

Study of Housing Demand Model

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EXECUTIVE SUMMARY

1. In June 1996, the Housing Panel of the Legislative Council requested research on housing demand model and housing needs. This research report focuses on the housing demand model. To obtain the necessary information, the Research and Library Services Division studied relevant materials, discussed with academics, and made enquiries to government departments and research institutions in Hong Kong. This research report is based on the available information from these sources.
2. The housing demand model is a planning tool for estimating future housing demand based on the prevailing housing policy. The model comprises four steps -- projection of total housing needs, categorization of housing needs into public and private housing, derivation of housing demand from the sectoral housing needs, and estimation of sectoral flat production requirements.
3. The housing demand model adopts a bottom-up approach. It comprises four categories of housing needs; namely new housing needs, generated housing needs, other housing needs, and reduction in housing needs and transfers.
4. The accuracy of the estimates depends on the quality of data. As the results of some major surveys are not available, the present estimates are primarily based on past data. If there are any changes in demographics and economic environment, the accuracy of the estimates may be affected.
5. The validity of the assumptions made in the housing demand model is important to the accuracy of the forecasts. Certain assumptions on accommodation generation rate (AGR) and splitting ratio (SR) do not have any statistical support (Table I). Besides, some assumptions on AGR are made based on the continuation of past trends (Table I).
6. AGR and SR of some components are estimated based on data at a certain point of time. Projections are then made accordingly. However, such data may follow particular trends. Hence, the values of AGR and SR may be affected. These components include AGR of first marriages; AGR of divorces; and SR of unextended nuclear family households, extended nuclear family households, multi-nuclear family households, adequately housed non-owner-occupier households in private sector and inadequately housed households (Table I).
7. The weight of each component affects the projected housing needs. However, the weights of these components are not provided. According to Housing Branch, first marriages and redevelopment of public sector housing are the two most important components, accounting for over 50% of the total. It is useful to understand the model and the significance of each component if the weights are known.
8. Economic variables such as economic growth and property price index are not the parameters in the model and are assumed to be in line with past trends. However, the exact periods of "past trends" are not known. It may lead to different estimates if one chooses different time periods.

Table I - Assumptions and Estimations of AGR and SR of Housing Need Components

Housing Need Components	Assumptions With No Statistical Support		Assumptions Based On The Continuation Of Past Trends		Estimations Based On Data At A Certain Point Of Time	
	AGR	SR	AGR	SR	AGR	SR
First Marriages	✓	✓			✓	
Re-marriages	✓	✓				
Divorces	✓	✓			✓	
Legal Immigrants from China	✓	✓				
Expatriates	✓	✓				
Splitting of Unextended Nuclear Family Households	✓		✓			✓
Splitting of Extended Nuclear Family Households	✓		✓			✓
Splitting of Multi-nuclear Family Households			✓			✓
Clearance of Temporary Housing Areas and Cottage Areas						
Clearance of Squatters						
Emergency, Natural Disaster & Compassionate Cases						
Redevelopment of Public Sector Housing						
Redevelopment of Private Sector Housing						
Adequately Housed Non-owner-occupier Households in Private Sector						✓
Inadequately Housed Households			✓			✓
Adequately Housed Public Rental Housing Households						
Net Outflow of Hong Kong Residents	✓	✓				

Abbreviations

AGR	Accommodation Generation Rate
C&SD	Census and Statistics Department
CF	Conversion Factor
ENFH	Extended Nuclear Family Households
GHS	General Household Survey
GDP	Gross Domestic Product
FPR	Flat Production Ratio
HB	Housing Branch
HD	Housing Department
HOS	Home Ownership Scheme
LegCo	Legislative Council
LTHS	Long Term Housing Strategy
LTHSR	Long Term Housing Strategy Review
MNFH	Multi-nuclear Family Households
NMS	Non-nuclear Family Members
PH	Private Housing
PRH	Public Rental Housing
RLS	Research and Library Services Division, Legislative Council
R&VD	Rating and Valuation Department
SR	Splitting Ratio
UNFH	Unextended Nuclear Family Households
WGHD	Working Group Housing Demand

STUDY OF HOUSING DEMAND MODEL

PART 1 - INTRODUCTION

1 Background

1.1 In June 1996, the Housing Panel of the Legislative Council (LegCo) set up a Working Group on Long Term Housing Strategy Review (LTHSR)¹ to undertake research and monitor the review of the Long Term Housing Strategy (LTHS). Members requested the Research and Library Services Division (RLS) of the LegCo Secretariat to conduct research on housing demand model and housing needs. This research report focuses on the housing demand model. The issue of housing needs is addressed in another research report.

