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A STUDY OF THE IMPACT OF THE TENANTS PURCHASE SCHEME (TPS) ON THE HONG KONG HOUSING MARKETS

by

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A thesis
submitted in partial fulfillment
of the requirements for the Degree of
Master of Philosophy

Lingnan University

October 2001

ABSTRACT

A Study of the Impact of the Tenants Purchase Scheme (TPS) on the Hong Kong Housing Markets

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The Tenants Purchase Scheme (TPS), the public housing privatization programme, which commenced in the first quarter of 1998 in Hong Kong, has received much attention from urban economists. However, few empirical studies have been carried out to examine its impact on the housing market and the entire economy. This study uses time-series regression analysis to distinguish the effect of the Asian Financial Crisis (AFC) from that of the TPS on the transaction volume and the real transaction value in the second-hand HOS market (focusing on the HOS free market), the secondary property market, and the overall property market. In addition, a "Time-Shift Multi-Dimensional Housing Ladder Model" is used to estimate the effect of TPS on the HOS market using cross-sectional analysis. The empirical findings for the time-series analysis show that the TPS has affected the HOS free market much more seriously than the AFC. The effect then extends to the secondary property market and finally the overall property market. The cross-sectional analysis suggests that the HOS market will have led to a loss of more than 82,000 potential buyers over a period of 10 years as a result of the introduction of TPS. It also discovers that resource is inefficiently allocated by the large-scale survey. This dissertation also provides an analysis of the pitfalls of present TPS and discusses three alternative public housing privatization schemes. (The HKCER Model, the Wong Model and the Ho Model) It seems that the "Conditional Bidding" proposed in the Ho Model is the most appropriate policy for the change of present TPS because his model suits the criteria of economic efficiency, policy efficiency and equity best.

I declare that this thesis《A Study of the Impact of the Tenants Purchase Scheme (TPS) on the Hong Kong Housing Markets》 is the product of my own research and has not been published elsewhere.

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Yeung Fai Yip

October, 2001

CERTIFICATE OF APPROVAL OF THESIS

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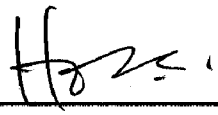

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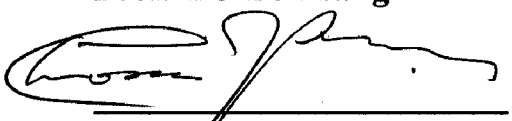

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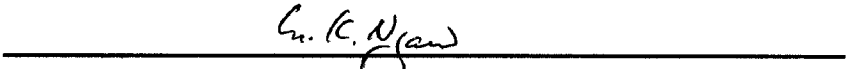

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7 November 2001

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LIST OF ABBREVIATIONS

ABS Differential	= Absolute Rate of Differential
AFC	= Asian Financial Crisis
AFCDUMMY	= Asian Financial Crisis Dummy
CE	= Chief Executive
DW	= Durbin-Watson statistic
EPSEM	= Equal Probability of Selection Method
FER	= Forward Exchange Rate
HKCER	= Hong Kong Center for Economic Research
HKHA	= Hong Kong Housing Authority
HOS	= Home Ownership Scheme
HOSFMRTV	= Quarterly Real Transaction Value of HOS Free Market
HOSFMVOL	= Quarterly Transaction Volume of HOS Free Market
LRNC	= Long-Run Negative Coefficient
LRPC	= Long-Run Positive Coefficient
NTV	= Nominal Transaction Value
OPMRTV	= Quarterly Real Transaction Value of Overall Property Market
OPMVOL	= Quarterly Transaction Volume of Overall Property Market
PRH	= Public Rental Housing
RTV	= Real Transaction Value
SER	= Spot Exchange Rate
SHHOSRTV	= Quarterly Real Transaction Value of Second-hand HOS Market
SHHOSVOL	= Quarterly Transaction Volume of Second-hand HOS Market
SPMRTV	= Quarterly Real Transaction Value of Secondary Property Market
SPMVOL	= Quarterly Transaction Volume of Secondary Property Market
SRNC	= Short-Run Negative Coefficient
SRNLRPC (LRPC)	= Short-Run Negative but Long-Run Positive Coefficient (With Long-Run Positive As Calculation Focus)
SRNLRPC (SRNC)	= Short-Run Negative but Long-Run Positive Coefficient (With Short-Run Negative As Calculation Focus)
TPS	= Tenants Purchase Scheme
TPSDUMMY 1	= Tenants Purchase Scheme Dummy Pattern 1
TPSDUMMY 2	= Tenants Purchase Scheme Dummy Pattern 2
TPSDUMMY 3	= Tenants Purchase Scheme Dummy Pattern 3
TPSDUMMY 4	= Tenants Purchase Scheme Dummy Pattern 4

ACKNOWLEDGEMENTS

I am indebted to many individuals who gave their time, energy and support in making this study possible. Grateful acknowledge is made first to Professor Lok Sang Ho, my principal dissertation supervisor, for his continuous support, advice, guidance and constructive criticism in the process of conducting this study. Actually, he is an expert in the Hong Kong's economy and public policy. ; to Mr. Wong Leung Sing, the Manager of the Research Department of Centaline Property Agency Ltd, who helped provide data for this study and gave me in-depth explanation on the difference of the transaction operation in the HOS secondary market and HOS free market ; to Mr. Macro Wu, the Assistant Director of Housing and his colleagues, who helped provide and collect data for this study.

Special thanks should be given to my precious brothers in God, Jacob Yip, Steven Chan, Joseph Yeung, King Sang, Wang Chi, Wai Ting, Chun Yip, Pok Lai, Kwok Kei and Wai Kei, who spent extraordinary time and energy in helping me conduct a large-survey of TPS tenants in Phase 1, Phase 2 and Phase 3 for all the eighteen TPS estates from mid June to mid November. Without their help, I am sure that this thesis will never be completed.

I also want to express my sincere thanks to my Lord, Jesus Christ, many precious brothers and sisters in God, especially Calvin Ng, Ceiling, Coco Chan, Chi Keung, Chi Man, Chi Wang, Chi Ying, Daniel Chan, George Ho, George Leung, Glory Tak, Hok Wai, Hung Tin, John Lai, Lai Ying, Ka Man, Kwok Keung, Lap Keung, Mei Yee, Pak Wai, Stephen Lee, Sunday Choi, Tze Wah, Wai Yee, Wai Ying, Wailliam Tong and Yan Kei. They gave me support in many different ways. Last, but not least, I would like to give special thanks to my father, mother, brother and sisters. They all give me everlasting love and support.

CHAPTER ONE

1. INTRODUCTION

1.1 Background and Significance

It is generally believed that Hong Kong's unprecedented economic downturn in 1998 was wholly caused by the Asian Financial Crisis (AFC)[1]. However, both the historical review and the comparisons of economic recovery among other Asian countries after the AFC suggest that there may be other explanations for Hong Kong gone through such a serious economic disaster.

In fact, Hong Kong had experienced the Great Proletariat Cultural Revolution of 1966 - 68[2] ; the two major oil crises during the seventies ; the plunge of the Heng Seng Index from over 1700 to less than 200 of 1973 - 75 ; the unprecedented interest rate hikes with prime rate momentarily up to 20% of 1981 - 82 ; the banking crises of 1965 - 66 and 1982 - 86[3] and the Tiananmen incident of 1989. Actually, among these gigantic setbacks, Hong Kong's growth engine never failed and it was only in 1998 that Hong Kong experienced negative economic growth since 1961. Moreover, the rebound was extremely weak in 1999 when compared with the rebounds that followed earlier recessions. The rebounds were 11.3% in 1969, 16.2% in 1976 and

[1] Hong Kong recorded negative economic growth (-5.3%) in 1998.
[2] The Cultural Revolution started on the Mainland but spread rapidly to Hong Kong. People were killed in street riots, bombs were set off and property prices slumped.
[3] With multiple bank failures from 1982 to 1986, it aroused widespread panic and serious currency depreciation. As a result, the linked exchange rate system was set up in 1983.

10.8% in 1986. The rebound, however, was only 3.1% in 1999. Since there was a negative (-5.3%) economic growth in 1998, the small rebound (3.1%) in 1999 meant that the aggregate output after 1999 was still below that in 1997.

On the other hand, the economies among other Asian countries were less adversely affected by the AFC. Ho (2000) pointed out that given Hong Kong's tight links with China and the United States, both of which registered strong growth in 1998, and Singapore's tight links with the ASEAN countries, Hong Kong should have fared better than Singapore. Nevertheless, the results were just opposite that Hong Kong registered a negative 5.3% growth while Singapore registered a positive 1.3% growth in 1998. He argued that Hong Kong should have been in much better shape than the debt-ridden South Korea. But by the second half of 1999, South Korea's GDP had rebounded to well over the pre-crisis level. After declining by 5.8% in 1998, the rebound was 10% in 1999. The difference was so large when compared with Hong Kong's 3.1% rebound at the same time. He further analyzed that Hong Kong's trade figures started to improve markedly in 1999 and by the first quarter of 2000, Hong Kong appeared to be well on its way to recovery, with a 14% year-on-year growth. Although the strength of the external sector was great, it scarcely benefited domestic consumption through late 1999. Actually, most of Hong Kong citizens continued to feel the crunch of the recession.

There is no doubt that Hong Kong' s economic growth is closely related to the change of property market historically. In the past, the persistent rapid economic growth was quite attributed to the active and prosperous property market. According to Census and Statistics Department and Centaline Property Agency Ltd, the economic growth rate since 1993 is positively related to the changes of Overall Private Domestic Property Price Index. Ho (2000) pointed out that the transmission mechanism for the AFC to burst the property price bubble was lacking. He mentioned that :

> **"First, foreign participation in the housing has never been significant. There is no evidence that a big withdrawal of foreign capital from the housing market produced a collapse. Second, although inter-bank interest rates went up in the wake of the currency troubles in South East Asia, mortgage rates had been relatively stable. Hong Kong had seen bigger mortgage rate hikes before, but had never encountered such serious depression in the housing market. Third, it is not true to say that confidence collapsed overnight. Actually, many people, including veteran analysis, were expecting a moderate recovery in property prices. That expected recovery simply never came." (p.3)**

He further added that the economy lost 12% of its GDP in the first quarter of 1998. Furthermore, there was indeed one interest rate dropping and the currency turmoil had shown signs of stabilizing at that time. To put all these analyses together, it is questionable to judge that the AFC was the sole factor for the property market collapse and the deep recession since 1998.

The Chief Executive (CE), Mr. Tung Chee Hwa, in his first Policy Address of October 1997 explicitly called for increasing the home ownership ratio from 50% to 70% in ten years. He tried to achieve it through an ambitious public housing

privatization program, the Tenants Purchase Scheme (TPS)[4]. (For full context, please see Appendix I & II) The Director of Housing, Mr. Tony Miller, in a speech made in late 1997, argued that :

> **"The TPS would foster a sense of belonging and would give owners a greater sense of security. Besides, it would provide purchasers with a first step on the housing ladder, and would enhance opportunities for upward mobility. As a result, it would help the flow of housing market. Furthermore, it promoted the release of scarce public housing resources for those in need." (See Appendix Q2)**

In contrast, Ho (2000) argued that the economic decline was the direct and immediate result of misguided housing policy, particularly its motivation to increase ownership in the property market. His hypothesis is summarized as follows :

> "**By selling public housing cheaply to tenants and allowing resale of these units in the open market, the attractiveness of Home Ownership Scheme (HOS) was reduced dramatically. Price declines of HOS housing spread to housing of a more superior quality because the latter depends on HOS owners trading up. Lacking buyers from among HOS owners, the owners of these units could not trade up either. A result of this domino effect is collapse of the entire housing market and an unprecedented recession." (Abstract p.1)**

With his own theoretical framework, Ho applied the regression analysis to prove that the TPS had an additional and very significant dampening effect on the second-hand transaction volume in the housing market over and above the effect of the AFC.

[4] The TPS is a scheme introduced by the Hong Kong Housing Authority (HKHA) to assist tenants of the HKHA to buy the flats they currently rent. At least 250,000 public housing flats will be offered for sale over the next ten years, commencing with 27,525 in early1998.

The diametrically opposite analyses clearly deserve further study. It is no easy matter to assess the validity of the two different hypotheses. While it is possible that the TPS may have an adverse effect on the purchase of HOS housing, the observed decline in the demand for HOS housing may also be due to the negative economic growth rate induced by the AFC.

1.2 Objectives of the Research

The research aims at providing comprehensive study for the impact of TPS on Hong Kong housing markets and there are twelve objectives for it. **(The first five objectives are the most important.)**

1*. To distinguish the effect of AFC from that of the TPS on the transaction volume and the real transaction value on the overall property market, the secondary property market and the second-hand HOS market[5] (focusing on the HOS free market) by time-series analysis ;

2*. To find out the net effect of TPS on the HOS market by cross-sectional analysis ;

3*. To find out the effect of TPS on the policy efficiency[6] of resource allocation by cross-sectional analysis ;

4*. To evaluate the pitfalls of the TPS ;

5*. To recommend various appropriate policy alternatives to replace the current wrong TPS ;

[5] The second-hand HOS market is composed of HOS secondary market and HOS free market. HOS secondary market is designed for those HOS flats entering into third year that can be sold to the HKHA with no need to pay the land premium to the government. As to the HOS free market, it is designed for those HOS flats entering into sixth year that can be sold to the public with the need to pay the land premium to the government.

[6] Ho (1995) defines "Policy Efficiency" as the degree of achieving a stipulated policy objective given the resources devoted to the purpose.

6. To find out whether TPS tenants intend “To Buy Public Rental Housing (PRH)” or “Not to Buy PRH” ;

7. To identify reasons/motivating factors contributing to making their decisions whether to purchase PRH or not ;

8. To find out whether TPS tenants intend “To Buy HOS flat in the Short Run/Long Run” or “Not to Buy HOS flat” if there had been no TPS ;

9. To identify reasons/motivating factors contributing to making their decisions whether to purchase HOS flat in the short run/long run or not to buy at all if there had been no TPS ;

10. To find out whether TPS tenants intend “To Buy HOS flat” or “Not to Buy HOS flat” after the resale of PRH is permitted ;

11. To identify reasons or/and motivating factors contributing to making their decisions whether to purchase HOS flat or not after the resale of PRH is permitted and finally ;

12. To find out their attitudes towards the TPS.

1.3 Theoretical Framework and Research Methodology

Actually, the research hypothesis is fundamental of Professor Ho' s. There are two parts in the empirical research, the time-series analysis and the cross-sectional analysis. For the time-series analysis, this study applies 8 variants of Professor Ho' s regression model. They are used for comparing the separate effects of AFC and TPS on the overall property market, the secondary property market and the second-hand HOS market (only focusing on the HOS free market). The transaction volume and the real transaction value in existing homes in each market are used as the dependent variables. On the other hand, five dummy variables, AFCDUMMY and 4 kinds of TPS DUMMIES, are adopted to analyze the real cause of the property market collapse since late 1997. Modifying Ho' s calculation, the difference between the spot exchange rate and the one-month forward exchange rate is used to proxy the financial crisis. (The reason behind is explained in Chapter 3.) The AFCDUMMY is non-binary, which is normalized from 0 to 1 starting from 1998 Q1 and ending at 1998 Q4 and afterwards. The pattern for TPSDUMMY1 is : 1997 Q4 and before = 0, 1998 Q1 = 0.25, 1998 Q2 = 0.50, 1998 Q3 = 0.75, 1998 Q4 and afterwards = 1. The pattern for TPSDUMMY2 is : 1997 Q4 and before = 0, 1998 Q1 = 0.33, 1998 Q2 = 0.66, 1998 Q3 and afterwards = 1. The pattern for TPSDUMMY3 is : 1997 Q4 and before = 0, 1998 Q1 = 0.50, 1998 Q2 and afterwards = 1. The pattern for TPSDUMMY4 is : 1997 Q4 and before = 0, 1998 Q1 and afterwards = 1. Using four different definitions of TPS Dummies allow to test alternative speeds of phasing in the TPS.

For the cross-sectional analysis, a "Time-Shift Multi-Dimensional Housing Ladder

Model[7]" is developed. In this model, emphasis is placed on the behaviour of public housing tenants under the TPS and in its absence. In particular, it focuses on the net effect of TPS on the desire to buy HOS flats and the policy efficiency of resource allocation. A large-scale survey (N=950) of TPS tenants was conducted in Phase 1, Phase 2 and Phase 3 for all the eighteen TPS public rental estates from mid June to Mid November. For the sake of obtaining unbiased samples, a stratified sampling[8], a kind of standard probability sampling, is adopted as the research methodology so that the final sample is representative enough of the total population from which the sample is drawn. 10 part-time enumerators were employed for conducting such a large-scale face-to-face interview. They were actively trained in the aspects of interviewing techniques and housing policies. It was extremely important that all the interviewers interpreted questions and answers in the same way, otherwise information from different interviewees will not be comparable. Briefing sessions were therefore organized for interviewers before the main survey. A pilot survey was conducted in Kin Sang Estate on 20 June 2000. Following the trial run, some amendments on the questionnaire were made. The main survey lasted for nearly five months, commencing in late June and ending in mid November 2000.

[7] This is a behaviourial model in which analysis is stick into how different TPS tenants respond differently based on the timing (short run or long run) and the action (buy HOS flat or not with and without TPS).

[8] This is a procedure that consists of stratifying the population into a number of non-overlapping sub-population and then taking a sample from each stratum. If the items selected from each stratum constitute simple random samples, the entire procedure – first stratification and then random sampling – is called stratified sampling.

1.4 Research Structure

The rest of the thesis is organized as follows. Chapter two reviews the literature on the historical background of the evolution of TPS, the housing privatization in general, the Ho' s model and his empirical findings, and three crucial concepts for the policy analysis and evaluation. Chapter three is the theoretical frameworks for both the time-series analysis and the cross-sectional analysis and chapter four covers the research methodologies for them. Chapter five takes up both the econometric analysis (by EViews3.1) and the cross-sectional statistical analysis (by SPSS9.0), and the discussion of their results. Chapter six contains an evaluation of current TPS and offers policy recommendations. Finally, it draws a conclusion in Chapter Seven.

Remark* : In this research, both published and unpublished (self-adjusted) monthly time-series data are used to do the regression analysis.

CHAPTER TWO

2. LITERATURE REVIEW

This chapter is divided into four parts. The first one briefly describes the historical background of the evolution of TPS. The second one provides a framework for understanding housing privatization in general. The third one is concerned with the theoretical framework developed by Ho (2000) and his empirical findings, and the fourth one introduces three crucial concepts for the policy analysis and evaluation.

2.1 The Historical Background of the Evolution of TPS

Since 1987, the Hong Kong government has favoured the expansion of owner occupation on both political and social grounds. By doing so, the HKHA introduced a pilot scheme to sell PRH to sitting tenants in 1991. Forrest and Murie pointed out that the scheme followed the general principle of "The Right to Buy (RTB)" which had been in operation in the UK for over fifteen years and over 1.6 million public sector dwellings had been sold under the scheme. It attempted to make a significant contribution towards achieving a higher rate of home ownership.

The HKHA twice attempted to initiate similar schemes in 1991 and in 1992, but they failed. In 1991, only 7.4% of tenants opted for the scheme because of undesirable sale prices, poor physical conditions of the flats and stringent resale restrictions. In fact, the prices of flats represented about one third of prices of private sector flats of

similar sizes. Some tenants were concerned about the condition of their flats and the likely future costs of repair and maintenance. As to the second attempt in 1992, the revised proposal was nevertheless vetoed by the Executive Council. It was because the proposed terms of offer were not considered sufficiently attractive to achieve a high take-up rate, and that the proposed 30% threshold could lead to problems of management in a mixed ownership situation. As a result, the scheme was not pursued further. The failure, in effect, reduced about 1.4% of the home ownership rate in the public sector.

With housing a top priority, the Chief Executive (CE), Mr. Tung Chee Hwa in his Policy Address set the target of achieving a 70% home ownership rate by 2007. This represented a major improvement on the existing rate of 52%. On top of an increasing supply of housing stock, there were two instruments to achieve it. The first one was a major expansion of existing subsidized home ownership and loan schemes, such as Home Purchase Loan Scheme (HPLS), Sandwich Class Housing Scheme (SCHLS), Home Starter Loan Scheme (HSLS) and Mortgage Subsidy Scheme (MSS). The second one was to launch a scheme to sell public rental flats to existing tenants. To serve this purpose, the TPS revived in January 1998. Having gone through the two previous failures, the sale prices, the physical conditions and the resale restrictions were altered so as to attract more tenants to buy their own rental flats. In fact, the sale prices were set at 12% of their assessed market value. Besides, flexible mortgage arrangements would be negotiated with financial institution. The condition of flats was checked and essential renovation work was carried out before sale. Furthermore, the maintenance fund was established with contributions. All of these changes had attracted the sale of public rental flats among

sitting tenants, with 75% in Phase 1, 67% in Phase 2 and 69% in Phase 3 respectively. In flat, PRH tenants received a subsidy of about $230 a month for a rental flat in 1997-98. Despite receiving heavy subsidization, many well-off PRH tenants continued to live in the rental flats even they owned properties. Worse still, the HKHA was running at an increasing deficit in managing the 670,000 PRH families. The success of the revival of TPS solved this problem to a certain extent.

2.2 A Framework for Understanding Housing Privatization In General

Lundqvist (1992) did a comparative study of the four advanced European economies with the housing privatization experience and suggested three general patterns of privatization. They were definancing, dispossession and deregulation. On the other hand, Heald (1984) identified four main types of privatization, including user-charges, contracting out, load shedding and liberalization. Lau (1997) believed that both of their categorizations were inadequate for understanding privatization of public housing in China. In his study of the Shenzhen housing privatization programme, there were fives types of housing privatization. They were definancing, disposal, deregulation, disengagement and delimitation. Since they were all started with the letter "D", they were named as "**five Ds of housing privatization strategies**".

