. In addition, medical services with high enrollment rate (around 80% or more), i.e. Student Health Service and School Dental Care Service provided by the Department of Health (DH) were incorporated in the estimation of medical benefits. Since information on who has enrolled in the particular schemes was not available in GHS, an averaging approach was adopted in the imputation by assuming that all had enrolled with the imputed amount adjusted by the enrolment rate provided by DH.

Socio-economic Characteristics of Households by Decile Group

This section analyses the socio-economic characteristics of households in various decile groups (ranked by their annualised pre-transfer household income¹) based on data collected in the General Household Survey in 2005. A comparison of the socio-economic characteristics of the households by decile group is presented in Table 1.

Age

2. In analysing the age of persons from households of different decile groups, it was noted that relatively higher percentages of households in the 1st and 2nd decile groups (56% and 40% respectively) were having all household members aged 60 and above.

Educational attainment

3. For households in the lower decile groups, their household members generally had lower level of educational attainment. Among persons from the 1st decile group, 76% had lower secondary education and below and the percentages gradually decreased to 27% in the 10th decile group.

Labour force participation rate

4. Extremely low labour force participation rate (about 8%) was recorded for persons aged 15 and over from households in the 1st decile group, possibly due to more elderly households in that group. On the contrary, persons from households with higher household income had higher labour force participation rate, at 78% in both the 9th and 10th decile groups.

Type of housing

5. Among households in the first three decile groups, nearly half of them were living in public rental housing. The proportion gradually decreased to 0% in the 10th decile group.

¹ Annualised Pre-transfer Household Income is the annualised income in cash of all members in a household before the deduction of taxes and addition of cash transfer from government / organizations / persons outside the household (e.g. Comprehensive Social Security Assistance Scheme allowance, old age allowance, disability allowance and regular contributions from relatives). It includes income from employment, housing allowance, bonus, investment income and rental income.

Household size

6. Household size is the number of persons living in a household. The larger the household size, the greater probability for the households to have more economically active members and hence a higher level of household income. Majority of households in the 1st and 2nd decile groups were small households with only one to two household members (79% and 69% respectively). The proportion of small households decreased in the higher decile groups, ranging from 24% to 27% for the 5th to 10th deciles.

Dual-income couples (couples are both employed persons)

7. A significant proportion of the higher income households were formed by dual-income couples. It was noted that more than half of the households in the top 2 decile groups were formed by dual-income couples. On the contrary, only a small proportion (1% and below) of the households in the bottom two decile groups were formed by dual-income couples.

Single parent households

8. Around 7% of the households in the 1st and 2nd decile groups were single parent households, relatively higher than the corresponding percentages in other decile groups.

Contribution to annualised post-transfer adjusted household income

9. As shown in Figure 1, Comprehensive Social Security Assistance (CSSA)² allowance and other cash transfers (such as old age allowance, disability allowance, pension and regular contributions from persons living outside the households) were two predominant income sources for the bottom two decile groups while employment and investment income is the main contributor to annualised post-transfer adjusted household income in other decile groups.