2 Objective

2.1 The objective of this report is to provide analyses and comments on the housing demand model so as to assist Members in studying the LTHS.

3 Methodology

3.1 To obtain the necessary information and statistics, the RLS studied relevant materials such as research reports, Hansard reports, and LegCo papers. Moreover, the RLS discussed with academics and made enquiries to Housing Branch (HB), Housing Department (HD), Census and Statistics Department (C&SD), Rating and Valuation Department (R&VD), Consumer Council, Financial Services Branch, and research institutions in Hong Kong.²

3.2 This research report is based on the available information from these sources.

¹ In July 1996, the Working Group on LTHSR was renamed as Subcommittee on LTHSR.

² The RLS also attempted to gather information on housing demand model from the Singaporean authorities -- the Ministry of National Development, Housing & Development Board, and Singapore Commission in Hong Kong. However, the authorities were reluctant to provide the required information due to confidentiality and sensitivity.

PART 2 - THE 1996 WORKING GROUP HOUSING DEMAND (WGHD) MODEL

4 The 1996 WGHD Model

Structure of the Model

4.1 The 1996 WGHD model is a planning tool for estimating future housing demand based on the prevailing housing policy. The planning model comprises four steps :

- (i) Projection of total housing needs;
- (ii) Categorization of housing needs into public and private housing;
- (iii) Derivation of housing demand from the sectoral housing needs; and
- (iv) Estimation of sectoral flat production requirements.

The structure of the model is found in Figure 1.

4.2 The first step calculates the total housing needs over a ten-year period up to 2005-06. According to HB documents, housing needs are defined as the number of existing or new households requiring adequate housing. An adequately housed household is one that lives in self-contained living quarters made of permanent materials. Since not all potential households prefer to have separate living quarters, an accommodation generation rate (AGR)³ is applied to estimate these housing needs.

4.3 The second step applies a splitting ratio (SR) to divide the total housing needs into public and private housing. While public housing refers to all kinds of assisted housing, private housing refers to those developments where no assistance from the Government is provided.

4.4 The third step converts the housing needs into housing demand. Housing demand is defined as the number of households actually seeking accommodation. In the public sector, housing demand is assumed to be equal to housing needs. In the private sector, demand is constrained by affordability, a conversion factor (CF) is applied.

³ AGR is a term used by Housing Branch. The comments on the AGR by the RLS are presented in paragraphs 5.9-5.20.

4.5 The fourth step translates housing demand into flat production requirements. In the public sector, the flat production requirement is assumed to be equal to housing demand. Nevertheless, a safety margin is included to safeguard against possible slippages. In the private sector, a flat production ratio (FPR) is included to allow for second homes, vacant flats, and non-residential uses.

Comparison with the 1987 Model

4.6 Compared with the 1987 model, the 1996 WGHD model is more sophisticated and more flexible. The 1996 WGHD model comprises four categories of housing needs, which can be further divided into 17 components; each component has its own AGR and SR. On the contrary, the 1987 model has one single newly formed household category, in addition to those generated housing needs arising from redevelopment, clearance, emergency and natural disaster cases.

4.7 The 1996 WGHD model is adaptable to changes in policies and forecasts (such as population growth and economic growth). The model is also testable for different assumptions, according to the objectives of the Government's policies, availability of resources and development priorities.

Housing Needs

4.8 The 1996 WGHD model adopts a bottom-up approach. It comprises four categories of housing needs (17 components) :

- (i) New housing needs
 - 1. first marriages⁴
 - 2. re-marriages⁴
 - 3. divorces⁴
 - 4. legal immigrants from China
 - 5. expatriates
 - 6. splitting of unextended nuclear family households (UNFH)⁵
 - 7. splitting of extended nuclear family households (ENFH)⁵
 - 8. splitting of multi-nuclear family households (MNFH)⁵

⁴ Appendix 1 shows that the number of first marriages ranged from 31,000 cases to 40,000 cases during 1986-1995. Both re-marriages and divorces registered an uptrend on the whole.