2.11 Definancing

Ambrose and Barlow (1987) pointed out that government intervention might concern

finance. The government could change either the housing price or the purchasing power of households. This could take many forms, such as grant, interest free loan, low-interest loan, mortgage tax relief and concessionary land grant. Lau (1997) defined definancing occurred when the government refrained from financing. Alternatively, government might ask public housing service beneficiaries to pay a higher charge. This meant public housing users would bear a higher cost and heavier financial responsibility and it was part of government's move to recover cost partially or fully from the consumers.

2.12 Disposal

Murie (1993) defined demunicipalisation as the reduction of municipal ownership and development activity. Examples included transfers of council housing to sitting tenants and independent organizations, and restricting capacity for new building by local housing authorities. Lunqvist (1992) also used the term "dispossession" to mean the same thing. Actually, the public sector would be restructured.

2.13 Deregulation

Lau stated that government intervention could also take the form of regulation of the quantity, quality and price of production factors, housings produced and housings in the stock. Regulatory intervention might concern how households and dwellings were matched, that was, the criteria for allocation and distribution. He further added that regulations also affected power. Examples included the forms and conditions for the resale of public sector housing and the forms of housing possession available.

Murie (1993) defined deregulation as a process of reducing or removing state regulation of private activity. Lau defined deregulation as a reduction of government involvement in the regulatory intervention activities. He believed that the government could also deregulate or relax its own resale restrictions over the public sales flats. This would promote more resale within the public sale flats market.

2.14 Disengagement

Lau used disengagement to mean the disengagement from the role of manager of its housing stocks and that of the direct provider of social housing. The most obvious examples of disengagement strategy are contracting out the management services to private sector or providing loan, rent allowances and housing vouchers to enable needy families to purchase or rent in the housing market. Other examples include the transfer of government responsibility to private individuals by encouraging self-help housing projects.

2.15 Delimitation

Lau used delimitation to describe government's conscious and proactive attempts to delimit its role to be a housing provider, financier or regulator. As a result, it created space for the involvement of private developers in meeting housing demand. He further added that the slowdown or reduction of house building programme was also considered part of the move of government's delimitation strategy. In fact, the delimitation strategy of housing privatization adopted by the government was subject to change due to the interaction of competitive forces within society. The clearer and

the smaller was the government's role in housing, the greater the private sector housing developers' involvement in the housing market and the higher the proportion of households in the home purchase market.

Lau added that there were five main points when the Shenzhen government adopted the urban housing reform programme as the key instrument of housing privatization and marketisation. (p.8-10)

1. The "welfare housing" approach, which required the government to take all the responsibilities, was worse than giving all the housing free of charge to sitting tenants. It was estimated that the total amount or recurrent subsidy paid for 20 years on a flat was sufficient to build a new flat.

2. If the urban housing reform started late, the cost of subsidy would be higher and the change of the existing housing system would become more difficult.

3. The new arrangement would be less costly for the government. It was because the government was kept to be property owner when rent increase was supplemented by rent subsidy without selling the flats to sitting tenants. Therefore, the government had to continue to pay the recurrent subsidy.

   Using a cost and benefit analysis framework, Lau showed that the state would have to bear a higher cost with reference to Gaige's findings. (see Table 2.1, Option B) According to the Shenzhen Housing Reform Office's Assessment made in 1988, Option C was able to reduce the amount of government's subsidy

when it was compared with Option A or B. The government could have saved about 190.5449 million yuan per annum by adopting Option C.

Table 2.1 Urban Housing Reform Options Considered in 1988

	Option A	Option B	Option C
At 1987 price (Unit : Million Yuan)	Status Quo : Low Rent (Note 1) and No Sale	Rent Increase (Note 2) with Housing Subsidy (Note 3) but No Sale	Rent Increase with Housing Subsidy and Sale of Flats to Sitting Tenants
Total Expenditure per annum	312.2303	433.3114	353.4391
Total Revenue per annum	16.693	130.4639	248.4467
Total Revenue minus Total Expenditure per annum (Negative Value indicates Level of Subsidy Required)	-295.5373	-302.8475	-104.9924

Note 1 : Rent remains low at 0.14 yuan per square metre construction space.

Note 2 : Rent increased to 2.06 yuan per square metre construction space.

Note 3 : Housing subsidy is equivalent to 22.06% of workers' basic salary.

Source : Shenzhen City Housing System Reform Office (1992) (ed.) Shenzhen Jingji Tequ Zhufang Zhidu Gaige (Shenzhen Special Economic Zone Housing System Reform), Shenzhen, Haitian Publishing House, p.131

4. Urban housing reform would succeed only if the flats were sold to sitting tenants and prospective tenants. Through the sale scheme, workers would spend their housing subsidy on home purchase and the government would get the sale proceeds for use in constructing new housing for sale. As a result, the housing problem was solved. The transfer of property nominally owned by the state to the individual housing consumers would reduce the financial burden of the state. This was because it stopped paying for the subsidy on recurrent deficits of its housing stocks. This would also provide an opportunity for tenants to own the flats, which would eventually become a commodity available for exchange in the market.

5. The government would obtain revenue from housing consumers through the sale of public flats scheme. It would enable to circulate the housing funds that would help promoting the formation of a real estate market. The circulation started with selling the existing public flats to sitting tenants. Then, proceeds obtained would be used to build new flats for sale in the following round. Afterwards, proceeds from the sale of newly completed flats would be used to finance the building of new flats for sale. The sale of flats to workers was expected to reduce the financial burden of the government and enable people to spend their income and savings more on housing and housing-related items and less on unnecessary expensive items. As a result, inflation was expected to be checked and price of other commodities would be stabilized.

Lau also pointed out three changes were required by turning housing into a market commodity. The first one was from allocation in kind to allocation in cash. The second one was drawing in individual finance while the third one was from welfare housing to commodified housing.

2.2 Ho' s Theoretical Framework and His Empirical Findings

Ho (2000) applied the time-series regression analysis to his own model for distinguishing the effect of AFC from that of the TPS on second-hand transaction volume in the housing market. Firstly, he applied his model to explain change in domestic demand of private sector in Hong Kong, which was the sum of private consumption and investment. S1 and S3 were seasonal dummies for the first and the

third quarters in 1998. GOVER90R was the rate of change of real government expenditures on goods and services. He indicated that such expenditures should have an impact on domestic demand of private sector through the multiplier effect[9]. Similarly, EXPORT90R and EXPORT90R(+1), which were the rates of change of real exports, current and leading one quarter, also had an impact on domestic demand of private sector through the multiplier effect. Because production preceded actual exports, the lag structure was advanced one quarter relative to that of government expenditures. A priori, he expected that both exports and government expenditures had positive effects on domestic demand. He found that the real interest rate[10] and the inflation rate had negative effects on domestic demand. Table 2.2 shows his empirical findings.

Table 2.2 : Dependent Variable : NETDOMDER (1984Q2 to 1997Q4)

Variable	Coefficient	t-ratio
Constant term	7.0249	2.8052***
S1	-8.9173	-2.9421***
S3	-7.7852	-5.8722***
GOVER90R	0.26317	1.9948**
EXPORT90R	0.18427	1.6075
EXPORT90R(+1)	0.16797	2.4505**
REALMRA(-1)	-0.31523	-1.4794
GDPDEFRA(-1)	-0.23405	-1.1353

R-bar squared = 0.61719
DW - statistics = 2.0674
* statistically significant at 10% level
** statistically significant at 5% level
*** statistically significant at 1% level

Source : Ho, L.S. (2000) *Principles of Public Policy Practice.* Netherlands : Kluwer Academic Publishers. p.190.

[9] Multiplier effects usually take many quarters to work out. However, since it is working with year-on-year rate of change, there is already an implicit time delay factor for the multiplier effect.

[10] This is the standard mortgage rate, equal to the prime rate +1.75 up to February 1996, but declining smoothly to a weighed mortgage rate applicable at the start of 1999, minus the quarter-to-quarter GDP implicit deflator inflation rate annualized.

Based on the estimated parameters and the actual values of the growth of real government expenditures, real exports, real interest rates and the actual rate of inflation from 1984 Q2 to 1997 Q4, he then forecasted the effects of the rate of change on domestic private demand. Along with the actual values of change, the forecast values are shown in Table 2.3.

Table 2.3 : Forecast for NETDOMDER from 1998Q1 to 1999Q3 (Units in per cent)

Observation	Actual	Prediction	Error
1998Q1	-9.4982	-4.1557	-5.3425
1998Q2	5.1774	3.3680	1.8094
1998Q3	-7.2065	-1.3093	-5.8972
1998Q4	-3.9714	-0.6435	-3.3279
1999Q1	-8.9805	-3.1268	-5.8537
1999Q2	8.6339	5.8449	2.7890
1999Q3	4.8060	0.4650	4.3410

Source : Ho, L.S. (2000) *Principles of Public Policy Practice.* Netherlands : Kluwer Academic Publishers. p.190.

As indicated in Table 2.3, the actual declines in 1998 Q1, 1998 Q3 and 1998Q4 are much larger than the predicted one. The huge error, amounting to 129%, 450% and 517% of the predicted values in respective quarters, begs an explanation and cannot be attributed to random factors. To have an in-depth analysis, he further used a similar regression model but adding an additional, non-binary, CRISISDUMMY to capture any independent effect of the AFC that might have effects other than through exports and real interest rates. CRISISDUMMY was the forward rate discount of the HK dollar over the spot rate normalized to take on values between 0 and 1. Table 2.4 shows the results.

Table 2.4 : Dependent Variable : NETDOMDER (1984Q2 to 1997Q4)

Variable	Coefficient	t-ratio
Constant term	7.0875	2.8043***
S1	-8.7331	-2.8381***
S3	-7.6637	-5.6434***
GOVE90R	0.25724	1.9267*
EXPORT90R	0.18491	1.6002
EXPORT90R(+1)	0.15887	2.2242**
REALMRA(-1)	-0.31721	-1.4765
GDPDEFRA(-1)	-0.24168	-1.1600
CRISISDUMMY	-1.4681	-0.50375

R-bar squared = 0.61102

DW - statistics = 2.0539

* statistically significant at 10% level

** statistically significant at 5% level

*** statistically significant at 1% level

Source : Ho, L.S. (2000) *Principles of Public Policy Practice.* Netherlands : Kluwer Academic Publishers. p.191.

It shows that CRISISDUMMY carries the expected negative sign but it is not statistically significant at 5%. In the same way, the equation can be used to do a forecast, which is presented in Table 2.5.

Table 2.5 : Forecast for NETDOMDER from 1998Q1 to 1999Q3 (Units in per cent)

Observation	Actual	Prediction	Error
1998Q1	-9.4982	-5.0188	-4.4794
1998Q2	5.1774	1.9839	3.1935
1998Q3	-7.2065	-2.6994	-4.5071
1998Q4	-3.9714	-0.9596	-3.0118
1999Q1	-8.9805	-3.6761	-5.3044
1999Q2	8.6339	5.5848	3.0491
1999Q3	4.8060	0.2956	4.5104

Source : Ho, L.S. (2000) *Principles of Public Policy Practice.* Netherlands : Kluwer Academic Publishers. p.192.

Table 2.5 shows that adding the CRISISDUMMY does generally reduce the predicted growth rates in the forecast period. Any negative errors of the forecasts are

reduced, but it also increases the positive errors. Ho accounted that it explained part of the economic declines, but it was overly pessimistic in explaining the recovery. That is, given the subsiding of the AFC after 1999 Q1, the model reflects that the economy should have recovered faster, but the economy did not behave as predicted.

Based on the previous empirical findings, he analyzed the effects of the TPS, neatly described as a disruption to the ecology of the housing market, in a sequential order. Nevertheless, they took effect immediately. He mentioned that :

> **"This is like a train engine pushing a series of linked carriages. Even though the force comes from the engine at the end of the chain, there is virtually no difference in the timing of the motion of the first carriage as compared with the last. Moreover, we have good reasons to believe that the prices of luxury homes, which corresponds to the theoretically last 'carriage' affected, would fall even more than the entry-level home do. Luxury homebuyers are almost always already homeowners and such owners may depend *entirely* on their ability to sell their existing homes before they could buy better ones. On the other hand, the entry-level homebuyers have never owned homes before and have all along depended on their cash savings for their buying power." (p.19)**

He added that the collapse in turnover in the housing market was particularly damaging for the Hong Kong economy. Since quite a lot of key sectors depended on housing turnover for their business, the collapse in turnover virtually eroded the basis of their survival. The most serious one was the property brokerage sector. Others also hit seriously included decorators, movers, lawyers, bankers, stockbrokers, retailers,

construction materials' sellers and real estate developers. As the values of properties and collaterals fell, the banks had to curtail their lending activities.

To complement the previous time-series regression analysis, Ho adopted another model to distinguish the effect of AFC from that of the TPS on second-hand transaction volume in the housing market. He used the volume of transaction in existing homes as the dependent variable, and he used the difference between the Spot Exchange Rate (SER) and the one-year Forward Exchange Rate (FER) to proxy the financial crisis. This CRISISDUMMY was non-binary, but normalized to have a minimum value of 0 and a maximum value of 1. The TPSDUMMY9712 was a dummy variable that was 0 for all months before December 1997 and 1 for all months in December 1997 and onwards. PRIMR was a price appreciation variable[11], which showed the percentage change of year-on-year property price increase over the previous 6 months.

Table 2.6 : Dependent Variable : Second-hand Transaction Volume (1996M3 to 2000M2)

Variable	Coefficient	t-ratio
Constant term	10261.0	12.067***
CRISISDUMMY	-2949.1	-1.7952*
TPSDUMMY9712	-3965.3	-2.8409***
PRIMR	33.289	1.5030

R-bar squared = 0.49601

DW -statistics = 2.0709 (AR(1) procedure was used to adjust for serial correlation)

* statistically significant at 10% level

*** statistically significant at 1% level

Source : Ho, L.S. (2000) *Principles of Public Policy Practice.* Netherlands : Kluwer Academic Publishers. p.189.

[11] In general, price appreciation provides an incentive and a greater ability for homeowners to trade up, thus pushing up second-hand transaction.

As shown in Table 2.6, although both the CRISISDUMMY and TPSDUMMY9712 carry the expected negative sign, only TPSDUMMY9712 is statistically significant at 1%. Besides, the slope coefficient of TPSDUMMY9712 is greater than that of CRISISDUMMY by approximately 2.5 times.

2.3 Three Crucial Concepts for the Policy Analysis and Evaluation

To have an in-depth analysis of the impact of TPS on the Hong Kong housing market, it is vital to introduce the concepts of economic efficiency, policy efficiency and equity. As a result, the evaluation of the implementation by the HKHA can be objectively analyzed and it provides the way for the policy recommendations to be made in Chapter Six.

2.31 Economic Efficiency

Economic efficiency in the economic literature conceptually simply means making the most out of given, limited resource.[12] Ho (1995) pointed out that economic efficiency could be attained in the absence of technological externalities and monopolization in the following way. Devoting resources to produce what was valued by consumers (consumers' sovereignty), producing on the production frontier (production efficiency) and maximizing the value of consumption (consumption efficiency) by letting both final goods and factors of production realize their maximum values in the open market. Therefore, economic efficiency has to be

improved by allowing greater choices over the utilization of the existing public housing units, including the right to resell them in the open market.[13]

In general, from a static point of view, economic efficiency in the use of any resource would require open competition for its use. Removing restrictions to resale by purchasers will contribute to economic efficiency because resale in open market will guarantee that the housing unit will go to whoever making the most out of its use in the long run. From a dynamic point of view, however, one must further consider possible disruption to the market and particularly destruction of market value as a result of opening up of competition.

2.32 Policy Efficiency

Beside economic efficiency, another important concept of efficiency, dubbed "Policy efficiency", was defined by Ho (1995) as the degree of achieving a stipulated policy objective given the resources devoted to the purpose. Given the policy goal, the TPS should be evaluated for its effectiveness of providing the target group households with better housing. It should, of course, also be evaluated against the general criterion of economic efficiency. Without doubt, the provision of public housing is originally targeted at helping the lower income households through an in-kind transfer[14]. Therefore, policy efficiency means to give the greatest help for the lower income households out of the public resources available in a given period of time.

[12] Pareto efficiency is a more technical spelling out of what is required to be economically efficient.
[13] Ng (1983) showed that although externalities and different degrees of monopolization abound in the real world , the first-best rules "maximizes expected benefit" in a "third best" world. As a result, the welfare assumed to be improved by removing restrictions to the use of assets.
[14] In-kind transfer means that the subsidy is in the form of direct subsidized housing, but not the cash grant.

2.33 Equity

In the public finance literature, equity has two meanings. The first one is horizontal equity while the second one is vertical equity. According to Ho (1995), horizontal equity was "the equal treatment of equals", while vertical equity was the "equitably differentiated treatment of unequals". An extension of the meaning of equal treatment of equals requires equal rights of players in the market, or free competition in the open market. He considered that auctioning off an item was therefore more equitable than a lottery draw or allocation on a "first-come-first-served basis". Actually, open market among eligible households for public housing units is both equitable and efficient, as it will better match the housing units to the real needs of tenants. Today, queuing[15] and lottery draws are still heavily used in the allocation of public housing units among prospective tenants and the allocation of HOS flats among prospective buyers. He considered that these methods of allocation are arbitrary and thus inequitable.

[15] As of 2000, the average waiting time for PRH is 6 years.

CHAPTER THREE

3. THEORETICAL FRAMEWORKS FOR BOTH THE TIME-SERIES ANALYSIS AND THE CROSS-SECTIONAL ANALYSIS

3.1 Theoretical Framework for the Time-series Analysis

As mentioned in Chapter 2, Ho (2000) distinguished the effect of AFC from that of the TPS on the second-hand transaction volume in the housing market by the time-series regression analysis. Followed with his model, three major types of models are developed to compare the separate effects of AFC and TPS on the overall property market, the secondary property market and the second-hand HOS market (focusing on the HOS free market). There are 8 dependent variables. They are : the transaction volume (in no. of units) of overall property market **(OPMVOL)**, the real transaction value (in constant $) of overall property market **(OPMRTV)**, the transaction volume of secondary property market **(SPMVOL)**, the real transaction value of secondary property market **(SPMRTV)**, the transaction volume of second-hand HOS market **(SHHOSVOL)**, the real transaction value of second-hand HOS market **(SHHOSRTV)**, the transaction volume of HOS free market **(HOSFMVOL)** and the real transaction value of HOS free market **(HOSFMRTV)**. On the other hand, there are 5 independent variables. They are : the Asian Financial Crisis Dummy **(AFCDUMMY)** and 4 patterns of the Tenants Purchase Scheme DUMMIES **(TPSDUMMY1, TPSDUMMY2, TPSDUMMY3 and**

TPSDUMMY4). Modifying Ho's calculation, the difference between the Spot Exchange Rate (SER) and the one-month Forward Exchange Rate (FER) is used to proxy the financial crisis. To explain the reason for it, it is essential to introduce both the linked exchange rate system in Hong Kong.

Under the linked exchange rate system, three note-issuing banks (the Hong Kong and Shanghai Banking Corporation, the Standard Chartered Bank and the China Bank) will pay the government's Exchange Fund for additional Certificates of Indebtedness in US dollars at a fixed rate of HK $7.8 = US $1 when new bank-notes are issued. When bank-notes are withdrawn from circulation and the note-issuing banks surrender Certificates of Indebtedness, the Exchange Fund will pay them the equivalent in US dollars at the same fixed rate. The exchange rate of the US dollars, which a bank customer will obtain, however, will continue to be determined by market forces. This means that there are two exchange rates between the HK dollar and the US dollar, that are, the linked rate and the market rate.

If traders expect the HK dollar to devalue or lack confidence in the HK dollar, they will buy US dollar in the forward market. This will raise the forward value of the US dollar. The premium compared to the spot value can be considered as an insurance premium which gives traders protection against large exchange losses.

Therefore, the spot-forward exchange rate differential is a good proxy variable for the AFC. Besides, instead of one-year forward rate, the one-month forward rate is used as alternative variable because it appears to be even more sensitive to changes in the mood of the market, although it may be caused by the intervention of market

noise.

In fact, there are some other key independent variables that are relevant to the transaction volume and the real transaction value of the overall property market, secondary property market and the second-hand HOS market in Hong Kong. The most obvious one is the quality issue. In fact, the quality of HOS gets worse and worse than before and it probably lowers both the transaction volume and the real transaction value of second-hand HOS market. Although the quality issue is an important factor to affect the Hong Kong housing market, it is difficult to have an objective standard to measure it. Moreover, the research only aims at distinguishing the effect of AFC from that of the TPS on the overall property market, the secondary property market and the second-hand HOS market. Therefore, the quality issue is not selected to be an independent variable for analyzing the transaction volume and the real transaction value of overall property market, secondary property market and the second-hand HOS market. The same logic is applicable to other relevant variables, such as the employment rate and the economic growth rate.

3.2 Postulates for the Effects of TPS on the Overall Property Market, the Secondary Property Market and the Second-hand HOS Market for the Time-series Analysis

If the slope coefficients of TPSDUMMIES are larger and more statistically significant than that of the AFCDUMMY on the OPMVOL and the OPMRTV, the effect of the TPS on the overall property market is concluded to be greater than that of the AFC, and vice versa. Similarly, if the slope coefficients of TPSDUMMIES are larger and more statistically significant than that of the AFCDUMMY on the transaction volume and the real transaction value on the secondary property market, the second-hand HOS market and HOS free market, it can be concluded that the effects of TPS are greater than that of the AFC on these respective markets.