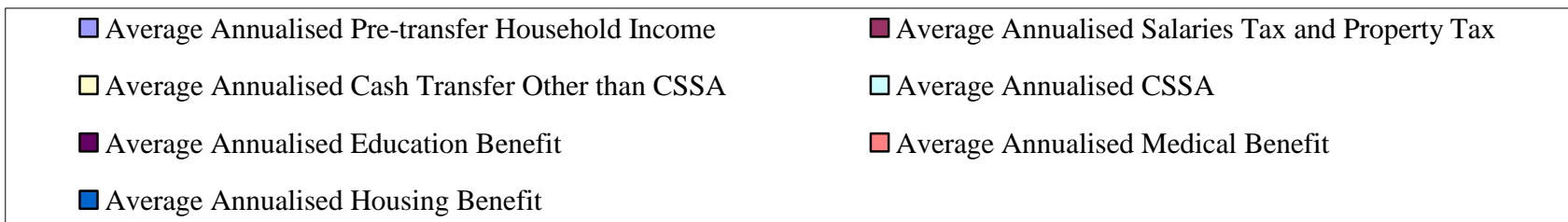
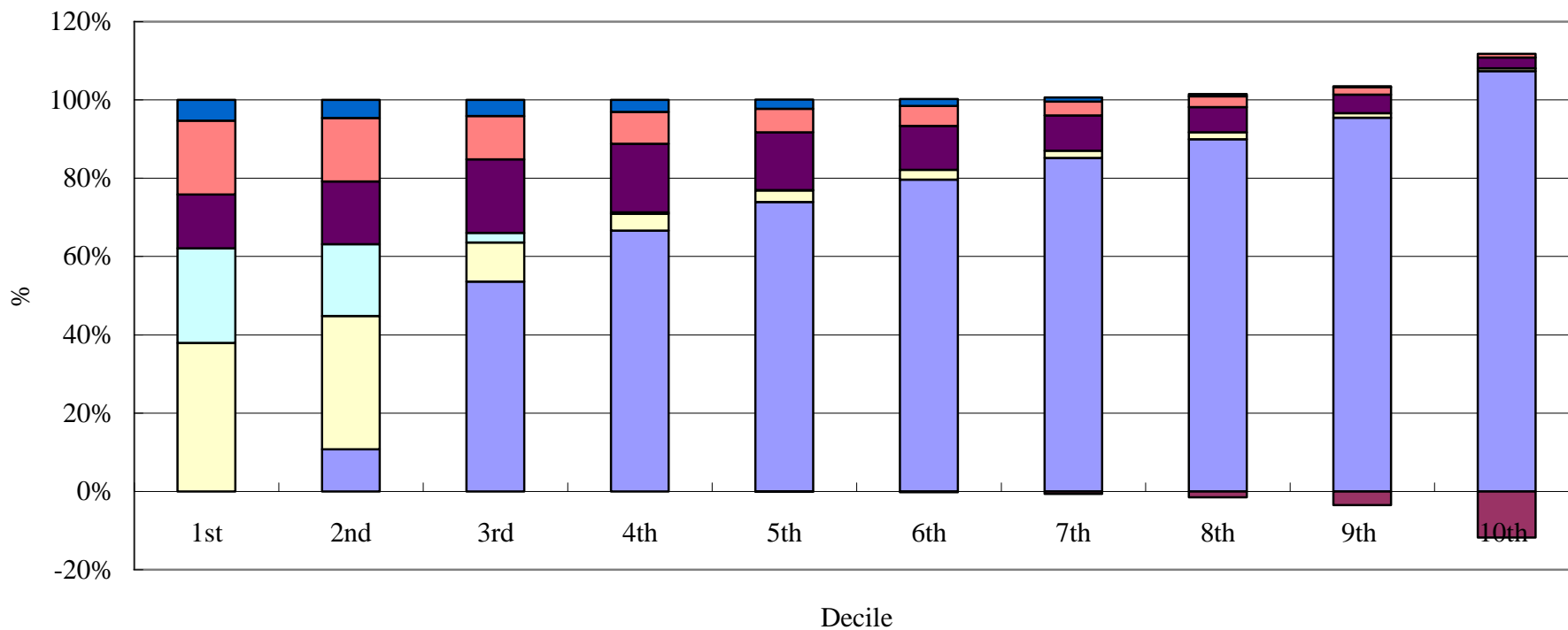
² The percentage was derived based on the data reported by individual households. It is however expected that the actual percentage should be much higher because of the prevailing reluctance of individual households in revealing their status of receiving CSSA. In fact, the total number of households receiving CSSA as identified in the study was about 40% less than the administrative records kept by the Social Welfare Department.