⁵ The definitions of UNFH, ENFH, and MNFH are provided in Appendix 2.

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- (ii) Generated housing needs
 - 9. clearance of temporary housing areas and cottage areas
 - 10. clearance of squatters
 - 11. emergency, natural disaster and compassionate cases
 - 12. redevelopment of public sector housing
 - 13. redevelopment of private sector housing
 - (iii) Other housing needs
 - 14. adequately housed non-owner-occupier households in private sector
 - 15. inadequately housed households
 - (iv) Reduction in housing needs and transfers
 - 16. adequately housed public rental housing (PRH) households
 - 17. net outflow of Hong Kong residents

4.9 The reply of HB to the questions raised by the RLS indicates that the two most important components are first marriages (component 1) and redevelopment of public sector housing (component 12). Preliminary results show that the two components account for over 50% of the total.

Accommodation Generation Rate

4.10 Table 1 summarizes the AGR of the components in these aspects :

- (i) Sources of reference;
- (ii) Descriptions;
- (iii) Assumptions; and
- (iv) Values of AGR.

Table 1 - Accommodation Generation Rate of Housing Needs

New Housing Needs	
First Marriages	
According to the 1991 Census, 70% of married couples aged below 40 were living in UNFH. (assumption 1 : 10% already have separate living quarters) 70% x 0.9 = 63%	
The other 30% were living in complex family structure households. (assumption 2 : half of them prefer separate living quarters) 30% x 0.5 = 15%	
AGR : 78%	
Re-marriages	
(assumption 3 : 25% of re-marriage couples do not have separate living quarters)	
AGR : 25%	
Divorces	
According to the 1991 Census, 54% of the divorced persons were living in singleton households or as heads of UNFH. (assumption 4 : 50% is formed from the original households) 54% x 0.5 = 27%	
AGR : 27%	
Legal Immigrants from China	
According to the analyses of past data by C&SD, 17% of the legal immigrants from China have no next-of-kin in Hong Kong or are adults joining their parents. Therefore, potential housing needs = 365 x 150 x 17% = 9,125. (assumption 5 : the other 83% have no housing needs upon arrival in Hong Kong) (assumption 6 : 20% of 9,125 prefer to share accommodation with relatives, implying that 80% of 9,125 have immediate housing needs)	
AGR : 80%	
Remark : These reunited households might also have housing needs at a later stage due to the splitting of complex family structure households or wish to improve living conditions.	
Expatriates	
(assumption 7 : all expatriates have housing needs)	
AGR : 100%	

New Housing Needs
Splitting of UNFH and ENFH
<p><i>(assumption 8 : splitting of UNFH and ENFH would only result in the formation of singleton households)</i></p> <p>According to the trend of 1981-1991,</p> <p>the average annual increase of singleton households was about 4,500, approximately 1% of the stock of UNFH and ENFH.</p> <p><i>(assumption 9 : a comparable increase is maintained from 1995 to 2005)</i></p> <p>AGR : 1% of the stock of UNFH and ENFH</p>
Splitting of MNFH
<p>According to the figures 1989-1991,</p> <p>the number of MNFH remained fairly stable at about 75,000, approximately 10% of the stock of MNFH.</p> <p><i>(assumption 10 : the figure is maintained from 1995 to 2005)</i></p> <p>AGR : 10% of the stock of MNFH</p>

Generated Housing Needs
Redevelopment of Public Sector Housing
<p>According to the current redevelopment programmes and past statistics,</p> <p>AGR : data to be provided by HD</p>
Redevelopment of Private Sector Housing
<p>According to figures provided by Land Development Corporation, Housing Society and past trend of demolition,</p> <p>AGR : 100%</p>

Other Housing Needs
Adequately Housed Non-owner-occupier Households in Private Sector
According to the 1991 Census, AGR : 3% of the stock of adequately housed non-owner-occupier households
Inadequately Housed Households
According to the trend of 1985-1994, the annual transfer rate was 4% of the stock of inadequately housed households. (assumption 11 : the annual transfer rate of 4% is maintained from 1995 to 2005) AGR : 4% of the stock of inadequately housed households