Figure 3.1

THEORETICAL FRAMEWORK FOR THE TIME-SERIES ANALYSIS

HO' S MODEL

Explanation of Unprecedented Deep Recession in 1998

Dependent Variable

Transaction Volume of Secondary Property Market

Independent Variables

Asian Financial Crisis Dummy
Tenants Purchase Scheme Dummy

RESEARCH MODEL

Explanation of Collapse of Overall Property Market, Secondary Property Market and Second-hand HOS Market by Asian Financial Crisis and Tenants Purchase Scheme since 1998

Overall Property Market

Dependent Variables

Transaction Volume of Overall Property Market ;
Real Transaction Value of Overall Property Market

Independent Variables

AFCDummy.
TPSDummy1, TPSDummy2, TPSDummy3, TPSDummy4.

Secondary Property Market

Dependent Variables

Transaction Volume of Secondary Property Market ;
Real Transaction Value of Secondary Property Market

Independent Variables

AFCDummy.
TPSDummy1, TPSDummy2, TPSDummy3, TPSDummy4.

Second-hand HOS Market

Dependent Variables

Transaction Volume of Second-hand HOS Market ;
Real Transaction Value of Second-hand HOS Market ;
Transaction Volume of HOS Free Market ;
Real Transaction Value of HOS Free Market

Independent Variable

AFCDummy
TPSDummy1, TPSDummy2, TPSDummy3, TPSDummy4.

3.3 Theoretical Framework for the Cross-sectional Analysis

Since the TPS has been implemented for 3 years only up to date, the time-series analysis is still subject to limitations in distinguishing the effects of AFC from that of the TPS on the overall property market, the secondary property market and the second-hand HOS market. (only focusing on the HOS free market) To provide an alternative test for the validity of the hypothesis other than the time-series regression model, a "Time-Shift Multi-Dimensional Housing Ladder Model" is developed for estimating the effect of TPS on the HOS market using cross-sectional analysis. In this model, emphasis is placed on the behaviour of public housing tenants under the TPS and in its absence. It focuses on the net ownership effect of TPS on the purchase of HOS flat and the policy efficiency of resource allocation. A large-scale survey is conducted to ask the tenants who live in Phase 1, Phase 2 and Phase 3[16] of TPS. Actually, there are three core questions. In particular, the interviewers will first ask the tenants about their tenure choices of buying PRH. There are three options for them to choose from. The first one is "Intend to Buy PRH", the second one is "Has Already Bought PRH" and the third one is "Will Not Buy the PRH". Afterwards, the interviewers will ask the target tenant whether he/she would buy a HOS flat or not if the TPS had not been implemented. The "target tenants"[17] here refers to those who either intend to buy or have already bought their PRH. There are also three options for them to choose from. The first one is "Purchase a HOS Flat in the Short Run", the second one is "Purchase a HOS Flat in the Long Run" and the third one is "Do Not Purchase a HOS Flat in both the Short Run and the Long Run". Then, the

[16] There are 27525 TPS tenants for Phase 1, 27161 for Phase 2 and 27415 for Phase 3.
[17] There are 20272(75%) TPS target tenants for Phase 1, 18394(67%) for Phase 2 and 19012(69%) for Phase 3.

interviewers further ask the target tenant whether he/she will buy a HOS flat or not after the resale of PRH is permitted. There are two options for them to choose from. The first one is “Will Purchase a HOS Flat” and the second one is “Will Not Purchase a HOS Flat”. With reference to these three questions, it constitutes the theoretical framework of the model. To sum up, there are six effects for the TPS on the purchase of HOS flat for the target tenants. Three effects are either positive or negative and the remaining three are neutrals. It should be noted that one of them involves the concept of time-shift. They are defined as the short-run negative effect, the long-run negative effect, the long-run positive effect, the short-run negative but long-run positive effect and the neutral effects. The following Decision Diagram shows the options facing PRH tenants under the TPS.

Figure 3.2

THEORETICAL FRAMEWORK FOR THE CROSS-SECTIONAL ANALYSIS

TIME-SHIFT MULTI-DIMENSIONAL HOUSING LADDER MODEL

(Decision Diagram for Option Facing PRH Tenants under the TPS)

Will Buy a TPS flat ?	Will Buy a HOS Housing in the Short Run Without	Will Buy a HOS Housing in the Long Run Without	Will Buy a HOS Housing After the Resale of PRH Housing is Permitted ?
Yes	Yes	NA	Yes (Short-Run Negative but Long-Run Positive Effect)
			No (Short-Run Negative Effect)
	No	Yes	Yes Neutral Effect
			No Long-Run Negative Effect
		No	Yes (Long-Run Positive Effect)
			No Neutral Effect
The following part is not the study focus because its effects on the HOS market are probably small.*			
No	Have you applied for HOS from 1994 to 1998 ?	Have you applied for HOS since 1998 ?	Collaborative Analysis
	Yes		
		Yes	No Effect
		No	Negative Effect
	No	Yes	Positive Effect
		No	No Effect

*** It should be noted that the total population for those who say no to buying TPS is so large that, though the marginal effect is small, the total effect may be quite significant.**

3.4 Definitions of the Operational Concepts for the Cross-sectional Analysis

Short-Run Negative Effect is defined as : if there had not been the TPS, the target tenant would buy a HOS flat in the Short Run. However, after the resale of PRH is permitted, he/she will not buy any HOS flat.

Long-Run Negative Effect is defined as : if there had not been the TPS, the target tenant would buy a HOS flat in the Long Run. However, after the resale of PRH is permitted, he/she will not buy any HOS flat.

Long-Run Positive Effect is defined as : if there had not been the TPS, the target tenant would not buy a HOS flat both in the Short Run and the Long Run. However, after the resale of PRH is permitted, he/she will buy a HOS flat.

Short-Run Negative but Long-Run Positive Effect is defined as : if there had not been the TPS, the target tenant would buy a HOS flat in the Short Run. However, the target tenant, who buy a PRH flat in the short run, will trade up a HOS flat in the long run.

Short Run is defined as **Within Three Years** in this model.

Long Run is defined as **Beyond Three Years** in this model.

To sum up, there are two layers for the target tenants being analyzed.

First Layer : 1. If there had not been the TPS, the target tenant would buy a HOS flat in the Short Run.

2. If there had not been the TPS, the target tenant would buy a HOS flat in the Long Run.

3. If there had not been the TPS, the target tenant would still not buy a HOS flat in both the Short Run and the Long Run.

Second Layer : 4. After the resale of PRH is permitted, the target tenant will buy a HOS flat.

5. After the resale of PRH is permitted, the target tenant will not buy a HOS flat.

The Analyses of the Combinations for the First Layer and the Second Layer (Focusing on the Ownership Effect) :

The combination of 1 & 4 will induce the substitution of a PRH and a HOS flat between the Short Run and the Long Run by the TPS.

The combination of 1 & 5 will adversely affect the Housing Ladder due to the decrease on the purchase of HOS flat by the TPS in the short run.

The combination of 2 & 4 will cause no effect on the Housing Ladder.

The combination of 2 & 5 will adversely affect the Housing Ladder due to the decrease on the purchase of HOS flat by the TPS in the long run.

The combination of 3 & 4 will contribute the Housing Ladder due to the increase on the purchase of HOS flat by the TPS in the long run.

The combination of 3 & 5 will cause no effect on the Housing Ladder.

The Time-Shift Multi-Dimensional Housing Ladder Model can also be clarified through the following Cross-tabulation Table.

Figure 3.3

Time-Shift Multi-Dimensional Housing Ladder Model
(Cross-tabulation Analysis)

		After the resale of PRH is permitted, will you buy a HOS flat ?		
		Yes	No	**Total**
If there is no TPS, will you buy a HOS flat?	Buy in the Short Run (within 3 years) Count	**Short-Run Negative but Long-Run Positive Effect**	**Short-Run Negative Effect**	
Count	Buy in the Long Run (beyond 3 years)	**Neutral Effect**	**Long-Run Negative Effect**	
Count	Not Buy in both the SR & the LR	**Long-Run Positive Effect**	**Neutral Effect**	
	Total			

3.5 Measurement of the Definitions for the Cross-sectional Analysis

Short-Run Negative Effect is measured by the **Short-Run Negative Coefficient (SRNC)**. It is calculated by the total number of target tenants, indicating the choices of 1 & 5, divided by the total number of the total population studied.

Long-Run Negative Effect is measured by the **Long-Run Negative Coefficient (LRNC)**. It is calculated by the total number of target tenants, indicating the choices of 2 & 5, divided by the total number of the total population studied.

Long-Run Positive Effect is measured by the **Long-Run Positive Coefficient (LRPC)**. It is calculated by the total number of target tenants, indicating the choices of 3 & 4, divided by the total number of the total population studied.

Short-Run Negative but the Long-Run Positive Effect is measured by the **Short-Run Negative but the Long-Run Positive Coefficient (SRNLRPC)**[18]. It is calculated by the total number of target tenants, indicating the choices of 1 & 2, divided by the total number of the total population studied.

[18] Since this coefficient involves two different parts, its measurement should also be divided into two different focuses. The first part is "Short-Run Negative" while the second part is "Long-Run Positive" When this coefficient focuses on the analysis of Short Run, we should only calculate its Short-Run Negative Effect. In the contrast, when this coefficient focuses on the analysis of Long Run, we should only calculate its Long-Run Positive Effect.

3.6 Equations for the "Time-Shift Multi-Dimensional Housing Ladder Model" for the Cross-sectional Analysis by Cross-tabulation

With the above-captioned fundamental theoretical framework, definitions of operational concepts and its measurements in the model, a cross-tabulation statistical analysis is developed for estimating the net ownership effect of TPS on the HOS market. Based on this model, four equations are set up.

Equation 1 (For 1998 – 2001, Short-Run Effects Only)

Effect on Qty of HOS_t demanded in year t = [SRNC + SRNLRPC (SRNC)] **x** TPS_t

where Qty of HOS_t = Decline in demand for HOS flats among TPS buyers over ten years
SRNC = Short-Run Negative Coefficient (absolute value)
SRNLRPC (SRNC) = Short-Run Negative but Long-Run Positive Coefficient (With Short-Run Negative As Calculation Focus) (absolute value)
TPS_t = Number of Households in TPS Estates in Each Phase

Equation 2 (For 2002 – 2007, Both Short-Run Effects & Long-Run Effects Included) [19]

Effect on Qty of HOS_t demanded in year t = [SRNC + SRNLRPC (SRNC)] **x** TPS_t
+ [LRNC – LRPC – SRNLRPC(LRPC)] **x** TPS_{t-3}

where LRNC = Long-Run Negative Coefficient (absolute value)
LRPC = Long-Run Positive Coefficient (absolute value)
SRNLRPC (LRPC) = Short-Run Negative but Long-Run Positive Coefficient (With Long-Run Positive As Calculation Focus) (absolute value)

[19] Since the LRNC, the LRPC and the SRNLRPC (LRPC) only take effects after 3 years, the relevant subscript (t - 3) is added to them.

Equation 3 (Average for 1998 – 2001, Short Run Effects Only) [20]

$$\text{Effect on Qty of HOSt demanded in year t} = [\text{SRNC} + \text{SRNLRPC(SRNC)}] \times \frac{(\text{TPSt} + \text{TPSt-1} + \text{TPSt-2})}{3}$$

Equation 4 (Average for 2002 – 2007, Both Short Run Effects & Long Run Effects Included)

$$\text{Effect on Qty of HOSt demanded in year t} = [\text{SRNC} + \text{SRNLRPC (SRNC)}] \times \frac{(\text{TPSt} + \text{TPSt-1} + \text{TPSt-2})}{3} + [\text{LRNC-LRPC-SRNLRPC (LRPC)}] \times \frac{(\text{TPSt-3} + \text{TPSt-4} + \text{TPSt-5})}{3}$$

One should bear in mind that the above three equations only work well when there is "Smooth Market Flow[21]" for both the supply and the demand of the purchase and sale of the PRH and the HOS flat both in the short run and the long run.

3.8 Postulates for the Implementation of TPS on the Purchase of HOS Flat for the Cross-sectional Analysis by Cross-tabulation

Proposition 1 : If the net effect of the Short-Run Negative Coefficient, the Long-Run Negative Coefficient and the Short-Run Negative but the Long-Run Positive Coefficient (with the Short-Run Negative Coefficient as the Calculation Focus) is greater than that of the Long-Run Positive Coefficient and the Short-Run Negative but the Long-Run Positive Coefficient (with the Long-Run Positive Coefficient as the Calculation Focus), the purchase of HOS flat by the target TPS

[20] Since both equation 1 and 2 calculates all the effects by exact one year only, they may also be divided by 3 on average. Besides, it is assumed that the percentage of TPS tenants whose intentions to purchase HOS are affected in different ways staying the same for all phases of TPS estates.

[21] The Smooth Market Flow here refers to the potential demanders and the potential suppliers in the market are large enough so that the normal transaction in the free market mechanism is kept without any blockage.

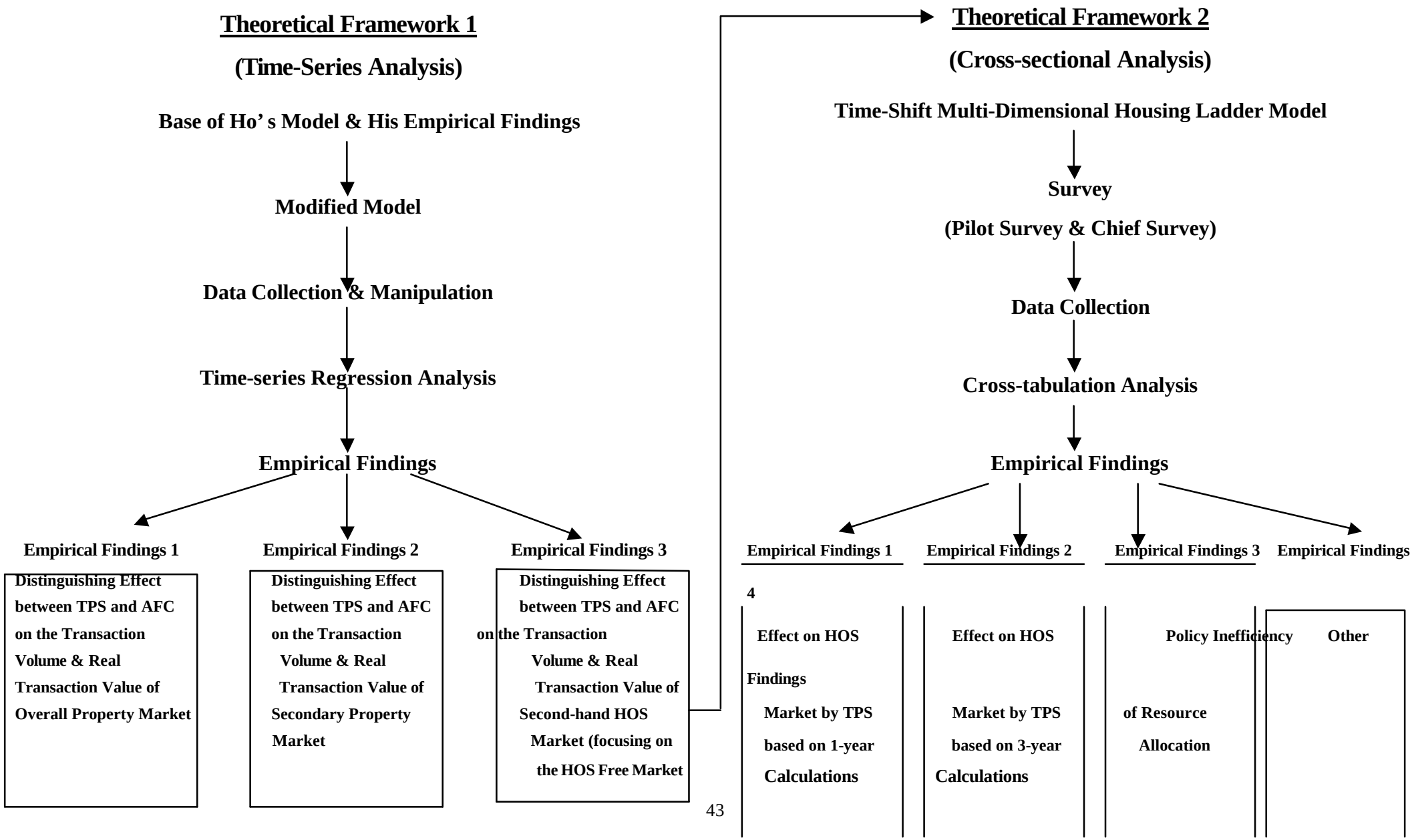
tenants will decrease. Consequently, the housing ladder will then be adversely affected, and vice versa.

Proposition 2 : It is implicit that there must be some changes on the target TPS tenants' intention to purchase HOS flat due to the TPS. This means that there must be some decreases of the target tenants of the combinations 1 & 5 and 2 & 5 on the one hand. On the other hand, there must be some increases of the target tenants of the combination of 3 & 4. Based on the principle of policy efficiency of resource allocation, the wealthier PRH tenants should shift to buy HOS flat while the poorer PRH tenants should either remain as PRH renters or become PRH owners. Therefore, if the wealth of target tenants for the combinations of 1 & 5 and 2 & 5 is greater than that of the target tenants for the combination of 3 & 4, the resource reallocation is concluded to be ' policy inefficient' , and vice versa.

To sum up, both the theoretical frameworks for the time-series analysis and the cross-sectional analysis are complementary to analyze the effect of TPS on the HOS market, the secondary property market and the overall property market. The research framework is summarized on the next page.

Figure 3.4

Research Framework for both the Time-series Analysis and the Cross-sectional Analysis



CHAPTER FOUR

4. RESEARCH METHODOLOGIES FOR BOTH THE TIME-SERIES ANALYSIS AND THE CROSS-SECTIONAL ANALYSIS

4.1 Research Methodology for the Time-series Analysis

The research methodologies employed for the time-series analysis are the data collection and the data manipulation of secondary data from the HKHA, the Centaline Property Agency Ltd[22] and the Monthly Report on the Consumer Price Index (CPI).

4.2 Data Collection

The data of the monthly transaction volume of overall property market, the monthly nominal transaction value of overall property market, the monthly transaction volume of secondary property market, the monthly nominal transaction value of secondary property market, the monthly transaction volume of second-hand HOS market and the monthly nominal transaction value of second-hand HOS market are all collected from the Centaline Property Agency Ltd. On the other hand, the data of the monthly transaction volume of HOS secondary market and the monthly nominal transaction value of HOS secondary market are collected from the HKHA. The price

[22] The Centaline Property Agency Ltd is one of the biggest property agents in Hong Kong.

deflator is collected from the Monthly Report on the CPI. The data of the SER and the one-month FER are obtained by the Hong Kong Monetary Authority (HKMA).

4.3 Data Manipulation

Since the data of the monthly transaction volume of HOS free market and the monthly nominal transaction value of HOS free market do not exist directly, they are calculated by the monthly transaction volume of second-hand HOS market and the monthly transaction value of second-hand HOS market minus the monthly transaction volume of HOS secondary market and the monthly nominal transaction value of HOS secondary market respectively. Mr. Wong Leung Sing, the Market Research Manager of Centaline Property Ltd, through the telephone interview, explained that :

> **"Both the sale and purchase of second-hand HOS flat in the HOS secondary market and the HOS free market had to register at Land Registry WITHIN one month after the formal contract had been signed. He pointed out that the purchaser of second-hand HOS flat in the HOS free market generally signed the formal contract after they had signed the temporary contract two weeks later. On the other hand, as to the HOS secondary market, the figures provided by the HKHA were based on the Day of Registration of Ownership[23]. Therefore, the figures had to be re-counted based on the Temporary Contract Date[24] so that the realistic timing of housing market flow was precisely estimated. He further added that it was general for a purchaser in the HOS secondary market to sign from temporary**

[23] The Day of Registration of Ownership is the date marked by the Hong Kong Housing Department internally for administrative purpose only.
[24] The Temporary Contract Date is the date for both prospective HOS buyer and prospective HOS seller to first signed up semi-legally in the process of HOS transaction.

contract to formal contract ranging from half a month to one and half month."

As a result, the best way to estimate both the transaction volume and the nominal transaction value of HOS Free Market is as follows. Firstly, it takes one month as the time lag for the transaction volume and the nominal transaction value of second-hand HOS Market minus the transaction volume and the nominal transaction value of HOS Secondary Market respectively. Secondly, it uses QUARTER as the analytical unit. Therefore, the bias can be minimized.

As to the AFCDUMMY, it is firstly calculated by the difference between the one-month FER minus the SER. Then, the largest quarter difference is set at 1 and the smallest is set at zero in the normalization. It should be remarked that the calculations for all the time-series regression models are on the "Real Value". Therefore, all the above-mentioned "Nominal Values" have to be divided by the Price Deflator. The Price Deflator here used is "Composite Consumer Price Index". The figures for them are shown in Table 4.1, 4.2 and 4.3.