Table 1 to Annex 2 : Percentage Distribution of Households with Selected Socio-economic Characteristics by Decile Group

Socio-economic characteristics	Decile Group(%)										Overall
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	
Labour force participation rate (among persons aged 15 and over)	8	26	53	56	60	67	70	74	78	78	61
Share of persons with lower secondary education and below	76	72	67	63	58	53	46	39	33	27	51
Share of households with 1 - 2 members	79	69	44	33	27	24	24	26	26	27	38
Share of households with all members aged 60 and above	56	40	5	2	1	0	1	1	0	1	11
Share of households living in public rental housing	50	47	49	43	38	33	23	17	8	0	31
Share of households with dual-income couples	0	1	5	15	22	33	36	43	51	58	26
Share of single parent households	7	7	6	4	3	2	2	1	1	1	3

Note: Decile groups are formed by first ranking all households in terms of their Annualised Pre-transfer Household Income and then dividing the households into ten groups of equal size.

Figure 1: Percentage Share of Annualised Post-transfer Adjusted Household Income by Decile Group
(incl. Foreign Domestic Helpers)



Note: Each of the ten decile group contains the same number of households, ranked by pre-transfer household income

Characteristics of Non-elderly Households Without Pre-transfer Household Income

This analysis addresses the characteristics of non-elderly households without any annualised pre-transfer household income¹ (hereafter refer to as “non-elderly no-income households”). These households should consist of at least one household member who was aged below 60. There were 163 700 non-elderly no-income households in 2005, accounting for 7% of all households in Hong Kong.

Age

2. Some one-third (33%) of those belonging to non-elderly no-income household were aged below 20 and another 16% aged 60 and over.

Educational attainment

3. Of those persons from non-elderly no-income households, 11% had attained matriculation and higher education and nearly half (48%) had primary and below educational attainment.

Type of Housing

4. 51% of the non-elderly no-income households were living in public rental housing while 39% and 8% in private permanent housing and subsidized sale flats respectively.

Household size

5. Half (53%) of the non-elderly no-income households were small households with only 1 – 2 members.

Comprehensive Social Security Assistance (CSSA)

6. Among all non-elderly no-income households, nearly half (46%) were receiving CSSA².

¹ Annualised Pre-transfer Household Income is the annualised income in cash of all members of the household before the deduction of taxes or the addition of any cash transfer from government / persons outside the households (e.g. Comprehensive Social Security Assistance Scheme allowance, old age allowance, disability allowance and regular contributions from relatives). It includes income from employment, housing allowance, bonus, investment income and rental income.

² The percentage was derived based on the data reported by individual households. It is however expected that the actual percentage should be much higher because of the prevailing reluctance of individual households in revealing their status of receiving CSSA. In fact, the total number of households receiving CSSA as identified in the study was about 40% less than the administrative records kept by the Social Welfare Department.

Post-transfer household income

7. After taking into account the effect of taxation, education, medical and housing benefits as well as other cash transfers from government /organizations / other persons living outside the households, the average annual household income increased significantly from \$0 to \$123,900.

**Table 1 to Annex 3 : Socio-economic Characteristics
of all non-elderly Households without Pre-transfer Household Income**

Selected Socio-economic characteristics	%
Share of persons with lower secondary education and below	71
Share of households with 1 - 2 members	53
Share of households living in public rental housing	51
Share of households receiving CSSA	46

Analysis of Elderly Households

This analysis addresses the characteristics of households with all members aged 60 and over (hereafter refer to as “elderly households”). There were 241 700 elderly households in 2005, accounting for 11% of all households in Hong Kong.

Educational attainment

2. Of those persons from elderly households, less than 10% had attained matriculation and higher education and nearly 30% had only kindergarten education and below.

Labour force participation

3. Only 8% of the persons from elderly households were still in the labour force. Of those employed persons, nearly one-third (31%) were managers and administrators, professionals and associate professionals, and a majority of them (81%) were having upper secondary education and above.

Housing type

4. Some 46% of the elderly households were living in public rental housing. The corresponding figures for subsidized sale flats and private permanent housing were 10% and 42% respectively. Among the elderly households living in private permanent housing, around 90% were occupying the whole flat.

Household size

5. Among the elderly households, nearly all were small households with 1 – 2 members. There were 136 600 1-person and 102 900 2-person households which accounted for some 57% and 43% of all the 241 700 elderly households respectively.