Reduction in Housing Needs and Transfers
Adequately Housed Public Rental Housing Households
According to the successful rate of “green form” application for Home Ownership Scheme (HOS), 1.7% of the PRH households transfer to HOS flats every year. According to historical figures of the rate of voluntary surrender of PRH units by tenants, 0.3% of the PRH households transfer to the private sector every year. AGR : 2% Remark : HB’s reply shows that such transfers do not generate additional housing needs as flats released by those households can be allocated to other households on the Waiting List. Thus, the AGR can be regarded as a transfer rate.
Net Outflow of Hong Kong Residents
(assumption 12 : 20% of the emigrants retain their flats) AGR : 80%

Source : HB.

Splitting Ratio for Public and Private Housing

4.11 Table 2 summarizes the SR of the components in these aspects :

- (i) Sources of reference;
- (ii) Descriptions;
- (iii) Assumptions; and
- (iv) Values of SR.

4.12 The SR divides housing needs into public housing and private housing, with the former being further divided into PRH and HOS⁶. Therefore, the SR is a ratio between PRH : HOS : PH.

⁶ HOS in the context of SR includes Home Ownership Scheme, Private Sector Participation Scheme, and Sandwich Class Housing.

Table 2 - Splitting Ratio of Housing Needs

New Housing Needs
First Marriages
<i>(assumption 13 : the SR between PRH : HOS : PH is 25% : 25% : 50%)</i> PRH : HOS : PH = 25% : 25% : 50%
Re-marriages
<i>(assumption 14 : the SR between PRH : HOS : PH is 25% : 25% : 50%)</i> PRH : HOS : PH = 25% : 25% : 50%
Divorces
<i>(assumption 15 : the SR between PRH : HOS : PH is 25% : 25% : 50%)</i> PRH : HOS : PH = 25% : 25% : 50%
Legal Immigrants from China
<i>(assumption 16 : the SR between PRH : HOS : PH is 25% : 25% : 50%)</i> PRH : HOS : PH = 25% : 25% : 50%
Expatriates
<i>(assumption 17 : the SR between PRH : HOS : PH is 0% : 0% : 100%)</i> PRH : HOS : PH = 0% : 0% : 100%
Splitting of UNFH
According to the 1991 Census, PRH : HOS : PH = 22% : 0% : 78% Remark : The housing needs for HOS is zero because one-person households are not eligible for applying HOS.
Splitting of ENFH
According to the 1991 Census, PRH : HOS : PH = 35% : 0% : 65% for young non-nuclear family members (NMS) PRH : HOS : PH = 97% : 0% : 3% for elderly NMS Remark : The housing needs for HOS is zero because one-person households are not eligible for applying HOS.
Splitting of MNFH
According to the 1991 Census, PRH : HOS : PH = 49% : 34% : 17%

Generated Housing Needs
Redevelopment of Public Sector Housing
According to Housing Authority's statistics, PRH : HOS : PH = 92% : 8% : 0%
Redevelopment of Private Sector Housing
According to the General Household Survey (GHS) 1994 (2nd quarter), PRH : HOS : PH = 21% : 40% : 39%

Other Housing Needs
Adequately Housed Non-owner-occupier Households in Private Sector
According to the 1991 Census, PRH : HOS : PH = 16% : 35% : 49%
Inadequately Housed Households
According to the 1991 Census, PRH : HOS : PH = 42% : 51% : 7%

Reduction in Housing Needs and Transfers
Net Outflow of Hong Kong Residents
(assumption 18 : the SR between PRH : HOS : PH is 5% : 15% : 80%) PRH : HOS : PH = 5% : 15% : 80%

Source : HB.

5 Points of Concern Regarding the 1996 WGHD Model

Overview

Quality of Data

5.1 The 1996 WGHD model is a planning tool for estimating future housing demand and formulating housing policy. The accuracy of the forecasts depends on the quality of data. As the results of two major surveys, the 1996 By-Census and the Survey on Housing Aspirations of Households, will be available in late 1996 and in early 1997 respectively, the present estimates are primarily based on past data. If there are changes in demographics and economic environment, the accuracy of the estimates may be affected.