TRANSACTION VOLUME AND REAL TRANSACTION VALUE OF HOS HOUSINGS

		Second-hand HOS Market			HOS Secondary Market (Regist. Day)			HOS Secondary Market (Temp. Contract)			HOS Open Market		
Year	Price Deflator	Volume	NTV ($M)	RTV ($M)	Volume	NTV ($M)	RTV ($M)	Volume	NTV ($M)	RTV ($M)	Volume	NTV ($M)	RTV ($M)
01/96	104.70	415	566.650	541.213	Nil	Nil	Nil	Nil	Nil	Nil	415	566.65	541.213
02/96	105.70	341	517.390	489.489	Nil	Nil	Nil	Nil	Nil	Nil	341	517.39	489.489
03/96	106.30	479	700.440	658.928	Nil	Nil	Nil	Nil	Nil	Nil	479	700.44	658.928
96Q1		1235	1,784.480	1,689.630	Nil	Nil	Nil	Nil	Nil	Nil	1235	1,784.480	1,689.630
04/96	107.60	363	534.800	497.026	Nil	Nil	Nil	Nil	Nil	Nil	363	534.80	497.026
05/96	107.80	761	1,180.100	1,094.712	Nil	Nil	Nil	Nil	Nil	Nil	761	1,180.10	1,094.712
06/96	108.40	448	738.790	681.541	Nil	Nil	Nil	Nil	Nil	Nil	448	738.79	681.541
96Q2		1572	2,453.690	2,273.279	Nil	Nil	Nil	Nil	Nil	Nil	1572	2,453.690	2,273.279
07/96	108.40	555	827.020	762.934	Nil	Nil	Nil	Nil	Nil	Nil	555	827.02	762.934
08/96	108.60	515	785.440	723.241	Nil	Nil	Nil	Nil	Nil	Nil	515	785.44	723.241
09/96	109.70	581	887.450	808.979	Nil	Nil	Nil	Nil	Nil	Nil	581	887.45	808.979
96Q3		1651	2,499.910	2,295.154	Nil	Nil	Nil	Nil	Nil	Nil	1651	2499.910	2295.154
10/96	110.50	674	1,033.820	935.584	Nil	Nil	Nil	Nil	Nil	Nil	674	1,033.82	935.584
11/96	110.90	747	1,174.980	1,059.495	Nil	Nil	Nil	Nil	Nil	Nil	747	1,174.98	1,059.495
12/96	111.40	677	1,121.590	1,006.813	Nil	Nil	Nil	Nil	Nil	Nil	677	1,121.59	1,006.813
96Q4		2098	3330.390	3001.892	Nil	Nil	Nil	Nil	Nil	Nil	2098	3330.390	3001.892
01/97	111.30	785	1,336.290	1,200.620	Nil	Nil	Nil	Nil	Nil	Nil	785	1,336.29	1,200.620
02/97	112.30	570	1,028.150	915.539	Nil	Nil	Nil	Nil	Nil	Nil	570	1,028.15	915.539
03/97	112.50	651	1,183.650	1,052.133	Nil	Nil	Nil	Nil	Nil	Nil	651	1,183.65	1,052.133
97Q1		2006	3548.090	3168.292	Nil	Nil	Nil	Nil	Nil	Nil	2006	3548.090	3168.292
04/97	113.60	1204	2,470.090	2,174.375	Nil	Nil	Nil	Nil	Nil	Nil	1204	2,470.09	2,174.375
05/97	114.00	924	1,928.770	1,691.904	Nil	Nil	Nil	Nil	Nil	Nil	924	1,928.77	1,691.904
06/97	114.50	654	1,452.170	1,268.271	Nil	Nil	Nil	Nil	Nil	Nil	654	1,452.17	1,268.271
97Q2		2782	5851.030	5134.549	Nil	Nil	Nil	Nil	Nil	Nil	2782	5851.030	5134.549
07/97	115.30	984	2,351.240	2,039.237	Nil	Nil	Nil	Nil	Nil	Nil	984	2,351.24	2,039.237
08/97	115.50	588	1,355.350	1,173.463	Nil	Nil	Nil	Nil	Nil	Nil	588	1,355.35	1,173.463
09/97	115.90	576	1,290.590	1,113.538	Nil	Nil	Nil	Nil	Nil	Nil	576	1,290.59	1,113.538
97Q3		2148	4997.180	4326.238	Nil	Nil	Nil	Nil	Nil	Nil	2148	4997.180	4326.238
10/97	116.80	671	1,534.770	1,314.015	165	318.861	272.997	159	295.126	252.676	671	1,534.77	1,314.015
11/97	117.00	762	1,743.380	1,490.068	117	204.377	174.681	111	201.474	172.200	603	1,448.254	1,237.392
12/97	117.20	333	702.670	599.548	127	212.504	181.317	109	170.855	145.781	222	501.196	427.348
97Q4		1766	3980.820	3403.632	409	735.742	628.996	379	667.455	570.657	1496	3484.220	2978.755
01/98	117.30	343	653.140	556.812	73	102.360	87.263	81	108.882	92.824	234	482.285	411.031
02/98	117.70	339	553.030	469.864	85	120.949	102.760	83	111.092	94.386	258	444.148	377.041
03/98	118.00	561	938.550	795.381	94	123.867	104.972	99	131.966	111.836	478	827.458	700.996
98Q1		1243	2144.720	1822.057	252	347.176	294.996	263	351.940	299.045	970	1753.891	1489.067
04/98	119.00	399	695.960	584.840	95	121.769	102.327	79	101.843	85.582	300	563.994	473.005
05/98	119.20	394	653.670	548.381	71	90.321	75.773	78	96.904	81.295	315	551.827	462.799
06/98	119.00	302	470.420	395.311	75	90.048	75.671	82	111.139	93.394	224	373.516	314.016
98Q2		1095	1820.050	1528.532	241	302.138	253.770	239	309.886	260.272	839	1489.337	1249.819
07/98	119.00	337	470.200	395.126	100	119.720	100.605	84	94.487	79.401	255	359.061	301.732
08/98	118.60	362	542.560	457.470	56	67.271	56.721	47	58.037	48.935	278	448.073	378.070
09/98	118.80	266	353.230	297.332	57	69.554	58.547	72	82.945	69.819	219	295.193	248.397
98Q3		965	1365.990	1149.928	213	256.545	215.873	203	235.469	198.155	752	1102.327	928.198
10/98	116.90	265	337.710	288.888	77	88.790	75.954	105	126.384	108.113	193	254.765	219.069
11/98	116.10	391	493.860	425.375	189	224.620	193.471	311	369.641	318.382	286	367.476	317.262
12/98	115.30	694	888.010	770.173	395	465.269	403.529	512	613.670	532.238	383	518.369	451.792
98Q4		1350	1719.580	1484.436	661	778.679	672.954	928	1109.695	958.732	862	1140.610	988.123
01/99	116.00	851	1,083.010	933.629	791	966.935	833.565	663	809.341	697.708	339	469.340	401.392
02/99	115.60	841	1,088.460	941.574	302	375.653	324.959	246	314.881	272.388	178	279.119	243.867
03/99	114.90	796	1,045.470	909.896	260	333.477	290.232	241	312.699	272.149	550	730.589	637.507
99Q1		2488	3216.940	2785.099	1353	1676.065	1448.756	1150	1436.921	1242.245	1067	1479.048	1282.765
04/99	114.50	543	740.510	646.734	193	252.700	220.699	253	330.887	288.984	302	427.811	374.585
05/99	114.40	672	907.430	793.208	345	444.304	388.378	391	512.391	447.894	419	576.543	504.224
06/99	114.10	777	1,069.480	937.318	395	521.916	457.420	433	565.847	495.922	386	557.089	489.424
99Q2		1992	2717.420	2377.260	933	1218.920	1066.496	1077	1409.125	1232.801	1107	1561.443	1368.232
07/99	112.40	946	1,273.330	1,132.856	496	654.735	582.504	361	479.479	426.583	513	707.483	636.934
08/99	111.40	867	1,157.420	1,038.977	306	399.686	358.785	271	350.264	314.420	506	677.941	612.394
09/99	111.60	680	894.510	801.532	245	313.860	281.237	253	326.466	292.532	409	544.246	487.112
99Q3		2493	3325.260	2973.365	1047	1368.281	1222.526	885	1156.209	1033.535	1428	1929.670	1736.440
10/99	112.00	569	728.710	650.634	266	339.947	303.524	308	384.711	343.492	316	402.244	358.102
11/99	111.30	619	799.800	718.598	291	360.989	324.339	275	338.526	304.156	311	415.089	375.106
12/99	110.70	543	680.210	614.463	263	324.442	293.082	259	318.429	287.650	268	341.684	310.306
99Q4		1731	2208.720	1983.695	820	1025.378	920.945	842	1041.666	935.299	895	1159.017	1043.514
01/00	109.80	668	814.440	741.749	257	312.850	284.927	255	311.941	284.099	409	496.011	454.098
02/00	109.70	510	630.600	574.840	196	238.712	217.604	180	216.907	197.727	255	318.659	290.741
03/00	109.20	591	712.030	652.042	273	325.392	297.978	275	333.889	305.759	411	495.123	454.315
00Q1		1769	2157.070	1968.631	726	876.954	800.510	710	862.737	787.586	1075	1309.793	1199.154
04/00	109.50	569	681.290	622.183	239	288.962	263.892	222	259.813	237.272	294	347.401	316.423
05/00	109.30	581	698.020	638.628	209	242.046	221.451	202	231.737	212.019	359	438.207	401.355
06/00	108.90	471	553.870	508.604	198	223.767	205.479	210	237.920	218.476	269	322.133	296.585
00Q2		1621	1933.180	1769.415	646	754.775	690.823	634	729.470	667.767	922	1107.741	1014.364
07/00	108.80	505	562.950	517.417	215	244.220	224.467	225	250.363	230.113	295	325.030	298.942
08/00	108.40	565	642.190	592.426	264	289.681	267.233	336	376.055	346.914	340	391.827	362.313
09/00	108.70	659	734.030	675.281	374	417.702	384.270	408	449.574	413.592	323	357.975	328.366
00Q3		1729	1939.170	1785.124	853	951.603	875.971	969	1075.992	990.619	958	1074.832	989.621
10/00	108.90	741	849.790	780.340	385	428.776	393.734	305	346.778	318.437	333	400.216	366.748
11/00	109.10	732	833.690	764.152	190	212.199	194.500	116	126.324	115.787	427	486.912	445.715
12/00	108.70	389	438.750	403.634	79	88.520	81.435	61	66.021	60.737	273	312.426	287.847
00Q4		1862	2122.230	1948.126	654	729.495	669.668	482	539.123	494.961	1033	1199.554	1100.310

NTV ($M) = Nominal Transaction Value (Measured in $ million)

RTV ($M) = Real Transaction Value (Measured in $ million)

Table 4.2 TRANSACTION VOLUME AND REAL TRANSACTION VALUE OF HOS HOUSINGS

		Second-hand HOS Market			HOS Secondary Market (Regist. Day)			HOS Secondary Market (Temp. Contract)			HOS Open Market		
Year	Price Deflator	Volume	NTV ($M)	RTV ($M)	Volume	NTV ($M)	RTV ($M)	Volume	NTV ($M)	RTV ($M)	Volume	NTV ($M)	RTV ($M)
01/96	104.70	415	566.650	541.213	Nil	Nil	Nil	Nil	Nil	Nil	415	566.65	541.213
02/96	105.70	341	517.390	489.489	Nil	Nil	Nil	Nil	Nil	Nil	341	517.39	489.489
03/96	106.30	479	700.440	658.928	Nil	Nil	Nil	Nil	Nil	Nil	479	700.44	658.928
96Q1		1235	1,784.480	1,689.630	Nil	Nil	Nil	Nil	Nil	Nil	1235	1,784.480	1,689.630
04/96	107.60	363	534.800	497.026	Nil	Nil	Nil	Nil	Nil	Nil	363	534.80	497.026
05/96	107.80	761	1,180.100	1,094.712	Nil	Nil	Nil	Nil	Nil	Nil	761	1,180.10	1,094.712
06/96	108.40	448	738.790	681.541	Nil	Nil	Nil	Nil	Nil	Nil	448	738.79	681.541
96Q2		1572	2,453.690	2,273.279	Nil	Nil	Nil	Nil	Nil	Nil	1572	2,453.690	2,273.279
07/96	108.40	555	827.020	762.934	Nil	Nil	Nil	Nil	Nil	Nil	555	827.02	762.934
08/96	108.60	515	785.440	723.241	Nil	Nil	Nil	Nil	Nil	Nil	515	785.44	723.241
09/96	109.70	581	887.450	808.979	Nil	Nil	Nil	Nil	Nil	Nil	581	887.45	808.979
96Q3		1651	2,499.910	2,295.154	Nil	Nil	Nil	Nil	Nil	Nil	1651	2499.910	2295.154
10/96	110.50	674	1,033.820	935.584	Nil	Nil	Nil	Nil	Nil	Nil	674	1,033.82	935.584
11/96	110.90	747	1,174.980	1,059.495	Nil	Nil	Nil	Nil	Nil	Nil	747	1,174.98	1,059.495
12/96	111.40	677	1,121.590	1,006.813	Nil	Nil	Nil	Nil	Nil	Nil	677	1,121.59	1,006.813
96Q4		2098	3330.390	3001.892	Nil	Nil	Nil	Nil	Nil	Nil	2098	3330.390	3001.892
01/97	111.30	785	1,336.290	1,200.620	Nil	Nil	Nil	Nil	Nil	Nil	785	1,336.29	1,200.620
02/97	112.30	570	1,028.150	915.539	Nil	Nil	Nil	Nil	Nil	Nil	570	1,028.15	915.539
03/97	112.50	651	1,183.650	1,052.133	Nil	Nil	Nil	Nil	Nil	Nil	651	1,183.65	1,052.133
97Q1		2006	3548.090	3168.292	Nil	Nil	Nil	Nil	Nil	Nil	2006	3548.090	3168.292
04/97	113.60	1204	2,470.090	2,174.375	Nil	Nil	Nil	Nil	Nil	Nil	1204	2,470.09	2,174.375
05/97	114.00	924	1,928.770	1,691.904	Nil	Nil	Nil	Nil	Nil	Nil	924	1,928.77	1,691.904
06/97	114.50	654	1,452.170	1,268.271	Nil	Nil	Nil	Nil	Nil	Nil	654	1,452.17	1,268.271
97Q2		2782	5851.030	5134.549	Nil	Nil	Nil	Nil	Nil	Nil	2782	5851.030	5134.549
07/97	115.30	984	2,351.240	2,039.237	Nil	Nil	Nil	Nil	Nil	Nil	984	2,351.24	2,039.237
08/97	115.50	588	1,355.350	1,173.463	Nil	Nil	Nil	Nil	Nil	Nil	588	1,355.35	1,173.463
09/97	115.90	576	1,290.590	1,113.538	Nil	Nil	Nil	Nil	Nil	Nil	576	1,290.59	1,113.538
97Q3		2148	4997.180	4326.238	Nil	Nil	Nil	Nil	Nil	Nil	2148	4997.180	4326.238
10/97	116.80	671	1,534.770	1,314.015	165	318.861	272.997	159	295.126	252.676	671	1,534.77	1,314.015
11/97	117.00	762	1,743.380	1,490.068	117	204.377	174.681	111	201.474	172.200	603	1,448.254	1,237.392
12/97	117.20	333	702.670	599.548	127	212.504	181.317	109	170.855	145.781	222	501.196	427.348
97Q4		1766	3980.820	3403.632	409	735.742	628.996	379	667.455	570.657	1496	3484.220	2978.755
01/98	117.30	343	653.140	556.812	73	102.360	87.263	81	108.882	92.824	234	482.285	411.031
02/98	117.70	339	553.030	469.864	85	120.949	102.760	83	111.092	94.386	258	444.148	377.041
03/98	118.00	561	938.550	795.381	94	123.867	104.972	99	131.966	111.836	478	827.458	700.996
98Q1		1243	2144.720	1822.057	252	347.176	294.996	263	351.940	299.045	970	1753.891	1489.067
04/98	119.00	399	695.960	584.840	95	121.769	102.327	79	101.843	85.582	300	563.994	473.005
05/98	119.20	394	653.670	548.381	71	90.321	75.773	78	96.904	81.295	315	551.827	462.799
06/98	119.00	302	470.420	395.311	75	90.048	75.671	82	111.139	93.394	224	373.516	314.016
98Q2		1095	1820.050	1528.532	241	302.138	253.770	239	309.886	260.272	839	1489.337	1249.819
07/98	119.00	337	470.200	395.126	100	119.720	100.605	84	94.487	79.401	255	359.061	301.732
08/98	118.60	362	542.560	457.470	56	67.271	56.721	47	58.037	48.935	278	448.073	378.070
09/98	118.80	266	353.230	297.332	57	69.554	58.547	72	82.945	69.819	219	295.193	248.397
98Q3		965	1365.990	1149.928	213	256.545	215.873	203	235.469	198.155	752	1102.327	928.198
10/98	116.90	265	337.710	288.888	77	88.790	75.954	105	126.384	108.113	193	254.765	219.069
11/98	116.10	391	493.860	425.375	189	224.620	193.471	311	369.641	318.382	286	367.476	317.262
12/98	115.30	694	888.010	770.173	395	465.269	403.529	512	613.670	532.238	383	518.369	451.792
98Q4		1350	1719.580	1484.436	661	778.679	672.954	928	1109.695	958.732	862	1140.610	988.123
01/99	116.00	851	1,083.010	933.629	791	966.935	833.565	663	809.341	697.708	339	469.340	401.392
02/99	115.60	841	1,088.460	941.574	302	375.653	324.959	246	314.881	272.388	178	279.119	243.867
03/99	114.90	796	1,045.470	909.896	260	333.477	290.232	241	312.699	272.149	550	730.589	637.507
99Q1		2488	3216.940	2785.099	1353	1676.065	1448.756	1150	1436.921	1242.245	1067	1479.048	1282.765
04/99	114.50	543	740.510	646.734	193	252.700	220.699	253	330.887	288.984	302	427.811	374.585
05/99	114.40	672	907.430	793.208	345	444.304	388.378	391	512.391	447.894	419	576.543	504.224
06/99	114.10	777	1,069.480	937.318	395	521.916	457.420	433	565.847	495.922	386	557.089	489.424
99Q2		1992	2717.420	2377.260	933	1218.920	1066.496	1077	1409.125	1232.801	1107	1561.443	1368.232
07/99	112.40	946	1,273.330	1,132.856	496	654.735	582.504	361	479.479	426.583	513	707.483	636.934
08/99	111.40	867	1,157.420	1,038.977	306	399.686	358.785	271	350.264	314.420	506	677.941	612.394
09/99	111.60	680	894.510	801.532	245	313.860	281.237	253	326.466	292.532	409	544.246	487.112
99Q3		2493	3325.260	2973.365	1047	1368.281	1222.526	885	1156.209	1033.535	1428	1929.670	1736.440
10/99	112.00	569	728.710	650.634	266	339.947	303.524	308	384.711	343.492	316	402.244	358.102
11/99	111.30	619	799.800	718.598	291	360.989	324.339	275	338.526	304.156	311	415.089	375.106
12/99	110.70	543	680.210	614.463	263	324.442	293.082	259	318.429	287.650	268	341.684	310.306
99Q4		1731	2208.720	1983.695	820	1025.378	920.945	842	1041.666	935.299	895	1159.017	1043.514
01/00	109.80	668	814.440	741.749	257	312.850	284.927	255	311.941	284.099	409	496.011	454.098
02/00	109.70	510	630.600	574.840	196	238.712	217.604	180	216.907	197.727	255	318.659	290.741
03/00	109.20	591	712.030	652.042	273	325.392	297.978	275	333.889	305.759	411	495.123	454.315
00Q1		1769	2157.070	1968.631	726	876.954	800.510	710	862.737	787.586	1075	1309.793	1199.154
04/00	109.50	569	681.290	622.183	239	288.962	263.892	222	259.813	237.272	294	347.401	316.423
05/00	109.30	581	698.020	638.628	209	242.046	221.451	202	231.737	212.019	359	438.207	401.355
06/00	108.90	471	553.870	508.604	198	223.767	205.479	210	237.920	218.476	269	322.133	296.585
00Q2		1621	1933.180	1769.415	646	754.775	690.823	634	729.470	667.767	922	1107.741	1014.364
07/00	108.80	505	562.950	517.417	215	244.220	224.467	225	250.363	230.113	295	325.030	298.942
08/00	108.40	565	642.190	592.426	264	289.681	267.233	336	376.055	346.914	340	391.827	362.313
09/00	108.70	659	734.030	675.281	374	417.702	384.270	408	449.574	413.592	323	357.975	328.366
00Q3		1729	1939.170	1785.124	853	951.603	875.971	969	1075.992	990.619	958	1074.832	989.621
10/00	108.90	741	849.790	780.340	385	428.776	393.734	305	346.778	318.437	333	400.216	366.748
11/00	109.10	732	833.690	764.152	190	212.199	194.500	116	126.324	115.787	427	486.912	445.715
12/00	108.70	389	438.750	403.634	79	88.520	81.435	61	66.021	60.737	273	312.426	287.847
00Q4		1862	2122.230	1948.126	654	729.495	669.668	482	539.123	494.961	1033	1199.554	1100.310

NTV ($M) = Nominal Transaction Value (Measured in $ million) RTV ($M) = Real Transaction Value (Measured in $ million)

Source : For Second-hand HOS Market (Centaline Property Agency Ltd) ; for HOS Secondary Market (Hong Kong Housing Authority) ; For HOS Free Market (Self-adjusted)