Comprehensive Social Security Assistance (CSSA)

6. Among all elderly households, 29% were receiving CSSA¹.

¹ The percentage was derived based on the data reported by individual households. It is however expected that the actual percentage should be much higher because of the prevailing reluctance of individual households in revealing their status of receiving CSSA. In fact, the total number of households receiving CSSA as identified in the study was about 40% less than the administrative records kept by the Social Welfare Department.

Pre-transfer household income²

7. More than 90% of the elderly households belonged to the group of households with the lowest 20% of household income. After taking into account the effect of taxation, education, medical and housing benefits as well as other cash transfers from government / organizations / other persons living outside the households, the average annual household income of the elderly households increased significantly from \$19,600 to \$89,700.

**Table 1 to Annex 4 : Socio-economic Characteristics
of all Elderly Households**

Socio-economic characteristics	%
Labour force participation rate	8
Share of persons with lower secondary education and below	82
Share of households with 1 - 2 members	99
Share of households living in public rental housing	46
Share of households receiving CSSA	29

² Annualised Pre-transfer Household Income is the annualised income in cash of all members in a household before the deduction of taxes and the addition of cash transfers from government / organizations / persons outside the household (e.g. Comprehensive Social Security Assistance Scheme allowance, old age allowance, disability allowance and regular contributions from relatives). It includes income from employment, housing allowance, bonus, investment income and rental income.

Analysis of Working Poor Households

This analysis addresses the characteristics of working poor households. Working poor households are defined as households with at least one employed person and annualised pre-transfer household income¹ (excluding income received by foreign domestic helpers) being less than the average of the CSSA payment for households of the same household size (excluding foreign domestic helpers). There were 215 500 working poor households in 2005, accounting for 9% of all households in Hong Kong.

Age

2. About one-third (34%) of those persons from the working poor households were aged below 20 and another 14% were aged 60 and over.

Educational attainment

3. Of those persons from working poor households, only 10% had attained matriculation education and above, and nearly half (45%) had primary education and below.

Labour force participation

4. Some 48% of those persons aged 15 and over from working poor households were in the labour force. Among them, 13% were unemployed persons. Of those employed persons, the majority (92%) were engaged in low-skilled jobs such as clerks, service workers and shop sales, craft and related workers, plant and machine operators and assemblers, and elementary occupations.

Housing type

5. Around 55% of the working poor households were living in public rental housing. Another 14% were living in subsidized sale flats and 29% in private permanent housing. Among the working poor households living in private permanent housing, 93% were occupying the whole flat.

¹ Annualised Pre-transfer Household Income is the annualised income in cash of all members of the household before the deduction of taxes or the addition of any cash transfer from government / persons outside the households (e.g. Comprehensive Social Security Assistance Scheme allowance, old age allowance, disability allowance and regular contributions from relatives). It includes income from employment, housing allowance, bonus, investment income and rental income.

Household size

6. Among the working poor households, 176 700 were households with 3 members and more, accounting for some 82% of all the 215 500 working poor households.

Comprehensive Social Security Assistance (CSSA)

7. Among all working poor households, 86% were not receiving CSSA although their pre-transfer household incomes were less than the average of the CSSA payment for households of the same household size².

Pre-transfer Household Income

8. More than half (58%) of the working poor households were in the 3rd decile group since there were relatively larger proportion of economically inactive persons in the 1st and 2nd decile groups. After taking into account the effect on taxation, education, medical and housing benefits as well as other cash transfers from government / organizations / persons living outside the households, the average annual household income of the working poor households more than doubled from \$71,700 to \$173,700.

**Table 1 to Annex 5 : Socio-economic Characteristics
of Working Poor Households**

Socio-economic characteristics	%
Labour force participation rate (among persons aged 15 and over)	48
Share of persons with lower secondary education and below	70
Share of households with 1 - 2 members	18
Share of households with all members aged 60 or above	3
Share of households living in public rental housing	55
Share of households receiving CSSA	14

² The percentage was derived based on the data reported by individual households. It is however expected that the actual percentage should be much higher because of the prevailing reluctance of individual households in revealing their status of receiving CSSA. In fact, the total number of households receiving CSSA as identified in the study was about 40% less than the administrative records kept by the Social Welfare Department.