Validity of Assumptions

5.2 Certain assumptions of the 1996 WGHD model do not have any statistical support. These include assumptions 1-4, 6-8, and 12 listed in Table 1 (AGR of Housing Needs) and assumptions 13-18 in Table 2 (SR of Housing Needs). In addition, assumptions 9-11 listed in Table 1 are based on the continuation of past trends. If the trend changes, this may affect the accuracy of the estimates.

Estimations Based on Data at a Certain Point of Time

5.3 AGR and SR of some components are estimated based on data at a certain point of time. Projections are made accordingly. However, such data may follow particular trends. Hence, the values of AGR and SR may be affected. These components include AGR of first marriages (paragraphs 5.9-5.10); AGR of divorces (paragraphs 5.11-5.13); SR of UNFH, ENFH, and MNFH (paragraph 5.26); and SR of adequately housed non-owner-occupier households in private sector and inadequately housed households (paragraph 5.27).

Weights of the Components

5.4 The weight of each component affects the total projected housing needs. It can be calculated as a percentage of the projected housing needs of the component over the total projected housing needs. However, the weights of these components are not provided in HB documents. The reply of HB to the questions raised by the RLS indicates that first marriages and redevelopment of public sector housing account for over 50% of the total. It will be useful to understand the model and the significance of each component if the weights are known.

Socio-economic Variables and Their Reference Periods

5.5 According to HB documents, economic variables such as economic growth and property price index are not the parameters in the model and are assumed to be in line with past trends. However, the exact periods of “past trends” are not known. The clarification of exact periods of past trends will be useful for the study of the model.

5.6 For instance, real GDP growth averaged 5.5% per annum between 1990 and 1995, while it averaged 6.5% per annum between 1985 and 1995. The projected housing demand will be different if the model adopts different time periods.

5.7 In addition, for residential property prices, the price index of a Class-A-Flat⁷ increased at an average annual rate of 16.7% during 1990-1995, compared with 18.0% during 1985-1995. The results of the analysis will not be the same if one takes different time periods for the study.

5.8 Besides, income growth varies across different income groups. The Gini Coefficient⁸ increased from 0.451 in 1981 to 0.453 in 1986, and further to 0.476 in 1991. This trend indicated that the income distribution in Hong Kong became more uneven. The demand for different classes of residential flats may be affected as a result.

⁷ According to R&VD, a Class-A-Flat refers to a flat with saleable area not exceeding 39.9m².

⁸ According to C&SD, the Gini Coefficient is a figure showing the degree of inequality of income distribution in mathematical terms. The value of a Gini Coefficient lies between zero and one, with zero indicating complete equality and one complete inequality.

Accommodation Generation Rate

First Marriages

5.9 First marriages are one of the two most important components in the model. The AGR of first marriages is estimated at 78%. It is arrived at by adding up the following two items :

- (i) Around 70% of married couples aged below 40 living in UNFH (according to the 1991 Census) and assuming that 10% of them already have separate living quarters $70\% \times 0.9 = 63\%$
- (ii) The other 30% live in complex family structure households and assuming that half of them prefer separate living quarters $30\% \times 0.5 = 15\%$

5.10 However, for item (i), the percentage of married couples aged below 40 living in UNFH⁹ is not fixed. According to figures provided by C&SD, the percentage rose by 4-6 percentage points every five years (Table 3). If the uptrend continues, the AGR will need to be revised.

Table 3 - Married Couples Aged below 40 Living in UNFH (%)

	1981	1986	1991
Percentage of Married Couples Aged below 40 Living in UNFH	63%	69%	73%

Source : C&SD.

⁹ According to C&SD, data are compiled in such a way that both husband and wife are aged below 40. In the 1991 Census, couples in household can be identified through a spouse serial number. However, such a serial number was not used in 1981 Census and 1986 By-Census. Couples can only be identified approximately based on the data field of relationship to household if there is a man being son of the household head and a woman being daughter-in-law of the household head, these two persons may or may not be a couple but they are counted as a couple in C&SD's compilation for the 1981 Census and 1986 By-Census data. Hence, the percentages of married couples aged below 40 living in UNFH derived from the 1981 Census and 1986 By-Census should be used with caution.