Table 4.3 CALCULATION OF AFCDUMMY AND TPSDUMMIES

					AFC Effect	TPS Effect			
Year	SER	FER	Differential	ABS Differential	AFCDummy	TPSDummy1	TPSDummy2	TPSDummy3	TPSDummy4
01/96	7.7326	8	0.2674	0.2674	0.0006	0	0	0	0
02/96	7.7322	-4	-11.7322	11.7322	0.0273	0	0	0	0
03/96	7.7321	-9	-16.7321	16.7321	0.0389	0	0	0	0
96Q1				28.7317	0.037	0	0	0	0
04/96	7.7343	-15	-22.7343	22.7343	0.0528	0	0	0	0
05/96	7.7363	-13	-20.7363	20.7363	0.0482	0	0	0	0
06/96	7.7400	2	-5.74	5.7400	0.0133	0	0	0	0
96Q2				49.2106	0.0637	0	0	0	0
07/96	7.7373	1	-6.7373	6.7373	0.0157	0	0	0	0
08/96	7.7341	-2	-9.7341	9.7341	0.0226	0	0	0	0
09/96	7.7326	-1	-8.7326	8.7326	0.0203	0	0	0	0
96Q3				25.2040	0.0326	0	0	0	0
10/96	7.7322	0	-7.7322	7.7322	0.0180	0	0	0	0
11/96	7.7323	3	-4.7323	4.7323	0.0110	0	0	0	0
12/96	7.7356	1	-6.7356	6.7356	0.0157	0	0	0	0
96Q4				19.2001	0.0248	0	0	0	0
01/97	7.7396	-14	-21.7396	21.7396	0.0505	0	0	0	0
02/97	7.7471	4	-3.7471	3.7471	0.0087	0	0	0	0
03/97	7.7460	9	1.254	1.254	0.0029	0	0	0	0
97Q1				26.7407	0.0346	0	0	0	0
04/97	7.7480	5	-2.748	2.7480	0.0064	0	0	0	0
05/97	7.7424	24	16.2576	16.2576	0.0378	0	0	0	0
06/97	7.7430	47	39.257	39.2570	0.0912	0	0	0	0
97Q2				58.2626	0.0754	0	0	0	0
07/97	7.7452	55	47.2548	47.2548	0.1098	0	0	0	0
08/97	7.7429	133	125.2571	125.2571	0.2911	0	0	0	0
09/97	7.7438	127	119.2562	119.2562	0.2772	0	0	0	0
97Q3				291.7681	0.3776	0	0	0	0
10/97	7.7325	366	358.2675	358.2675	0.8327	0	0	0	0
11/97	7.7307	323	315.2693	315.2693	0.7328	0	0	0	0
12/97	7.7448	107	99.2552	99.2552	0.2307	0	0	0	0
97Q4				772.792	1.0000	0	0	0	0
01/98	7.7430	433	425.257	425.2570	0.9884	0.25	0.33	0.5	1
02/98	7.7415	76	68.2585	68.2585	0.1586	0.25	0.33	0.5	1
03/98	7.7458	27	19.2542	19.2542	0.0448	0.25	0.33	0.5	1
98Q1				512.7697	0.6635	0.25	0.33	0.5	1
04/98	7.7489	24	16.2511	16.2511	0.0378	0.50	0.66	0.50/0.66/1	1
05/98	7.7481	109	101.2519	101.2519	0.2353	0.50	0.66	0.50/0.66/1	1
06/98	7.7467	286	278.2533	278.2533	0.6467	0.50	0.66	0.50/0.66/1	1
98Q2				395.7563	0.5121	0.50	0.66	0.50/0.66/1	1
07/98	7.7479	160	152.2521	152.2521	0.3539	0.75	1	0.75/1	1
08/98	7.7480	438	430.252	430.252	1.0000	0.75	1	0.75/1	1
09/98	7.7485	187	179.2515	179.2515	0.4166	0.75	1	0.75/1	1
98Q3				761.7556	0.9857	0.75	1	0.75/1	1
10/98	7.7477	41	33.2523	33.2523	0.0773	1	1	1	1
11/98	7.7435	28	20.2565	20.2565	0.0471	1	1	1	1
12/98	7.7468	8	0.2532	0.2532	0.0006	1	1	1	1
98Q4				53.7620	0.0696	1	1	1	1
01/99	7.7482	44	36.2518	36.2518	0.0843	1	1	1	1
02/99	7.7487	47	39.2513	39.2513	0.0912	1	1	1	1
03/99	7.7491	26	18.2509	18.2509	0.0424	1	1	1	1
99Q1				93.7540	0.1213	1	1	1	1
04/99	7.7494	7	-0.7494	0.7494	0.0017	1	1	1	1
05/99	7.7528	5	-2.7528	2.7528	0.0064	1	1	1	1
06/99	7.7572	29	21.2428	21.2428	0.0494	1	1	1	1
99Q2				24.745	0.0320	1	1	1	1
07/99	7.7601	50	42.2399	42.2399	0.0982	1	1	1	1
08/99	7.7635	66	58.2365	58.2365	0.1354	1	1	1	1
09/99	7.7663	31	23.2337	23.2337	0.0540	1	1	1	1
99Q3				192.4764	0.2491	1	1	1	1
10/99	7.7694	17	9.2306	9.2306	0.0215	1	1	1	1
11/99	7.7715	9	1.2285	1.2285	0.0029	1	1	1	1
12/99	7.7727	-12	-19.7727	19.7727	0.0460	1	1	1	1
99Q4				30.2318	0.0391	1	1	1	1
01/00	7.7786	-34	-41.7786	41.7786	0.0971	1	1	1	1
02/00	7.7815	0	-7.7815	7.7815	0.0181	1	1	1	1
03/00	7.7845	-11	-18.7845	18.7845	0.0437	1	1	1	1
00Q1				68.3446	0.0884	1	1	1	1
04/00	7.7877	14	6.2123	6.2123	0.0144	1	1	1	1
05/00	7.7907	15	7.2093	7.2093	0.0168	1	1	1	1
06/00	7.7934	-17	-24.7934	24.7934	0.0576	1	1	1	1
00Q2				38.2150	0.0495	1	1	1	1
07/00	7.7967	-36	-43.7967	43.7967	0.1018	1	1	1	1
08/00	7.7993	-50	-57.7993	57.7993	0.1343	1	1	1	1
09/00	7.7984	-21	-28.7984	28.7984	0.0669	1	1	1	1
00Q3				130.3944	0.1687	1	1	1	1
10/00	7.7978	-47	-54.7978	54.7978	0.1274	1	1	1	1
11/00	7.7990	-64	-71.799	71.799	0.1669	1	1	1	1
12/00	7.7990	-28	-35.799	35.799	0.0832	1	1	1	1
00Q4				162.3958	0.2101	1	1	1	1

Source : For SER & FER (Hong Kong Monetary Authority)

4.4 Data Processing

After collecting all the secondary data, they are put together and then run by using EViews Version 3.1. The empirical findings are analyzed in Chapter Five.

4.5 Research Methodology for the Cross-sectional Analysis

The research methodologies employed for the cross-sectional analysis are survey. Actually, a large-scale survey (n = 950) of TPS tenants in Phase 1, Phase 2 and Phase 3 for all the eighteen TPS estates was conducted from mid June to mid November 2000. The objectives of the survey, sampling method, sampling procedure, content of the questionnaire, employment of part-time enumerators, briefing and training, pilot survey & main survey, data processing and defects are described as follows.

4.6 Objectives of the Large-scale Survey

The objectives of the large-scale survey are as follows :

1. To find out the net effect of TPS on the HOS market using the cross-sectional analysis ;

2. To find out the effect of TPS on the policy efficiency of resource allocation using the cross-sectional analysis ;

3. To find out whether the TPS tenants intend “To Buy PRH” or “Not to Buy

PRH" ;

4. To identify reasons/motivating factors contributing to making their decisions whether to purchase PRH or not ;

5. To find out whether the TPS tenants intend "To Buy HOS flat in the Short Run/Long Run" or find out how many intend to buy as compared with those who do "Not to Buy HOS flat" if there had been no TPS ;

6. To identify reasons/motivating factors contributing to making their decisions whether to purchase HOS flat in the short run/long run and not buy at all if there had been no TPS ;

7. To find out whether the TPS tenants intend "To Buy HOS flat" or "Not to Buy HOS flat" after the resale of PRH is permitted ;

8. To identify reasons or/and motivation factors contributing to making their decisions whether to purchase HOS flat or not after the resale of PRH is permitted and finally ;

9. To find out their attitudes towards the TPS.

4.7 The Total Population

The unit of investigation in the survey is a household, including owner-households

and tenant-households who live in the eighteen TPS Estates in Phase 1, Phase 2 and Phase 3 during the period from 26 June 2000 to 19 November 2000. At the time of sampling, the target total population contains 82,904 flats, which is broken down into 27,525 flats in Phase 1, 27,161 flats in Phase 2 and 27,415 flats in Phase 3. There are various types, sizes, price of sales and years of intake of the total population of TPS studied. There are four block types, that is, Trident, Slab, New Slab and Linear & Trident built in all the eighteen estates studied. The sizes of the flats range from 9.41sq.M to 60.90sq.M. The flats are composed of one-bed room to three-bed room with living room. They are self-contained (with kitchen and bathroom/toilet). The sale prices range from $62,500 to $340,300 whereas the years of intake range from 8 years to 14 years.

All the units are now either partly managed or supervised by the HKHA, namely the eighteen Estate Offices under respective Housing Managers of Wah Kwai, Fung Tak, Heng On, Cheung On, Wan Tau Tong and Kin Sang of Phase 1 (1998) ; Yiu On, Wah Ming, Tsui Wan, Tin King, Chuk Yuen North and Tak Tin of Phase 2 (1999) ; Choi Ha, Hin Keng, Fung Wah, Tai Wo, Fu Heng and Tin Ping of Phase 3 (2000) at the time of the survey. Eleven of the eighteen estates are located in New Territories, three in Hong Kong Islands and four in Kowloon.

4.8 The Sampling Method and the Sampling Procedure

For the sake of obtaining unbiased samples, probability sampling is adopted so that the final sample is representative enough of the total population from which it is drawn. The fundamental principle of probability sampling is to choose a sample very

likely to be representative if it is selected by a principle called EPSEM, which stands for the "Equal Probability of Selection Method[25]".

The EPSEM sampling technique of this research is stratified sampling[26]. This technique is very desirable because it guarantees that the sample will be representative on the selected traits. To apply this technique, the population list is first stratified (or divided) into sub-lists according to some relevant traits and sample from the sub-list. Since different locations affect the tenure choice of the respondents much, the samples are stratified into different sizes and different wings of lower, middle and upper floors of all blocks in the 18 estates. If a visit to the sample flat failed for whatever reasons, the investigators would visit families living in the adjacent flats until a successful sample is obtained. All the interviews are conducted face-to-face. This system of sampling has proved to be very satisfactory as a subsequent check of size, orientation and level of units against the corresponding number of flats under management confirmed, the sample acknowledged to be representative.

4.9 The Questionnaire

The survey data are got through one questionnaire for a household and the entire questionnaire is seen in Appendix III. It is an eight-page questionnaire comprising

[25] The EPSEM principle is that every element or case in the population must have an equal probability of being selected for the sample.

[26] This is a procedure that consists of stratifying (or dividing) the population into a number of non-overlapping sub-population, or strata, and then taking a sample from each stratum. If the items selected from each stratum constitute simple random samples, the entire procedure – first stratification and then random sampling – is called stratified sampling.

thirty-seven questions, which can be classified into eight parts.

The most important parts of the survey are directed at obtaining information for estimating the net ownership effect of TPS on the HOS market. It is obtained by two core questions to the target tenant. The first one is "the tenure choice of purchasing HOS flat in the Short Run/Long Run or not if the HKHA had not implemented the TPS" and the second one is "the tenure choice of purchasing HOS flat or not after the resale of PRH is permitted". The reasons/motivating factors are important because it explains the real effect of TPS on the HOS market. Their attitude towards the TPS is also vital because the survey would reveal their views after becoming TPS owners (or startup as tenants), particularly during the persistent economic downturn.

4.10 Employment of Part-time Enumerators

A large sample size (n = 1000) was set in order to obtain the most accurate analysis. By doing so, ten part-time enumerators were employed to conduct such a large-scale face-to-face interview. Two of them were university graduates, seven of them were post-secondary students and the remaining one was part-time helper.

4.11 Briefing and Training

The research method taken for this survey was a face-to-face interview. Eleven interviewers (including the author) had taken part in the survey. They were actively trained in the aspects of interviewing techniques and housing policies. It was extremely important that all interviewees interpreted questions and answers in the

same way, otherwise information from different interviewees would not be comparable. Briefing sessions were therefore organized for interviewers so that they would ask questions in a way that would not be ambiguous in meaning. For examples, the interviewers did not actively give the options for the interviewees to choose the questions 20, 21, 23, 24, 25, 27, 28, 30, 31, 33 and 34 unless they could not answer. The aim was to avoid any bias for the choices of the interviewees made. Besides, the information relating to the personal particulars was placed at the beginning of the questionnaire. During the interview, however, the order was reversed and the interviewees were asked for the information at a later stage so as to avoid embarrassment caused to them.

4.12 Pilot Survey

A pilot survey was conducted in Kin Sang Estate on 20 June 2000. There were totally ten interviewers for doing it. The purpose of the trial test was to check the questionnaire and the time possibly required on completing each sample in the main survey. More than three hundred families were contacted but only sixty households successfully responded to the survey.

Following the trial run, some amendments on the questionnaire were made. A few options in which the respondents felt important were added and not important were dropped. Besides, the visiting time required was kept from 10 to 15 minutes for a successful visit on average.

4.13 Main Survey

The main survey lasted for nearly five months, commencing in late June and ended in mid November 2000. The interviewers (including the author) usually visited the target estates either from 3:00p.m. to 6:00p.m. or/and from 6:00p.m. to 9:00p.m.

Without the help from the Estate Offices, the response rate of the interviewees was relatively low. Out of approximately 5,700 households visited, only 950 respondents were successfully interviewed, which were about 16.67% of the sample. To avoid a biased outcome, the interviewers were requested to interview either the head or his/her spouse of household as far as possible, who was usually the decision-maker, and in no circumstances should they interview the children.

4.14 Data Processing

On return of the questionnaire, they were collected, scrutinized, and checked for mistakes, incomplete parts and inconsistency. Since the responses to the questions were pre-coded, the information was read directly from the questionnaire and inputted into computers. All nine hundred and fifty successful interview cases were put together and run by SPSS Version 9.0. The empirical findings are analyzed in Chapter Five.

4.15 Defects

It was impractical to survey 5% of the total population in the eighteen TPS Estates,

which would be desirable. Therefore, blocks were stratified into high, middle and low floor sectors at the pilot stage of sampling. The population of selected areas was then further stratified and visited if the one proceeding refused to be interviewed. Another defect was that there was a high incidence of refusal or no response from the selected households, with a total of approximately 4750 households (83.33%). Non-response was felt to be potentially a large problem though interviewers tried their best to be patient. On the other hand, even if the sample size of 1000 was originally set, the final valid sample size was reduced to 950 after dropping those invalid cases.

For the roughly 4750 households who had refused an interview, it was found that their doors were either locked or the tenants refused to be interviewed. The unsuccessful cases probably distorted the results and might cause some bias.

4.16 Conclusion

The survey is regarded as successful because it has fulfilled the objectives of the study. The data is analyzed with standard statistical and econometric techniques. They are reported in Chapter 5.

CHAPTER FIVE

5. EMPIRICAL FINDINGS FOR BOTH THE TIME-SERIES ANALYSIS AND THE CROSS-SECTIONAL ANALYSIS

5.1 Empirical Findings for the Time-series Analysis

There are 64 multiple regression equations estimated by using EViews3.1. In particular, there are 8 types of multiple regression models to distinguish the effect of AFC from that of the TPS on the overall property market, the secondary property market and the second-hand HOS market (focusing on the HOS free market). They are shown as follows.

Table 5.1 : Dependent Variable : Transaction Volume of Overall Property Market (OPMVOL) (1996 Q1 to 2000 Q4)

	Equation 1	Equation 2	Equation 3	Equation 4
Constant term	50086.39 (7.72***)	49384.44 (8.22***)	50435.57 (7.31***)	51217.52 (7.37***)
AFCDUMMY	- 20068.94 (- 3.55***)	- 17025.26 (- 3.22***)	- 19308.76 (- 3.51***)	- 20617.28 (- 4.23***)
TPSDUMMY1	- 23055.54 (- 3.15***)	-	-	-
TPSDUMMY2	-	- 22222.06 (- 3.32***)	-	-
TPSDUMMY3	-	-	- 21686.41 (- 3.09***)	-
TPSDUMMY4	-	-	-	- 20766.75 (- 3.50***)
R-bar squared	0.736	0.743	0.745	0.790
F-statistics	17.729***	18.343***	18.517***	23.588***
DW	1.997 (AR1)	1.901 (AR1)	2.097 (AR1)	1.979 (AR1)

** means statistically significant at 5% level

*** means statistically significant at 1% level

Table 5.1 shows that the 4 multiple regression models provide similar results. All the

F-statistics, t-ratios for AFCDUMMY and TPSDUMMY are statistically significant at 1% level, with the values of R-bar squared more than 70% and DW with AR1 to successfully adjust the serial correlation at 5% level. All the slope coefficients for TPSDUMMY are higher than that of AFCDUMMY. Specifically, the slope coefficients for TPSDUMMY are much higher than that of AFCDUMMY for model 1, model 2 and model 3. It can be concluded that the effect of TPS is much serious than that of the AFC on the sharp reduction of transaction volume of overall property market since early 1998.

Table 5.2 : Dependent Variable : Real Transaction Value of Overall Property Market (OPMRTV) (1996 Q1 to 2000 Q4)

	Equation 5	Equation 6	Equation 7	Equation 8
Constant term	155583.0 (6.05***)	148898.3 (6.94***)	154464.3 (6.05***)	146471.7 (6.08***)
AFCDUMMY	- 64021.95 (- 3.81***)	- 51632.66 (- 3.24***)	- 61154.63 (- 3.81***)	- 62262.81 (- 3.87***)
TPSDUMMY1	- 88952.53 (- 3.29***)	-	-	-
TPSDUMMY2	-	- 81265.57 (- 3.60***)	-	-
TPSDUMMY3	-	-	- 80269.45 (- 3.29***)	-
TPSDUMMY4	-	-	-	- 64580.57 (- 3.35***)
R-bar squared	0.810	0.807	0.818	0.817
F-statistics	26.571***	26.161***	28.029***	27.762***
DW	1.702 (AR1)	1.637 (AR1)	1.738 (AR1)	1.774 (AR1)

*** means statistically significant at 1% level

Table 5.2 shows that the 4 multiple regression models provide similar results. All the F-statistics, t-ratios for AFCDUMMY and TPSDUMMY are statistically significant at 1% level, with the values of R-bar squared more than 80% and DW with AR1 to successfully adjust the serial correlation at 5% level. All the slope coefficients for TPSDUMMY are higher than that of AFCDUMMY. Specifically, the slope

coefficients for TPSDUMMY are much higher than that of AFCDUMMY for model 5, model 6 and model 7. It can be concluded that the effect of TPS is much more serious than that of the AFC on the sharp reduction of real transaction value of overall property market since early 1998.

Table 5.3 : Dependent Variable : Transaction Volume of Secondary Property Market (SPMVOL) (1996 Q1 to 2000 Q4)

	Equation 9	Equation 10	Equation 11	Equation 12
Constant term	38929.39 (7.72***)	37654.83 (9.82***)	38599.23 (10.211***)	38192.62 (10.61***)
AFCDUMMY	- 12246.55 (- 3.55***)	- 9203.35 (- 2.06*)	- 10285.23 (- 2.35**)	- 9990.34 (- 2.35**)
TPSDUMMY1	- 22938.76 (- 3.15***)	-	-	-
TPSDUMMY2	-	- 21403.21 (- 4.82***)	-	-
TPSDUMMY3	-	-	- 21541.31 (- 5.27***)	-
TPSDUMMY4	-	-	-	- 20150.26 (- 5.51***)
R-bar squared	0.819	0.809	0.831	0.844
F-statistics	28.174***	26.346***	30.425***	33.566***
DW	1.791 (AR1)	1.760 (AR1)	1.902 (AR1)	2.147 (AR1)

* means statistically significant at 10% level

** means statistically significant at 5% level

*** means statistically significant at 1% level

Table 5.3 shows that the 4 multiple regression models provide similar results. All the F-statistics are statistically significant at 1% level, with the values of R-bar squared more than 70% and DW with AR1 to successfully adjust the serial correlation at 5% level. The t-ratios for TPSDUMMY are statistically significant at 1% level but for AFCDUMMY, they are only statistically significant at either 5% or 10% level. Besides, all the slope coefficients for TPSDUMMY are much higher than that of AFCDUMMY. Therefore, it can be strongly concluded that the effect of TPS is much more serious than that of AFC on the sharp reduction of transaction volume of

secondary property market since early 1998.

Table 5.4 : Dependent Variable : Real Transaction Value of Secondary Property Market (SPMRTV) (1996 Q1 to 2000 Q4)

	Equation 13	Equation 14	Equation 15	Equation 16
Constant term	102405.6 (9.47***)	99933.58 (10.22***)	111563.4 (6.83***)	107345.1 (6.52***)
AFCDUMMY	- 22915.18 (- 2.24***)	- 12461.59 (- 1.19)	- 31339.69 (- 2.10*)	- 32277.97 (- 2.22**)
TPSDUMMY1	- 72321.34 (- 5.27***)	-	-	-
TPSDUMMY2	-	- 69625.57 (- 5.59***)	-	-
TPSDUMMY3	-	-	- 73078.01 (- 4.37***)	-
TPSDUMMY4	-	-	-	- 62944.81 (- 4.20***)
R-bar squared	0.886	0.877	0.838	0.845
F-statistics	33.982***	31.315***	31.988***	33.720***
DW	2.223 (AR1&2)	2.096 (AR1&2)	1.596 (AR1)	1.782 (AR1)

* means statistically significant at 10% level

** means statistically significant at 5% level

*** means statistically significant at 1% level

Table 5.4 shows that the 4 multiple regression models provide similar results. All the F-statistics are statistically significant at 1% level, with the values of R-bar squared more than 80% and DW with AR1 and AR1/AR2 to successfully adjust the serial correlation at 5% level. All the slope coefficients for TPSDUMMY are much higher than that of AFCDUMMY. Like table 5.3, it can be strongly concluded that the effect of TPS is much more serious than that of the AFC on the sharp reduction of real transaction value of secondary property market since early 1998.