Divorces

5.11 The AGR of divorces is estimated at 27%. The figure is derived from multiplying the following two items :

- (i) 54% of the divorced persons were living in singleton households or as heads of UNFH (according to the 1991 Census); and
- (ii) Assuming that 50% of item (i) is formed from the original households.

5.12 However, the percentage of the divorced persons living in singleton households or as heads of UNFH followed an uptrend (Table 4). Again, if the percentage continues to increase, the AGR will need to be revised.

Table 4 - Divorced Persons Living in Singleton Households or as Heads of UNFH (%)

	1981	1986	1991
Percentage of Divorced Persons Living in Singleton Households or as Heads of UNFH	46.3%	51.5%	53.9%

Source : C&SD.

5.13 As mentioned in footnote 4, the number of divorce cases increased from 4,257 in 1986 to 9,404 in 1995. Besides, starting from June 1996, the procedures for divorce were simplified. This may affect the divorce figure in the future, and hence the housing needs.

Legal Immigrants from China

5.14 From HB documents, 17% of the legal immigrants from China have no next-of-kin in Hong Kong or are adults joining their parents. It is then assumed that 20% of these immigrants prefer to share accommodation with relatives. Therefore, housing needs arising from this component amount to 7,300 units of flats (i.e. $80\% \times 17\% \times 365 \times 150 = 7,300$). However, it has not been explained how the assumption of 20% of the immigrants prefer to live with relatives is obtained.

5.15 According to HB documents, the 83% of the legal immigrants from China are assumed to have no housing needs upon arrival in Hong Kong. However, such assumption may need further statistical support. The forecasts of housing demand will be affected accordingly.

Splitting of Unextended Nuclear Family Households and Extended Nuclear Family Households

5.16 The reply of HB to the questions raised by the RLS indicates that it is assumed that the splitting of UNFH and ENFH would only result in the formation of singleton households. However, such splitting does not only result in the formation of singleton households. Households with other household size are not included in the model.

5.17 Moreover, it is assumed that a comparable increase in the number of singleton households will be maintained in the period 1995-2005. This assumption requires further statistical support.

Redevelopment of Public Sector Housing

5.18 According to HB, this is one of the two most important components in the model and its AGR is to be provided by HD. Therefore, it is difficult to make comments on the component at this stage.

Inadequately Housed Households

5.19 Based on the trend of 1985-1994, the annual transfer rate was 4% of the stock of the inadequately housed households. The transfer rate is assumed to maintain from 1995 to 2005. The assumption of 4% needs further support and clarification.

Net Outflow of Hong Kong Residents

5.20 Assuming 20% of the emigrants retain their flats for occupation by the remaining members, the AGR is hence 80%. However, the assumption does not have any statistical support.

Splitting Ratio

First Marriages, Re-marriages, Divorces, and Legal Immigrants from China

5.21 The SR between PRH : HOS : PH of these components are assumed to be 25% : 25% : 50%. However, these assumptions do not have any statistical support.

5.22 According to the 1994 GHS, the household income level, when matched with the public housing income limits, gave the SR of 63% public housing and 37% private housing. From HB documents,

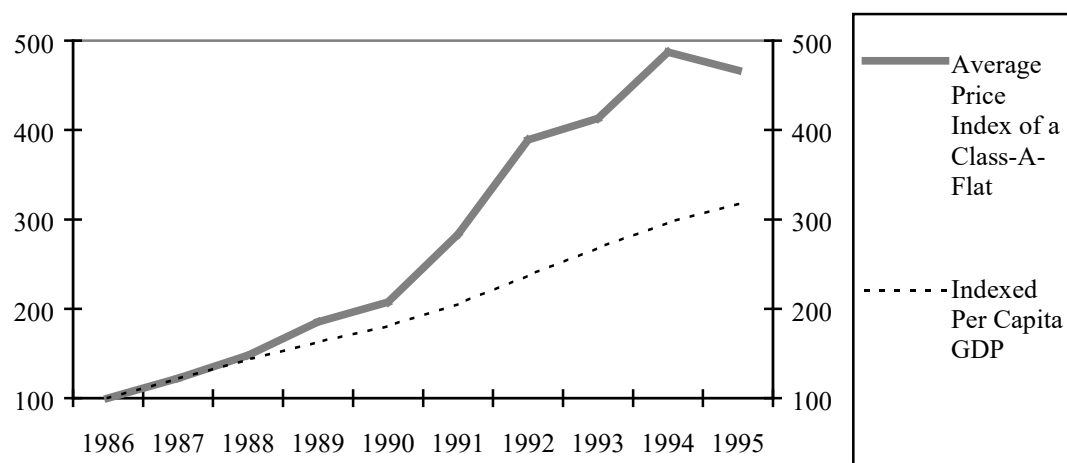
“since some households eligible for public housing prefer to acquire their accommodation in the private sector, it is assumed that the SR is 50% : 50%.”

5.23 Nevertheless, whether or not one can acquire accommodation in the private sector depends on affordability. Affordability is constrained by two factors.

5.24 First, since late 1991, an upper limit on mortgage loan has been set at 70% of the transacted property price or the valuation of the property, whichever is lower. According to R&VD, a Class-A-Flat in the New Territories in 1995 averaged HK\$39,680 per m². For instance, a flat of 35m² cost almost HK\$1.4 million. Down payment amounted to some HK\$417,000. Together with such expenses as the stamp duty and legal charges, around HK\$450,000 was required.

5.25 Second, in the past ten years, private residential property prices increased at a rate higher than the average income growth. Chart 1 shows the average price index of a Class-A-Flat and indexed per capita gross domestic product (GDP), both are rebased to 1986.

Chart 1 - Average Price Index of a Class-A-Flat and Indexed Per Capita GDP (1986 = 100)



Sources : C&SD and R&VD.

Splitting of Unextended Nuclear Family Households, Extended Nuclear Family Households, and Multi-nuclear Family Households

5.26 The SR of these components are based on the 1991 Census. The reply of HB to the questions raised by the RLS indicates that the corresponding figures from the 1981 Census and the 1986 By-Census are not available. It is therefore difficult to assess the SR on a trend basis.

Adequately Housed Non-owner-occupier Households in Private Sector and Inadequately Housed Households

5.27 The SR of these components are based on the 1991 Census. From HB documents, the corresponding figures from the 1981 Census and the 1986 By-Census are not available. It is therefore difficult to assess the SR on a trend basis.

Net Outflow of Hong Kong Residents

5.28 The SR between PRH : HOS : PH of the component is assumed to be 5% : 15% : 80%. However, there is no statistical support for the assumption.

Other Issues

Safety Margin and Flat Production Ratio

5.29 When translating housing demand into flat production requirements in the public sector, a safety margin of 5% is included to safeguard against possible slippages. In the private sector, a flat production ratio of 15% is made for second homes, vacant flats and non-residential uses. The setting of the safety margin and the flat production ratio needs further statistical support.

Average Household Size

5.30 Another factor that could affect housing needs is the falling trend of the average household size (Table 5). The average household size decreased from 3.9 persons per household in 1981 to 3.2 in 1996. This implies a larger number of flats required.

Table 5 - Average Household Size

	1981	1986	1991	1996
Average Household Size	3.9	3.7	3.4	3.2

Sources : C&SD.

Appendix 1 - The Number of Cases of First Marriages, Re-marriages, and Divorces

	First marriages	Re-marriages	Divorces
1986	34088	3333	4257
1987	39960	3600	5055
1988	37380	4072	5098
1989	33959	4255	5507
1990	37581	4616	5551
1991	34522	4892	6295
1992	38065	5193	5650
1993	34394	5204	7454
1994	31348	5309	7735
1995	32033	5287	9404

Source : C&SD.