Table 5.5 : Dependent Variable : Transaction Volume of Second-hand HOS Market (SHHOSVOL) (Inclusive of HOS secondary market and HOS free market) (1996 Q1 to 2000 Q4)

	Equation 17	Equation 18	Equation 19	Equation 20
Constant term	2090.18 (7.67***)	2122.20 (8.06***)	2183.65 (8.14***)	2218.06 (8.26***)
AFCDUMMY	- 515.81 (- 1.38)	- 487.07 (- 1.34)	- 493.57 (- 1.38)	- 474.11 (- 1.35)
TPSDUMMY1	- 229.75 (- 0.72)	-	-	-
TPSDUMMY2	-	- 284.70 (- 0.92)	-	-
TPSDUMMY3	-	-	- 366.16 (- 1.21)	-
TPSDUMMY4	-	-	-	- 409.12 (- 1.41)
R-squared	0.310	0.325	0.352	0.376
F-statistics	2.246	2.408	2.719*	3.007*
DW	2.210 (AR1)	2.245 (AR1)	2.309 (AR1)	2.346 (AR1)

* means statistically significant at 10% level

*** means statistically significant at 1% level

Table 5.5 shows that the 4 multiple regression models provide similar results. All the t-ratios for AFCDUMMY and TPSDUMMY, and the majority of F-statistics are statistically insignificant at 5% level, with the values of R-squared more than 30% and DW with AR1 to successfully adjust the serial correlation at 5% level. However, all the AFCDUMMIES and the TPSDUMMIES have the expected negative sign.

Table 5.6 : Dependent Variable : Real Transaction Value of Second-hand HOS Market (SHHOSRTV) (Inclusive of HOS secondary market and HOS free market) (1996 Q1 to 2000 Q4)

	Equation 21	Equation 22	Equation 23	Equation 24
Constant term	3673.12 (5.29***)	3679.67 (5.83***)	3786.72 (5.96***)	3809.67 (6.23***)
AFCDUMMY	- 531.19 (- 0.80)	- 313.12 (- 0.50)	- 445.02 (- 0.71)	- 443.75 (- 0.74)
TPSDUMMY1	- 1683.89 (- 2.15**)	-	-	-
TPSDUMMY2	-	- 1721.86 (- 2.44**)	-	-
TPSDUMMY3	-	-	- 1772.13 (- 2.67**)	-
TPSDUMMY4	-	-	-	- 1730.65 (- 2.92)
R-bar squared	0.488	0.518	0.553	0.591
F-statistics	6.710***	7.452***	8.412***	9.700***
DW	1.956 (AR1)	2.017 (AR1)	2.200 (AR1)	2.254 (AR1)

** means statistically significant at 5% level

*** means statistically significant at 1% level

Table 5.6 shows that the 4 multiple regression models provide similar results. All the F-statistics are statistically significant at 1% level, with the values of R-bar squared more than 50% (except model 21) and DW with AR1 to successfully adjust the serial correlation at 5% level. All the t-ratios for AFCDUMMY are statistically insignificant at 5% level but for TPSDUMMY, all are significant at 5% level. All the slope coefficients for AFCDUMMY and TPSDUMMY have expected negative sign. However, all the slope coefficients for TPSDUMMY are much higher than that of AFCDUMMY. As a result, it can be strongly concluded that the effect of TPS is much more serious than that of the AFC on the sharp reduction of real transaction value of second-hand HOS market since early 1998.

Table 5.7 : Dependent Variable : Transaction Volume of HOS Free Market (HOSFMVOL) (1996 Q1 to 2000 Q4)

	Equation 25	Equation 26	Equation 27	Equation 28
Constant term	2069.42 (9.67***)	2040.88 (10.68***)	2081.35 (11.70***)	2067.05 (12.63***)
AFCDUMMY	- 518.77 (- 1.89*)	- 397.28 (- 1.51)	- 412.53 (- 1.65)	- 357.80 (- 1.47)
TPSDUMMY1	- 1012.11 (- 4.04***)	-	-	-
TPSDUMMY2	-	- 981.14 (- 4.39***)	-	-
TPSDUMMY3	-	-	- 1001.82 (- 5.07***)	-
TPSDUMMY4	-	-	-	- 965.95 (- 5.47)***
R-bar squared	0.691	0.700	0.739	0.749
F-statistics	14.435***	14.974***	17.969***	18.894***
DW	2.147 (AR1)	2.144 (AR1)	2.253 (AR1)	2.351 (AR1)

* means statistically significant at 10% level

*** means statistically significant at 1% level

Table 5.7 shows that the 4 multiple regression models provide similar results. The majority of the F-statistics are statistically significant at 1% level, with the values of R-bar squared more than 70% and DW with AR1 to successfully adjust the serial correlation at 5% level. All the t-ratios for TPSDUMMY are statistically significant at 1% level. As to AFCDUMMY, they are only statistically significant at 10% for model 25. Furthermore, the slope coefficients for TPSDUMMY are higher than that of AFCDUMMY by approximately 3 times on average. Therefore, it can be strongly concluded that the effect of TPS is much more serious than that of the AFC on the sharp reduction of transaction volume of HOS free market since early 1998.

Table 5.8 : Dependent Variable : Real Transaction Value of HOS Free Market (HOSFMRTV) (1996 Q1 to 2000 Q4)

	Equation 29	Equation 30	Equation 31	Equation 32
Constant term	3616.40 (5.97***)	3496.02 (5.97***)	3589.73 (6.84***)	3541.57 (6.96***)
AFCDUMMY	- 684.50 (- 1.16)	- 358.89 (- 1.16)	- 494.76 (- 0.86)	- 477.55 (- 0.84)
TPSDUMMY1	- 2439.99 (- 3.59***)	-	-	-
TPSDUMMY2	-	- 2310.85 (- 3.59***)	-	-
TPSDUMMY3	-	-	- 2309.68 (- 4.22***)	-
TPSDUMMY4	-	-	-	- 2147.40 (- 4.34***)
R-bar squared	0.734	0.740	0.760	0.773
F-statistics	17.552***	18.065***	19.977***	21.427***
DW	1.825 (AR1)	1.836 (AR1)	2.011 (AR1)	2.143 (AR1)

*** means statistically significant at 1% level

Table 5.8 shows that the 4 multiple regression models provide similar results. All the F-statistics are statistically significant at 1% level, with the values of R-bar squared more than 70% and DW with AR1 to successfully adjust the serial correlation at 5% level. All the t-ratios for TPSDUMMY are statistically significant at 1% level. In the contrast, all the t-ratios for AFCDUMMY are statistically insignificant at 10% level. Furthermore, all the slope coefficients for TPSDUMMY are much higher than that of AFCDUMMY. Specifically, the slope coefficients for TPSDUMMY are higher than that of AFCDUMMY by 4 to 5 times on average. Therefore, it can be strongly concluded that the effect of TPS is much more serious than that of the AFC on the sharp reduction of real transaction value of HOS free market since early 1998.

Table 5.9 : The Linkage of Transaction Volume Equations (1996 Q1 to 2000 Q4)

	(Equation 33) OPMVOL	(Equation 34) SPMVOL	(Equation 35) SPMVOL
Constant term	9713.61 (4.79***)	464.02 (0.05)	-4779.60 (-2.93***)
SPMVOL	0.95 (11.70***)	-	-
SHHOSVOL	-	12.27 (2.56**)	-
HOSFMVOL	-	-	20.13 (17.86***)
R-bar squared	0.877	0.226	0.944

** means statistically significant at 5% level

*** means statistically significant at 1% level

Table 5.9 shows that there is a linkage of transaction volume among the overall property market, the secondary property market and the second-hand HOS market (focusing on the HOS free market). Model 33 indicates that with the value of R-bar squared more than 80% and t-ratio for SPMVOL statistically significant at 1%, OPMVOL highly depends on SPMVOL. On the other hand, model 34 shows that with the value of R-bar squared just 22.6% and SHHOSVOL statistically significant at 5%, SPMVOL slightly depends on SHHOSVOL. This model apparently reveals that the linkage of transaction volume between secondary property market and second-hand HOS market is not so strong. However, this result is distorted by the existence of HOS secondary market and can be explained by model 35. Model 35 reveals that the association between SPMVOL and HOSOMVOL is very strong, with R-bar squared more than 90%. Combined with all these models, it can be concluded that the linkage of transaction volume among the overall property market, the secondary property market and the second-hand HOS market is very strong.

With the evidence of strong linkage of these markets, it reinforces the conclusion

drawn previously that the effect of TPS is much serious than that of the AFC on the transaction volume in the overall property market, the secondary property market and the second-hand HOS market since early 1998.

Table 5.10 : The Linkage of Real Transaction Value Equations (1996 Q1 to 2000 Q4)

	(Equation 37) OPMVOL	(Equation 38) SPMVOL	(Equation 39) SPMVOL
Constant term	28314.84 (6.34***)	- 28304.10 (- 1.99*)	-7145.05 (-1.62)
SPMVOL	1.02 (17.33***)	-	-
SHHOSVOL	-	37.32 (6.91***)	-
HOSFMVOL	-	-	35.67 (18.49***)
R-bar squared	0.940	0.711	0.947

* means statistically significant at 10% level

*** means statistically significant at 1% level

Table 5.10 shows that there is a linkage of real transaction value among the overall property market, the secondary property market and the second-hand HOS market (focusing on the HOS free market). Model 36 indicates that with the value of R-bar squared more than 90% and t-ratio for SPMRTV statistically significant at 1%, OPMRTV highly depends on SPMRTV. On the other hand, model 37 shows that with the value of R-bar squared more than 70% and t-ratio for SHHOSRTV statistically significant at 1%, SPMRTV also highly depends on SHHOSRTV. However, this result is still distorted by the existence of HOS secondary market to a certain extent. Model 38 reveals that the association between SPMRTV and HOSOMRTV is very strong, with R-bar squared more than 90%. Combined with all these models, it can be strongly concluded that the linkage of real transaction value among the overall property market, the secondary property market and the second-HOS market is very strong.

With the same analysis for model 33 – 35, it can be strongly concluded that the effect of TPS is much serious than that of the AFC on the real transaction value in the overall property market, the secondary property market and the second-hand HOS market since early 1998.

5.2 Research Empirical Findings for the Cross-sectional Analysis

All the statistical findings for the cross-sectional analysis are presented into eleven parts and they are analyzed in this chapter. Part 1 provides the descriptive statistical figures on personal particulars and household characteristics while Part 2 provides the same as housing conditions. Part 3 records the data concerning households' aspirations of buying a PRH and reasons for and against it. Part 4 records the data concerning households' aspirations of buying a HOS flat without TPS and reasons for and against it. Part 5 records the data concerning households' aspirations of buying a HOS flat after the resale of PRH is permitted. Reasons for and against it are also analyzed. Part 6 records the data concerning those not buying a TPS flat. Reasons for and against applying for a HOS flat are analyzed from 1994 to 1998 while Part 7 records the reasons for and against applying for a HOS flat since the implementation of TPS in 1998 for the same respondents. Part 8 records the respondents' views towards the performance of the TPS. Part 9 focuses on the analysis of the relationship between the socio-demographic and the economic factors of household, and the tenure choice. Part 10 looks into the possible relationship between the collapse of HOS market and the TPS while the effect of policy efficiency of resource allocation by TPS is shown in part 11.

Regarding the survey, the distribution of the 950 observation samples drawn from the eighteen TPS estates is shown in Table 5.11.

Table 5.11 Distribution of Households in the Samples

	Estate	Frequency	Percent
Valid	Wah Kwai Estate	46	4.8
	Fung Tak Estate	60	6.3
	Hang On Estate	23	2.5
	Cheung On Estate	60	6.3
	Wan Tau Tong Estate	60	6.3
	Kin Sang Estate	60	6.3
Sub-total	**Phase 1**	**309**	**32.5**
	Yiu On Estate	55	5.8
	Wah Ming Estate	58	6.1
	Tsui Wan Estate	60	6.3
	Tin King Estate	60	6.3
	Chuk Yuen North Estate	48	5.1
	Tak Tin Estate	40	4.2
Sub-total	**Phase 2**	**321**	**33.8**
	Choi Ha Estate	60	6.3
	Hin King Estate	52	5.5
	Fung Wah Estate	37	3.9
	Tai Woo Estate	60	6.3
	Fu Hang Estate	53	5.6
	Tin Ping Estate	58	6.1
Sub-total	**Phase 3**	**320**	**33.7**
Total		**950**	**100.0**

5.21 Household Characteristics

Household characteristics concern demographic variables including sex, age, education level, occupation, PRH status and income of the household. In addition, the size of family and their earning capacity are also included. Overall, the household characteristics mainly focus on the profile of the respondents and their family so as to provide the background analysis. They are shown from Table 5.12 to Table 5.22.

Table 5.12 Sex of the Respondents

	Sex	Frequency	Percent	Cumulative Percent
Valid	Male	339	35.7	35.7
	Female	611	64.3	100.0
Total		950	100.0	100.0

Table 5.12 shows that 339 (35.7%) respondents are male while 611 (64.3%) are female. The outcome is not surprising because women usually spend most of their time at home and thus more likely to be interviewed.

Table 5.13 Age of the Respondents

	Age	Frequency	Percent	Cumulative Percent
Valid	30 or Below	81	8.5	8.5
	31 – 40	265	27.9	36.4
	41 – 50	365	38.4	74.8
	51 – 60	137	14.4	89.3
	61 or Above	102	10.7	100.0
Total		950	100.0	100.0

As indicated in table 5.13, all the respondents are over the age of 18. More than 620 (66%) respondents are within the age group of 31-50 and close to 11% is aged over 61.

Table 5.14 Level of Education Attainment

	Level of Education Attainment	Frequency	Percent	Cumulative Percent
Valid	Not Educated	86	9.1	9.1
	Primary	418	44.0	53.1
	Secondary	410	43.2	96.2
	Tertiary or Above	36	3.8	100.0
Total		950	100.0	100.0

As shown in Table 5.14, most respondents have a standard of either primary or secondary education. Far less than 4% is within the tertiary segment.

Table 5.15 Occupation of the Respondents

	Occupation	Frequency	Percent	Cumulative percent
Valid	Blue Collar	128	13.5	13.5
	White Collar	61	6.4	19.9
	Services	78	8.2	28.1
	Self-employed	9	0.9	29.1
	Managerial	9	0.9	30.0
	Professional	21	2.2	32.2
	Housewife	431	45.4	77.6
	Unemployed	44	4.6	82.2
	Retired	83	8.7	90.9
	Others	86	9.1	100.0
Total		950	100.0	

Table 5.15 shows that 431 (45.4%) respondents are housewives. Not surprisingly, 4.6% of the respondents have been unemployed since the Asian Financial Crisis.

Table 5.16 PRH Status of the Respondents

	PRH Status	Frequency	Percent	Cumulative Percent
Valid	Tenant	569	59.9	59.9
	Spouse of Tenant	279	29.4	89.3
	Parents of Tenant	20	2.1	91.4
	Others	82	8.6	100.0
Total		950	100.0	100.0

According to table 5.16, 569 (nearly 60%) respondents are tenants and 279 (nearly 30%) respondents are the spouses of tenants. Since either the tenant or the spouse of tenant is the decision-maker for the tenure choice of buying a HOS flat without TPS, the survey appears to be representative enough of the family.

Table 5.17 Family Size

	Family Size	Frequency	Percent	Cumulative Percent
Valid	1 Person	7	0.7	0.7
	2 Person	43	4.5	5.3
	3 Person	155	16.3	21.6
	4 Person	407	42.8	64.4
	5 Person or Above	338	35.6	100.0
Total		950	100.0	100.0

Table 5.17 shows that most (42.8%) families are 4 persons while 338 (35.6%) respondents are families comprising more than 5 persons.

Table 5.18 Earning Household Members

	Earning Household Members	Frequency	Percent	Cumulative Percent
Valid	None	49	5.2	5.2
	1 Person	496	52.2	57.4
	2 Person	254	26.7	84.1
	3 Person	101	10.6	94.7
	4 Person or Above	50	5.3	100.0
Total		950	100.0	100.0

As indicated in table 5.18, nearly 50 (5.2%) respondents have no earners, but most have one or two persons in paid employment. 750 (more than 78%) respondents have one or two persons and 50 households (5.3%) have earning members of four persons or above.

Table 5.19 Have You Ever Been Laid Off Since the AFC ?

	Laid Off	Frequency	Percent	Cumulative Percent
Valid	Yes	273	28.7	28.7
	No	677	71.3	100.0
Total		950	100.0	100.0

Table 5.19 demonstrates that nearly 30% of the respondents have been laid off since the AFC.

Table 5.20 Have You Had Your Salary Reduced Since the AFC ?

	Income Stability	Frequency	Percent	Cumulative Percent
Valid	Yes	222	23.4	23.4
	No	728	76.6	100.0
Total		950	100.0	100.0

According to table 5.20, the salary for nearly 25% of them has been reduced since the AFC.

Table 5.21 Number of Years Living in Public Rental Housing

	No. of Years in PRH	Frequency	Percent	Cumulative Percent
Valid	1-5 Years	38	4.0	4.0
	6-10 Years	340	35.8	39.8
	11-15 Years	266	28.0	67.8
	16 Years or Above	306	32.2	100.0
Total		950	100.0	100.0

Table 5.21 shows that approximately 40% of the respondents has lived in the PRH for less than 10 years while 32.2% (306 respondents) has lived in the PRH for more than 16 years.

Table 5.22 Ownership of Other Premises Except the PRH

	Ownership of Premises Other than the PRH	Frequency	Percent	Cumulative Percent
Valid	Yes	46	4.8	4.8
	No	904	95.2	95.2
Total		950	100.0	100.0

As indicated in table 5.22, 4.8% of the respondents reported owning other premises but 95.2% of them does not have.

5.22 Housing Conditions

Variables capturing different dimensions of housing conditions may include estate district, completion date, age of the building, saleable area, rent, nature of rent,

satisfaction of rent level, decoration cost at assumption of ownership[27] and degree of satisfaction. The household data mainly focuses on the profile of the living conditions of respondents and their family, and they are indicated from Table 5.23 to Table 5.31.

Table 5.23 Estate District

	Estate District	Frequency	Percent	Cumulative Percent
Valid	Hong Kong Island	143	15.1	15.1
	Kowloon	208	21.8	36.9
	New Territorities	599	63.1	100.0
Total		950	100.0	100.0

Table 5.23 indicates that 143 (15.1%) respondents are located in Hong Kong Island, 21.8% located in Kowloon and 63.1% located in New Territorities.

Table 5.24 Completion Date

	Completion Date	Frequency	Percent	Cumulative Percent
Valid	1990 or Before	484	50.9	50.9
	After 1990	466	49.1	1000.0
Total		950	100.0	100.0

According to table 5.24, the completion date is nearly fifty-fifty of the respondents before and after 1990.

Table 5.25 Age of the Building

	Age of the Building	Frequency	Percent	Cumulative Percent
Valid	6-10 Years	416	43.8	43.8
	11-15 Years	534	56.2	100.0
Total		950	100.0	100.0

Table 5.25 shows that 43.8% of the building age is in the range of 6-10 years while 56.2% of the flats is 11-15 years. The age of the building units provides clues about its condition since buildings decline in condition as they age. Older buildings tend to

[27] This refers to the decoration cost that the tenant moves into the public rental estate for the first time.

be more costly to maintain.

Table 5.26 Saleable Area

	Saleable Area	Frequency	Percent	Cumulative Percent
Valid	< 250 Feet	7	0.7	0.7
	250-300 Feet	50	5.3	6.0
	301-400 Feet	405	42.6	48.6
	401-500 Feet	374	39.4	88.0
	> 501 Feet	114	12.0	100.0
Total		950	100.0	100.0

As indicated in table 5.26, more than 80% of the flats is within the range of 301-500 sq. ft while just 12.0% (114 respondents) is above 501 sq. ft. Most of the flats have one or two bedrooms.

Table 5.27 Rent

	Rent	Frequency	Percent	Cumulative Percent
Valid	$500 or Below	4	0.4	0.4
	$501-$1000	103	10.8	11.2
	$1001-$1500	568	59.8	71.0
	$1501-$2000	216	22.7	93.7
	$2001-$2500	50	5.3	99.0
	> $2501	9	1.0	100.0
Total		950	100.0	100.0

Table 5.27 shows that a majority (82.5%) of respondents reported monthly rents is within the range of $1001-$2000 while only 1.4% reported is either below $500 or above $2501.

Table 5.28 Nature of Rent

	Nature of Rent	Frequency	Percent	Cumulative Percent
Valid	Original Rent	906	95.4	95.4
	1.5 Fold of the Original Rent	10	1.0	96.4
	Double Rent	12	1.3	97.7
	Market Rent	22	2.3	100.0
Total		950	100.0	100.0

According to table 5.28, a majority (95.4%) of respondents pays original rent while only 4.6% of them need to pay extra rent.

5.29 Satisfaction of Rent Level

	Satisfaction of Rent Level	Frequency	Percent	Cumulative Percent
Valid	Very Expensive	14	1.5	1.5
	Expensive	159	16.7	18.2
	Reasonable	721	75.9	94.1
	Cheap	53	5.6	99.7
	Very Cheap	3	0.3	100.0
Total		950	100.0	100.0

Table 5.29 shows that the majority of (75.9%) respondents reported the rent paid is "Reasonable" while only 1.5% and 0.3% of the respondents reported either "Very Expensive" or "Very Cheap".

Table 5.30 Decoration Cost at Assumption of Ownership

	Decoration Cost at Assumption of Ownership	Frequency	Percent	Cumulative Percent
Valid	$25,000 or Below	332	34.9	34.9
	$25,001-$50,000	377	39.7	74.6
	$50,001-$75,000	137	14.4	89.0
	$75,001-$100,000	41	4.4	93.4
	> $100,001	63	6.6	100.0
Total		950	100.0	100.0

As indicated in table 5.30, nearly 35% of the respondents spends less than $25,000 for decoration. 89% of the respondents spends less than $75,000 in decoration at assumption of ownership several years ago. Fewer than 7% spends more than $100,000 for decoration.

Table 5.31 Level of Satisfaction (Overall Condition)

	Level of Satisfaction (Overall Condition)	Frequency	Percent	Cumulative Percent
Valid	Very Satisfactory	22	2.3	2.3
	Satisfactory	455	47.9	50.2
	Acceptable	333	35.1	85.3
	Unsatisfactory	129	13.7	98.8
	Very Unsatisfactory	11	1.2	100.0
Total		950	100.0	100.0

Table 5.31 shows that 50.2% of the respondents are satisfied with the overall condition of the estate and the flat. While 13.7% and 1.2% of the respondents indicate “Unsatisfactory” and “Very Unsatisfactory” respectively.

5.23 Aspiration for Buying a PRH and Reasons

This part concerns information in relation to the answers of the respondents in respect of their housing tenure choices i.e. to rent or to buy. In the survey, sitting tenants and owners were asked about their decisions. Among these, reasons (both buy or not buy) for their decisions were collected for analysis.

Table 5.32 Tenure Choice

	Tenure Choice	Frequency	Percent	Cumulative Percent
Valid	Decide to Buy	129	13.6	13.6
	Bought Already	601	63.3	76.8
	Decide Not to Buy	220	23.2	100.0
Total		950	100.0	100.0

According to table 5.32, 730 respondents, who account for 76.8% of the total sample, express a desire for home ownership (either decided to buy or has bought the TPS flats) before the survey. Conversely, only 220 respondents (23.2%) indicate that they do not have interest to buy the flats.

The following table presents the reasons behind their tenure choice.

Table 5.33 (Reasons For Buying a PRH)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Reasonable Price**	**209**	**28.6%**
2	**Desire to Own**	**203**	**27.8%**
3	**Fear of Paying Extra-Rent**	**79**	**10.8%**
4	Habitation of Living Environment	58	7.9%
5	Fear of No Inheritance	37	5.1%
6	Autonomy	35	4.8%
7	Avoidance of Cumbersome Housing Policy (Mean Test)	25	3.4%
8	Others	23	3.2%
9	Good Traffic Network	20	2.7%
10	Good Location	15	2.1%
11	Avoidance of Reporting Family Member Every Two Years	9	1.2%
12	Good Environment & Adequate Facilities	8	1.1%
13	Good Neighbourhood	4	0.5%
14	Ideal Financial Arrangement	4	0.5%
15	Good Physical Condition	2	0.3%
16	Good Management	1	0.1%
17	New Estate	0	0%

Out of 730 respondents who decided to buy or have bought their flats, table 5.33 lists the reasons for the respondents for purchasing a PRH in descending order of significance. Among the 17 reasons, "Reasonable Price" accounts for 28.6% of the 730 samples (who decided to buy) and provided the most important motivation for the tenants/homemakers to buy their flats. While "Desire to Own" takes the second ranking at 27.8% citing it as the most important motivation and "Fear of Paying Extra-rent[28]" takes the third ranking at 10.8%.

Table 5.34 (Reasons Against Buying a PRH)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Not Affordable Now**	**66**	**30.0%**
2	**Flat Size Too Small**	**33**	**15.0%**
3	**Poor Physical Quality**	**32**	**14.5%**
4	Others	17	7.7%
5	Afraid of Not Being Able to Afford In Future	12	5.5%
6	Estate Too Old	11	5.0%
7	Unreasonably High Price	10	4.5%
8	Dissatisfaction of Taking the Expenses of Public Facilities and the Slope Maintenance As Burden	8	3.6%
9	Bad Estate Management	7	3.2%
10	Anxiety of Maintenance Problem In Future	5	2.3%
11	Bad Environment & Inadequate Facilities	4	1.8%
12	Not Ideal Orientation	4	1.8%
13	No Large Difference between Renting & Purchasing the PRH	4	1.8%
14	Reasonable Rent At Present	2	0.9%
15	Dissatisfaction of Taking Part of Management Fee As Maintenance Reserve	1	0.5%
16	Poor Traffic	1	0.5%
17	Unsuitable Financial Arrangement	1	0.5%
18	Poor Social Network	1	0.5%
19	Unsuitable Transfer Restriction	0	0%

As seen in table 5.34, it lists the reasons for the respondents against purchasing a

[28] Since early 1987, a policy had been in place to double the rent for PRH tenants with a rental history of more than 10 years and incomes in excess of three times the eligibility threshold.

PRH in descending order of significance. Among the 19 reasons, "Not Affordable Now" accounts for 30.0% of the 220 samples (who decided not to buy) and is the most vital intent for the tenants/homemakers not to buy their flats. While "Flat Size Too Small" takes the second ranking at 15.0% and "Poor Physical Quality" takes the third ranking at 14.5%.

5.24 Aspiration for Buying a HOS Flat Without TPS and Reasons

This part concerns information in relation to the answers of the respondents in respect of their housing tenure choices of HOS flat without TPS. Among these, reasons for purchasing HOS flat in the short run, the long run and not purchasing at all are analyzed.

Table 5.35 Tenure Choice of HOS Flat Without the TPS

	Tenure Choice of HOS Flat Without TPS	Frequency	Percent	Cumulative Percent
Valid	Buy in the Short Run	97	13.3	13.3
	Buy in the Long Run	84	11.5	24.8
	Not Buy At All	549	75.2	100.0
Total	Total	730	100.0	

Table 5.35 indicates that 97 (13.3%) respondents would purchase a HOS flat in the short run if there had not been the TPS while 84 (11.5%) respondents would purchase a HOS flat in the long run. The remaining 549 (75.2%) respondents would not purchase a HOS flat both in the short run and the long run.

The following tables present the reasons why the tenants/homeowners would make

such a decision.

Table 5.36 (Reasons for Buying A HOS Flat in the Short Run If There Had Not Been the TPS)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Desire to Own**	**44**	**45.4%**
2	**Others**	**17**	**17.5%**
3	**Avoidance of No Inheritance**	**15**	**15.5%**
4	Autonomy	7	7.2%
5	Mortgage Cost Approximately Same As Rent In the Short Run	7	7.2%
6	Property Price Fall of HOS Market In Recent Years	5	5.2%
7	Enhancement of Security and Satisfaction	2	2.1%
8	Favourable Loan Scheme Provision by HKHA	0	0%
9	Asset Appreciation	0	0%
10	Enhancement of Social Status	0	0%

As indicated in table 5.36, it lists, in descending order of significance, the reasons for the respondents to buy the HOS flat in the Short Run if there had not been the TPS. Among the 10 reasons, "Desire to Own" accounts for 45.4% of the 97 target tenants and takes the first rank. "Others" takes the second ranking at 17.5% while "Avoidance of No Inheritance[29]" takes the third ranking at 15.5%.

[29] Under the new public housing policy, once both the tenant and his/her spouse are dead, the remaining family members have to formally apply the PRH again.

Table 5.37 (Reasons for Buying A HOS Flat in the Long Run If There Had Not Been the TPS)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Desire to Own**	**31**	**36.9%**
2	**Others**	**21**	**25.0%**
3	**Enhancement of Security and Satisfaction**	**10**	**11.9%**
4	Avoidance of No Inheritance	8	9.5%
5	Autonomy	5	6.0%
6	Mortgage Cost Approximately Same As Rent in the Long Run	4	4.8%
7	Asset Appreciation	3	3.6%
8	Stand-By of the Present HOS Market	2	2.4%
9	Favourable Loan Scheme Provision by HKHA	0	0%
10	Enhancement of Social Status	0	0%

According to table 5.37, among the 10 reasons listed, "Desire to Own" accounts for 36.9% of the 84 target tenants and takes the first rank. Surprisingly, "Others" takes the second ranking at 25.0% while "Enhancement of Security and Satisfaction" takes the third ranking at 11.9%.

Table 5.38 (Reasons for Not Buying A HOS Flat in both the Short Run and the Long Run Even If There Had Not Been the TPS)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Not Affordable Now**	**321**	**58.5%**
2	**Unreasonably High Price of HOS Flat**	**91**	**16.6%**
3	**Habitation of Living Environment**	**41**	**7.5%**
4	Others	34	6.2%
5	Afraid of Not Being Able to Afford In Future	34	6.2%
6	Mortgage Cost for PRH Greatly Different from that of HOS Flat	17	3.1%
7	Unwilling to Change the Consumption Pattern	8	1.5%
8	Prediction of Further Property Price Fall of HOS Market	3	0.5%

Table 5.38 lists, in descending order of the significance, the reasons for the

respondents not to buy the HOS flat in both the Short Run and the Long Run even if there had not been the TPS. Among the 10 reasons, "Not Affordable Now" accounts for 58.5% of the 549 target tenants and takes the first rank. "Unreasonably High Price of HOS Flat" takes the second ranking at 16.6% while "Habitation of Living Environment" takes the third ranking at 7.5%.

5.25 Aspiration for Buying a HOS Flat After the Resale of PRH Is Permitted and Reasons

This part concerns information in relation to the answers of the respondents in respect of their housing tenure choices of HOS flat after the resale of PRH is permitted. Among these, reasons for and against purchasing HOS flats are analyzed.

Table 5.39 Tenure Choice of HOS Flat After the Resale of PRH Is Permitted

	Tenure Choice of HOS Flat After the Resale of PRH is Permitted	Frequency	Percent	Cumulative Percent
Valid	Yes	83	11.4	11.4
	No	647	88.6	100.0
Total	Total	730	100.0	

Table 5.39 shows that 83 (11.4%) respondents intend to purchase a HOS flat after the resale of PRH is permitted. While 647 (88.6%) respondents do not intend to purchase a HOS flat.

Table 5.40 (Reasons of Purchasing of HOS Flat After the Resale of PRH Is Permitted)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Others**	**25**	**30.1%**
2	**Better Living Environment and Adequate Facilities of HOS Flat**	**23**	**27.7%**
3	**Better Physical Quality of HOS Flat**	**16**	**19.3%**
4	More Value-Added of Purchasing HOS Flat Than That of PRH	13	15.7%
5	Better Estate Management of HOS Flat	6	7.2%
6	More Upgrading the Social Status of Purchasing HOS Flat Than That of PRH	0	0%

As seen in table 5.40, it lists, in descending order of significance, the reasons for the respondents to buy the HOS flat after the Resale of PRH is permitted. Among the 6 reasons, surprisingly, "Others" accounts for 30.1% of the 83 target tenants and takes the first rank. It may probably include "Purchasing for Investment and Saving". "Better Living Environment and Adequate Facilities of HOS Flat" takes the second ranking at 27.7% while "Better Physical Quality of HOS Flat" takes the third ranking at 19.3%.

Table 5.41 (Reasons of Not Purchasing of HOS Flat After the Resale of PRH Is Permitted)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	Not Affordable Now	194	30.0%
2	**Adequate Satisfaction In Self-Purchase**	**168**	**26.0%**
3	Others	74	11.4%
4	Habitation of Living Environment	65	10.0%
5	Unreasonably High Price of HOS Flat	53	8.2%
6	**Less Attraction of Buying the HOS Flat Due to The TPS**	**43**	**6.6%**
7	Afraid of Not Being Able to Afford In Future	35	5.4%
8	Unwilling to Change the Consumption Pattern	10	1.5%
9	Prediction of Further Property Price Fall of HOS Market	4	0.6%
10	Mortgage Cost for PRH Greatly Different From That of HOS Flat	1	0.2%

Table 5.41 lists, in descending order of significance, the reasons for the respondents not to buy the HOS flat after the resale of PRH is permitted. Among the 10 reasons, "Not Affordable Now" accounts for 30.0% of the 647 target tenants and takes the first rank and "Adequate Satisfaction In Self-Purchase" takes the second ranking at 26.0%. It should be remarkable that the nature of "Less Attraction of Buying the HOS Flat Due to the TPS" and "Adequate Satisfaction In Self-Purchase" are the same in which they both imply the HOS market is adversely affected by the TPS. Their only difference is that the former implies explicitly while the latter implies implicitly. Their sums account for 32.6% of the 647 target tenants and overwhelm 'Not Affordable Now' as the first rank. Through this descriptive explanation, it supports the 4 calculations estimated later that the TPS greatly paralyzes the HOS market.

5.26 Aspiration of Applying for a HOS Flat from 1994 to 1998 for those Respondents Not Buying the TPS flat and Reasons

This part concerns information in relation to the answers of the aspirations of applying for and not applying for a HOS flat from 1994 to 1998 for those respondents not buying the TPS flat. Among these, reasons for and against purchasing it are analyzed.

Table 5.42 Decision to Apply for a HOS Flat from 1994 to 1998

	Decision to Apply for a HOS Flat from 1994 to 1998	Frequency	Percent	Cumulative Percent
Valid	Yes	32	14.5	14.5
	No	188	85.5	100.0
Total	Total	220	100.0	100.0

Table 5.42 shows that 32 (14.5%) respondents had applied to purchase a HOS flat from 1994 to 1998 while 188 (85.5%) respondents had not applied to purchase a HOS flat in the same period.

The following tables present the reasons for and against to apply for a HOS flat from 1994 to 1998 for those respondents not buying the PRH.

Table 5.43 (Reasons for Applying for a HOS Flat from 1994 to 1998)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Desire to Own**	**12**	**37.5%**
2	**Others**	**9**	**28.1%**
3	**Avoidance of No Inheritance**	**3**	**9.4%**
4	**Autonomy**	**3**	**9.4%**
5	**Enhancement of Security and Satisfaction**	**3**	**9.4%**
6	Property Price Fall of HOS Market In Recent Years	1	3.1%
7	Mortgage Cost Approximately Same As Rent	1	3.1%
8	Asset Appreciation	0	0%
9	Favourable Loan Scheme Provision by HKHA	0	0%
10	Enhancement of Social Status	0	0%

Table 5.43 lists, in descending order of significance, the reasons for the respondents to apply for a HOS flat from 1994 to 1998. Among the 10 reasons, “Desire to Own” accounts for 37.5% of the 32 target tenants and takes the first rank. Surprisingly, “Others” takes the second ranking at 28.1% while “Avoidance of No Inheritance”, “Autonomy” and “Enhancement of Security and Satisfaction” are same to take the third ranking at 9.4%.

Table 5.44 (Reasons for NOT Applying for a HOS Flat From 1994 to 1998)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Not Affordable Now**	**114**	**60.6%**
2	**Afraid of Not Being Able to Afford In Future**	**23**	**12.2%**
3	**Others**	**20**	**10.6%**
4	Habitation of Living Environment	10	5.3%
5	Unreasonably High Price of HOS Flat	8	4.3%
6	Mortgage Cost for PRH Greatly Different From That of HOS Flat	7	3.7%
7	Prediction of Further Property Price Fall of HOS Market	2	1.1%
8	Unwilling to Change the Consumption Pattern	2	1.1%
9	No Potential of Asset Appreciation of HOS Flat	2	1.1%

Table 5.44 lists, in descending order of significance, the reasons for the respondents not to apply for the purchase of the HOS flat from 1994 to 1998. Among the 9 reasons, “Not Affordable Now” accounts for 60.6% of the 210 target tenants and takes the first rank. “Afraid of Unaffordable In Future” takes the second ranking at 12.2% while “Others” takes the third ranking at 10.6%.

5.27 Aspiration of Applying for a HOS Flat since the Implementation of TPS in 1998 for those Respondents Not Buying the TPS flat and Reasons

This part concerns information in relation to the answers of the housing aspirations of applying for and not applying for a HOS flat since the implementation of TPS in 1998 for those respondents not buying the TPS flat. The reasons for and against purchasing it are analyzed.

Table 5.45 Decision to Apply for a HOS Flat since 1998

	Decision to Apply the HOS Flat since 1998	Frequency	Percent	Cumulative Percent
Valid	Yes	9	4.1	4.1
	No	211	95.9	100.0
Total	Total	220	100.0	100.0

Table 5.45 shows that only 9 (4.1%) respondents have applied to purchase a HOS flat since 1998 while 188 (95.9%) respondents have not applied to purchase a HOS flat in the same period.

The following table presents the reasons for and against applying to buy a HOS flat since 1998 for those respondents not buying the PRH.

Table 5.46 (Reasons for Applying for a HOS Flat Since the Implementation of TPS In 1998)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Desire to Own**	**4**	**44.4%**
2	**Enhancement of Security and Satisfaction**	**2**	**22.2%**
3	**Recent Sharp Property Price Fall of HOS Market**	**2**	**22.2%**
4	Avoidance of No Inheritance	1	11.1%
5	Others	1	11.1%
6	Autonomy	0	0%
7	Asset Appreciation of HOS Flat	0	0%
8	Fear of Paying Extra-Rent	0	0%
9	Favourable Loan Scheme Provision by HKHA	0	0%
10	Enhancement of Security and Satisfaction	0	0%

Table 5.46 lists, in descending order of significance, the reasons for the respondents to apply for a HOS flat since the implementation of TPS in 1998. Among the 10 reasons, "Desire to Own" accounts for 44.4% of the 10 target tenants and takes the first rank. Both "Enhancement of Security and Satisfaction" and "Recent Sharp

Property Price Fall of HOS Market" take the second ranking at 22.2%.

Table 5.47 (Reasons for NOT Applying the HOS Flat Since the Implementation of TPS In 1998)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Not Affordable Now**	**141**	**66.8%**
2	**Others**	**21**	**10.0%**
3	**Afraid of Not Being Able to Afford In Future**	**15**	**7.1%**
4	Unreasonably High Price of HOS Flat	10	4.7%
5	Habitation of Living Environment	8	3.8%
6	Mortgage Cost for PRH Greatly Different From That of HOS Flat	5	2.4%
7	No Potential of Asset Appreciation of HOS Market	4	1.9%
8	Prediction of Further Property Price Fall of HOS Market	3	1.4%
9	Less Attraction of Buying HOS Flat Due to The TPS	2	0.9%
10	Unwilling to Change the Consumption Pattern	2	0.9%

Table 5.47 lists, in descending order of significance, the reasons for the respondents not to apply for a HOS flat since the implementation of TPS in 1998. Among the 9 reasons, "Not Affordable Now" accounts for 66.8% of the 210 target tenants and takes the first rank. "Others" takes the second ranking at 10.6% while "Afraid of Unaffordable In Future" takes the third ranking at 12.2%.

5.28 Other Opinions Towards the Performance of the TPS.

This part concerns the general views of the respondents towards TPS comprising the degree of acceptance and opinion on desirability of speeding up TPS sales and extending TPS scale.

Table 5.48 Degree of Acceptance

	Degree of Acceptance	Frequency	Valid Percent	Cumulative Percent
Valid	Welcome	575	60.5	60.5
	Not Welcome	131	13.8	74.3
	No Idea	244	25.7	100.0
Total		950	100.0	100.0

Table 5.48 shows that 575 (60.5%) respondents welcome the Scheme. Strikingly, only 131 respondents (13.8%) do not go with the TPS while 244 (25.7%) respondents have no idea. Generally, TPS receives a good response.

Table 5.49 Opinion on Desirability of Speeding Up TPS Sales

	Speed of Future Development	Frequency	Valid Percent	Cumulative Percent
Valid	Speed Up	526	55.4	55.4
	Not Speed Up	171	18.0	73.4
	No Idea	253	26.6	100.0
Total		950	100.0	100.0

As indicated in table 5.49, 526 (55.4%) respondents wish the Scheme to be speeded up while 171 (18%) respondents hold the opposite view. 253 (26.6%) respondents have no comment. Overall the Scheme is wished to be speed up.

Table 5.50 Opinion on Desirability of Extending TPS Scale

	Extension of Future Development	Frequency	Valid Percent	Cumulative Percent
Valid	Should Extend	469	49.4	49.4
	Should Not Extend	245	25.8	75.2
	No Idea	236	24.8	100.0
Total		950	100.0	100.0

According to table 5.50, 49.4% of the respondents wishes the Scheme to be extended while 25.8% holds the opposite view. 24.8% of the respondents has no comment.

5.29 Cross-tabulation

The preceding part looks at the aspiration to buy a home and the reasons for the tenants/homemakers' tenure choices. To have a more comprehensive study, it is now using the Cross-tabulation Analysis, a type of statistical tools, for analyzing the correlation between a variable and other variable. Besides, it is further used to analyze the net ownership effect of TPS on HOS market and the policy efficiency of resource allocation.

After running the multiple Cross-tabulations, it has been found that except Earning Household Members, Flat Size, Rent and Decoration Cost at Assumption of Ownership and Family Size, all the other independent variables do not have any correlation with Tenure Choice. The reason is that all variables have probability values under a 2-tailed Chi-Square Test[30] either larger than 0.05 or approximately equal to zero with relevant Directional Measures[31].

[30] The Chi-Square Test is the most general hypothesis testing in Social Sciences. It is a test that determines whether the relationship between a variable and another is statistically significant.

[31] There are generally four kinds of Directional Measures, Lambda, Goodman & Kruskai Tau (nominal by nominal), Lambda (ordinal by ordinal) and Eta (nominal by interval).