Appendix 2 - The Definitions of Unextended Nuclear Family Households, Extended Nuclear Family Households, and Multi-nuclear Family Households

UNFH refers to those households formed from :

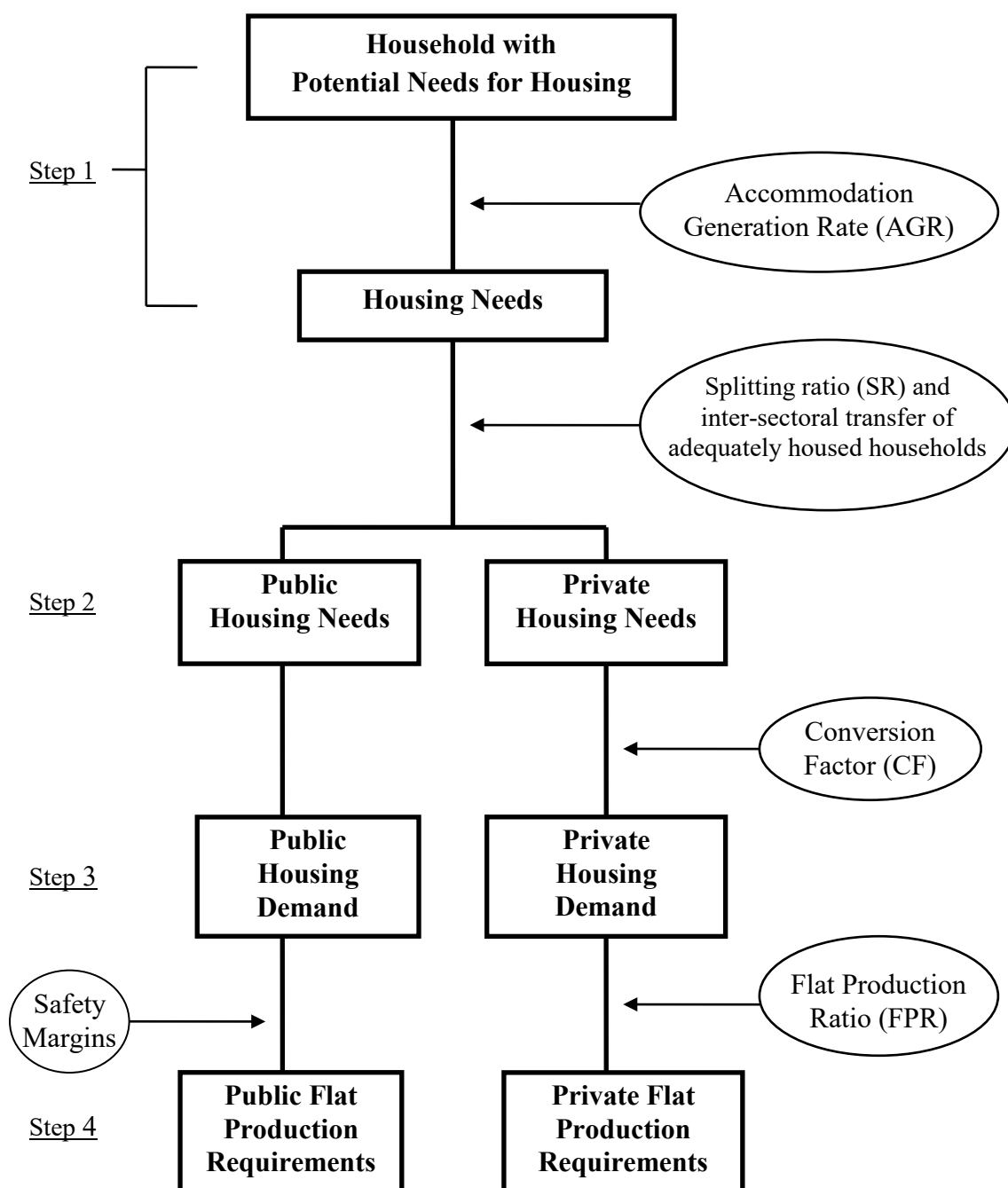
- (i) Married couple;
- (ii) Married couple with one or more never married children; and
- (iii) One parent with one or more never married children.

ENFH can be either vertically extended or horizontally extended :

- (i) Vertically extended nuclear family -- a household comprising one family nucleus with one or more related persons not of the same generation. It may or may not include other related persons of the same generation; and
- (ii) Horizontally extended nuclear family -- a household comprising one family nucleus with one or more related persons of the same generation but without any other related persons of a different generation.

MNFH refers to a household comprising two or more family nuclei whose members may or may not be related in any way.

Source : C&SD.

Figure 1 - The 1996 WGHD Model Structure

Source : HB.

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