Table 5.51 Cross-tabulation between Earning Household Members and Tenure Choice of Buying a PRH

			Earning Household Member					
			None	1 Person	2 Person	3 Person	4 Person or Above	Total
tenure	**Decided to Buy/ Has Already Bought**	Count	16	356	219	92	47	730
		Expected Count	37.7	381.1	195.2	77.6	38.4	730.0
		% within tenure choice	2.2	48.8	30.0	12.6	6.4	100.0
		% within Earning Household Members	32.7	71.8	86.2	91.1	94.0	76.8
		% of Total	1.7	37.5	23.1	9.7	4.9	76.8
	Decided Not to Buy	Count	33	140	35	9	3	220
		Expected Count	11.3	114.9	58.8	23.4	11.6	220.0
		% within tenure choice	15.0	63.6	15.9	4.1	1.4	100.0
		% within Earning Household Members	67.3	28.2	13.8	8.9	6.0	23.2
		% of Total	3.5	14.7	3.7	0.9	0.3	23.2
Total		Count	49	496	254	101	50	950
		Expected Count	49.0	496.0	254.0	101.0	50.0	950.0
		% within tenure choice	5.2	52.2	26.7	10.6	5.3	100.0
		% within Earning Household Members	100.0	100.0	100.0	100.0	100.0	100.0
		% of Total	5.2	52.2	26.7	10.6	5.3	100.0

Test	Value	df	Asymp.Sig (2-sided)
Chi-Square	101.050	8	0.000

Directional Measure	Dependent	Value
Eta	Tenure Choice as Dependent	0.313

Table 5.51 indicates that under the Chi-square Test, the 2-tailed test probability value is 0.000, which is smaller than 0.05, and it can be concluded that the variables of Earning Household Members and Tenure Choice of Buying a PRH are related. Further, the Directional Measure, Eta, indicates that their relationship is moderate as the value is 0.313.

Table 5.52 Cross-tabulation between Flat Size and Tenure Choice of Buying a PRH

			Flat Size					
			250ft or below	250-300 ft	301-400 ft	401-500 ft	501ft or Above	Total
tenure choice	**Decided to Buy/**	Count	1	26	288	315	100	730
	Has Already Bought	Expected Count	5.4	38.4	311.2	287.4	87.6	730.0
		% within tenure choice	0.1	3.6	39.5	43.2	13.7	100.0
		% within Flat Size	14.3	52.0	71.1	84.2	87.7	76.8
		% of Total	0.1	2.7	30.3	33.2	10.5	76.8
	Decided Not to Buy	Count	6	24	117	59	14	220
		Expected Count	1.6	11.6	93.8	86.6	26.4	220.0
		% within tenure choice	2.7	10.9	53.2	26.8	6.4	100.0
		% within Flat Size	85.7	48.0	28.9	15.8	12.3	23.2
		% of Total	0.6	2.5	12.3	6.2	1.5	23.2
Total		Count	7	50	405	374	114	950
		Expected Count	7.0	50.0	405.0	374.0	114.0	950.0
		% within tenure choice	0.7	5.3	42.6	39.4	12.0	100.0
		% within Flat Size	100.0	100.0	100.0	100.0	100.0	100.0
		% of Total	0.7	5.3	42.6	39.4	12.0	100.0

Test	Value	df	Asymp.Sig (2-sided)
Chi-Square	59.243	4	0.000

Directional Measure	Dependent	Value
Eta	Tenure Choice as Dependent	0.250

Table 5.52 indicates that under the Chi-square Test, the 2-tailed test probability value is 0.000, which is smaller than 0.05, and it can be concluded that the variables of Flat Size and Tenure Choice of Buying a PRH are related. Further, the Directional Measure , Eta, indicates that their relationship is weak as the value is only 0.250.

Table 5.53 Cross-tabulation between Rent and Tenure Choice of Buying a PRH

			Rent						
			$500 or below	$501 -$1,000	$1,001 -$1,500	$1,501 -$2,000	$2,001 -$2,500	$2,501 or Above	Total
tenure choice	**Decided to Buy/ Has Already Bought**	Count	2	66	427	180	47	8	730
		Expected Count	3.1	79.1	436.5	166.0	38.4	6.9	730.0
		% within tenure choice	0.3	9.0	58.5	24.7	6.4	1.1	100.0
		% within Rent	50.0	64.1	75.2	83.3	94.0	88.9	76.8
		% of Total	0.2	6.9	44.9	18.9	4.9	0.8	76.8
	Decided Not to Buy	Count	2	37	141	36	3	1	220
		Expected Count	0.9	23.9	131.5	50.0	11.6	2.1	220.0
		% within tenure choice	0.9	16.8	64.1	16.4	1.4	0.5	100.0
		% within Rent	50.0	35.9	24.8	16.7	6.0	11.1	23.2
		% of Total	0.2	3.9	14.8	3.8	0.3	0.1	23.2
Total		Count	4	103	568	216	50	9	950
		Expected Count	4.0	103.0	568.0	216.0	50.0	9.0	950.0
		% within tenure choice	0.4	10.8	59.8	22.7	5.3	0.9	100.0
		% within Rent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		% of Total	0.4	10.8	59.8	22.7	5.3	0.9	100.0

Test	Value	df	Asymp.Sig (2-sided)
Chi-Square	26.057	5	0.000

Directional Measure	Dependent	Value
Eta	Tenure Choice as Dependent	0.166

Table 5.53 indicates that under the Chi-square Test, the 2-tailed test probability value is 0.000, which is smaller than 0.05, and it can be concluded that the variables of Rent and Tenure Choice are related. Further, the Directional Measure, Eta, indicates that their relationship is weak as the value is only 0.166.

Table 5.54 Cross-tabulation between Decoration Cost At Assumption of Ownership and Tenure Choice of Buying a PRH

			Decoration Cost At Assuption of Ownership					
			$25,000 or below	$25,001 -$50,000	$50,001 -$75,000	$75,001 -$100,000	$100,001 or Above	Total
tenure choice	**Decided to Buy/ Has Already Bought**	Count	229	301	113	31	56	730
		Expected Count	255.1	289.7	105.3	31.5	48.4	730.0
		% within tenure choice	31.4	41.2	15.5	4.2	7.7	100.0
		% within Decoration Cost	69.0	79.8	82.5	75.6	88.9	76.8
		% of Total	24.1	31.7	11.9	3.3	5.9	76.8
	Decided Not to Buy	Count	103	76	24	10	7	220
		Expected Count	76.9	87.3	31.7	9.5	14.6	220.0
		% within tenure choice	46.8	34.5	10.9	4.5	3.2	100.0
		% within Decoration Cost	31.0	20.2	17.5	24.4	11.1	23.2
		% of Total	10.8	8.0	2.5	1.1	0.7	23.2
Total		Count	332	377	137	41	63	950
		Expected Count	332.0	377.0	137.0	41.0	63.0	950.0
		% within tenure choice	34.9	39.7	14.4	4.3	6.6	100.0
		% within Decoration Cost	100.0	100.0	100.0	100.0	100.0	100.0
		% of Total	34.9	39.7	14.4	4.3	6.6	100.0

Test	Value	df	Asymp. Sig (2-sided)
Chi-Square	21.071	4	0.000

Directional Measure	Dependent	Value
Eta	Tenure Choice as Dependent	0.149

Table 5.54 indicates that under the Chi-square Test, the 2-tailed test probability value is 0.000, which is smaller than 0.05, and it can be concluded that the variables of Decoration Cost at Assumption of Ownership and Tenure Choice of Buying a PRH are related. Further, the Directional Measure, Eta, indicates that their relationship is weak as the value is only 0.149.

Table 5.55 Cross-tabulation between Family Size and Tenure Choice of Buying a PRH

			Family Size					
			1 Person	2 Person	3 Person	4 Person	5 Person or Above	Total
tenure choice	**Decided to Buy/ Has Already Bought**	Count	3	25	118	304	280	730
		Expected Count	5.4	33.0	119.1	312.7	259.7	730.0
		% within tenure choice	0.4	3.4	16.2	41.6	38.4	100.0
		% within Family Size	42.9	58.1	76.1	74.7	82.8	76.8
		% of Total	0.3	2.6	12.4	32.0	29.5	76.8
	Decided Not to Buy	Count	4	18	37	103	58	220
		Expected Count	1.6	10.0	35.9	94.3	78.3	220.0
		% within tenure choice	1.8	8.2	16.8	46.8	26.4	100.0
		% within Family Size	57.1	41.9	23.9	25.3	17.2	23.2
		% of Total	0.4	1.9	3.9	10.8	6.1	23.2
Total		Count	7	43	155	407	338	950
		Expected Count	7.0	43.0	155.0	407.0	338.0	950.0
		% within tenure choice	0.7	4.5	16.3	42.8	35.6	100.0
		% within Family Size	100.0	100.0	100.0	100.0	100.0	100.0
		% of Total	0.7	4.5	16.3	42.8	35.6	100.0

Test	Value	df	Asymp. Sig (2-sided)
Chi-Square	20.930	4	0.000

Directional Measure	Dependent	Value
Eta	Tenure Choice as Dependent	0.148

Table 5.55 indicates that under the Chi-square Test, the 2-tailed test probability value is 0.000, which is smaller than 0.05, and it can be concluded that the variables of Family Size and Tenure Choice of Buying a PRH are related. Further, the Directional Measure, Eta, indicates that their relationship is weak as the value is only 0.148.

5.30 Analysis of the Net Ownership Effect of TPS on the HOS Market

This part focuses on the analysis of the net ownership effect of TPS on the HOS market. By doing so, the cross-tabulation analysis is used to estimate key parameters in the model. For the sake of ensuring the quality of the empirical findings, both the interval estimation of proportion and the maximum error of estimate are firstly calculated. Then, four calculations are done for measuring the impact of TPS on HOS market by cross-sectional analysis. It suggests that the HOS will have led to a loss of more than 82,000 potential buyers over a period of ten years as a result of the introduction of TPS.

Table 5.56 Cross-Tabulation Table

If There Had Not Been The TPS, Would You Buy A HOS Flat ? * After The Resale Of PRH Is Permitted, Will You Buy A HOS Flat ? Crosstabulation

			After The Resale Of PRH Is Permitted, Will You Buy A HOS Flat ?		
			Yes	No	Total
If There Had Not Been The TPS, Would You Buy A HOS Flat ?	Buy in the Short Run (Within 3 Years)	Count	21	76	97
		% within If There Had Not Been The TPS, Would You Buy A HOS Flat ?	21.6%	78.4%	100.0%
		% within After The Resale Of PRH Is Permitted, Will You Buy A HOS Flat ?	25.3%	11.7%	13.3%
		% of Total	2.9%	10.4%	13.3%
	Buy in the Long Run (Beyond 3 Years)	Count	25	59	84
		% within If There Had Not Been The TPS, Would You Buy A HOS Flat ?	29.8%	70.2%	100.0%
		% within After The Resale Of PRH Is Permitted, Will You Buy A HOS Flat ?	30.1%	9.1%	11.5%
		% of Total	3.4%	8.1%	11.5%
	Not Buy Both in the Short Run and the Long Run	Count	37	512	549
		% within If There Had Not Been The TPS, Would You Buy A HOS Flat ?	6.7%	93.3%	100.0%
		% within After The Resale Of PRH Is Permitted, Will You Buy A HOS Flat ?	44.6%	79.1%	75.2%
		% of Total	5.1%	70.1%	75.2%
Total		Count	83	647	730
		% within If There Had Not Been The TPS, Would You Buy A HOS Flat ?	11.4%	88.6%	100.0%
		% within After The Resale Of PRH Is Permitted, Will You Buy A HOS Flat ?	100.0%	100.0%	100.0%
		% of Total	11.4%	88.6%	100.0%

Test	Value	df	Asymp. Sig (2-sided)
Chi-Square	50.049	2	0.000

The Cross-tabulation table 5.56 is used to analyze the "Time-Shift Multi-Dimensional Housing Ladder Model" developed in Chapter 3. It shows that the Short-Run Negative Coefficient is equal to 76/730 = 0.1041, the Long-Run Negative Coefficient equal to 59/730 = 0.0808, the Long-Run Positive Coefficient equal to

37/730 = 0.0507, the Short-Run Negative but the Long-Run Positive Coefficient equal to 21/760 = 0.0288, the First Neutral Coefficient equal to 25/730 = 0.0342 and the Second Neutral Coefficient equal to 512/730 = 0.7014. Apparently, it indicates that the implementation of TPS does have the neutral effect on purchasing the HOS flat for 73.56% of the respondents. As a result, it is easy for one to conclude that the TPS may not adversely affect (or lead to a collapse of) the HOS market. However, to have an in-depth analysis of the remaining 26.44% of the respondents with the Time-Shift Multi-Dimensional Effects, the reverse is shown to be true.

5.31 Interval Estimation of Proportion and the Maximum Error of Estimate

Before analyzing the net ownership effect of the TPS on the HOS market, it is essential to calculate the Interval Estimation of Proportion[32] and the Maximum Error of Estimate[33] for the answers of the questions of "If there had not been the TPS, would you buy a HOS flat ?" & "After the resale of PRH is permitted, will you buy a HOS flat ?".

For the Interval Estimation of Proportion for the question of "Whether you would buy a HOS flat in the short run/long run or not if there had not been the TPS?", the Large-sample Confidence Interval for p is adopted for both the answers of buying in the short run and the long run. The equation is as follows :

[32] Interval Estimation of Proportion refers to the estimate in the form of a confidence interval by proportion.

[33] Maximum Error of Estimate means the maximum error made when a sample proportion is used to estimate the population portion.

$$p - Z_{\alpha/2}\sqrt{p(1-p)/n} < p < p + Z_{\alpha/2}\sqrt{p(1-p)/n}$$

Substituting n =730, p = 97/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating "if there had not been the TPS, the population proportion of the target tenants would buy a HOS flat in the short run", it gets

$$0.1329 - 1.96\sqrt{(0.1329)(0.8671)/730} < p < 0.1329 + 1.96\sqrt{0.1329)(0.8671)/730}$$

Therefore, the 95% confidence interval for the short run is :

$0.1083 < p < 0.1575$

And given the equation of Maximum Error of Estimate :

$$\mathbf{E = Z_{\alpha/2}\sqrt{p(1-p)/n}}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.1329)(0.8671)/730}$$

$$= \mathbf{0.0246}$$

Since the Maximum Error of Interval Estimate for "if there had not been the TPS, the target tenant would buy a HOS flat in the short run" is small, the sample proportion of this category can be used to infer the population proportion of the same category.

By the same method, substituting n =730, p = 84/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating "if there had not been the TPS, the population proportion of the target tenants would buy a HOS flat in the long run", it gets

$$0.1151 - 1.96\sqrt{(0.1151)(0.8849)/730} < p < 0.1151 + 1.96\sqrt{(0.1151)(0.8849)/730}$$

Therefore, the 95% confidence interval for the long run is :

$$\mathbf{0.0920 < p < 0.1382}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.1151)(0.8849)/730}$$

$$\mathbf{= 0.0231}$$

Since the Maximum Error of Interval Estimate for "if there had not been the TPS, the target tenant would buy a HOS flat in the long run" is small, the sample proportion of this category can be used to infer the population proportion of the same category.

By the same method, substituting n =730, p = 549/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating "if there had not been the TPS, the population proportion of the target tenants would not buy a HOS flat in both the short run and the long run", it gets

$$0.7521 - 1.96\sqrt{(0.7521)(0.2479)/730} < p < 0.7521 + 1.96\sqrt{0.7521)(0.2479)/730}$$

Therefore, the 95% confidence interval for the long run is :

$$\mathbf{0.7208 < p < 0.7834}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.1151)(0.8849)/730}$$

$$\mathbf{= 0.0313}$$

Since the Maximum Error of Interval Estimate for "if there had not been the TPS, the target tenant would not buy a HOS flat in both the short run and the long run" is small, the sample proportion of this category can be used to infer the population proportion of the same category.

With the same analysis, both the formulae of Large-sample Confidence Interval for *p* and the Maximum Error of Interval Estimate for *p* can be applied for the answers of "Whether you will buy HOS or not after the resale of PRH is permitted".

Substituting n =730, p = 83/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating "After the resale of PRH is permitted, the population proportion of the target tenants will buy a HOS flat", it gets

$$0.1137 - 1.96\sqrt{(0.1137)(0.8863)/730} < p < 0.1137 + 1.96\sqrt{(0.1137)(0.8863)/730}$$

Therefore, the 95% confidence interval for the long run is :

$$\mathbf{0.0907 < p < 0.1367}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.1137)(0.8863)/730}$$
$$\mathbf{= 0.0230}$$

Since the Maximum Error of Interval Estimate for "After the resale of PRH is permitted, the target tenant will buy a HOS flat" is small, the sample proportion of this category can be used to infer the population proportion of the same category.

Substituting n =730, p = 647/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating ' After the resale of PRH is permitted, the population proportion of the target tenants will not buy a HOS flat' , it gets

$$0.8863 - 1.96\sqrt{(0.8863)(0.1137)/730} < p < 0.1137 + 1.96\sqrt{(0.8863)(0.1137)/730}$$

Therefore, the 95% confidence interval for the long run is :

$0.8633 < p < 0.9093$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.8863)(0.1137)/730}$$

$$= \mathbf{0.0230}$$

Since the Maximum Error of Interval Estimate for "After the resale of PRH is permitted, the target tenant will not buy a HOS flat" is small, the sample proportion of this category can be used to infer the population proportion of the same category.

Combined with the formulae of Large-sample Confidence Interval for *p* and the Maximum Error of Interval Estimate for *p* for the above-captioned two main questions for the Cross-tabulation Analysis (or referred as the Contingency Table), the sample size for separate experimental group can be controlled. Therefore, accurate population proportion estimations can be made through the sample proportions for each separate group for the net ownership effect of TPS on the HOS market.

The Time-Shift Multi-Dimensional Housing Ladder Model mainly focuses six effects (or Measured by Six Coefficients), that are, the Short-Run Negative Coefficient, the Long-Run Negative Coefficient, the Long-Run Positive Coefficient, the Short-Run Negative But Long-Run Positive Coefficient, the First Neutral Coefficient and the Second Neutral Coefficient for the target tenant. Therefore, their significance by the combinations of the above-mentioned analysis can be estimated.

For the Short-Run Negative Coefficient, substituting n =730, p = 76/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating the population proportion of the target group from the sample proportion of the same target group.

$$0.1041 - 1.96\sqrt{(0.1041)(0.8959)/730} < p < 0.1041 + 1.96\sqrt{(0.1041)(0.8959)/730}$$

Therefore, the 95% confidence interval for the long run is :

$$\mathbf{0.0820 < p < 0.1262}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.1041)(0.8959)/730}$$

$$\mathbf{= 0.0221}$$

Since the Maximum Error of Interval Estimate for the Short-Run Negative Coefficient is small, the sample proportion of this category can be used to infer the population proportion of the same category.

For the Long-Run Negative Coefficient, substituting n =730, p = 59/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating the population proportion of the target group from the sample proportion of the same target group.

$$0.0808 - 1.96\sqrt{(0.0808)(0.9192)/730} < p < 0.0808 + 1.96\sqrt{(0.0808)(0.9192)/730}$$

Therefore, the 95% confidence interval for the long run is :

$$\mathbf{0.0610 < \textit{p} < 0.1006}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.1041)(0.8959)/730}$$

$$\mathbf{= 0.0198}$$

Since the Maximum Error of Interval Estimate for the Long-Run Negative Coefficient is small, the sample proportion of this category can be used to infer the population proportion of the same category.

For the Long-Run Positive Coefficient, substituting n =730, p = 37/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating the population proportion of the target group from the sample proportion of the same target group.

$$0.0507 - 1.96\sqrt{(0.0507)(0.9493)/730} < p < 0.0507 + 1.96\sqrt{(0.0507)(0.9493)/730}$$

Therefore, the 95% confidence interval for the long run is :

$$\mathbf{0.0348 < \textit{p} < 0.0667}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.1041)(0.8959)/730}$$

$$= \mathbf{0.0159}$$

Since the Maximum Error of Interval Estimate for the Long-Run Positive Coefficient is small, the sample proportion of this category can be used to infer the population proportion of the same category.

For the Short-Run Negative but Long-Run Positive Coefficient, substituting n =730, p = 21/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating the population proportion of the target group from the sample proportion of the same target group.

$$0.0288 - 1.96\sqrt{(0.0288)(0.9712)/730} < p < 0.0288 + 1.96\sqrt{(0.0288)(0.9712)/730}$$

Therefore, the 95% confidence interval for the long run is :

$$\mathbf{0.0167 < p < 0.0409}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.0288)(0.9712)/730}$$

$$= \mathbf{0.0121}$$

Since the Maximum Error of Interval Estimate for the Short-Run Negative but Long-Run Positive Coefficient is small, the sample proportion of this category can be used to infer the population proportion of the same category.

For the First Neutral Coefficient, substituting n =730, p = 512/730, and $Z_{0.025}$ = 1.96 into the confidence-interval formula for estimating the population proportion of the target group from the sample proportion of the same target group.

$$0.7014 - 1.96\sqrt{(0.7014)(0.2986)/730} < p < 0.7014 + 1.96\sqrt{(0.7014)(0.2986)/730}$$

Therefore, the 95% confidence interval for the long run is :

$$\mathbf{0.6684 < p < 0.7344}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.7014)(0.2986)/730}$$

$$\mathbf{= 0.033}$$

Since the Maximum Error of Interval Estimate for the First Neutral Coefficient is small, the sample proportion of this category can be used to infer the population proportion of the same category.

For the second neutral effect, substituting n =730, p = 25/730, and $Z_{0.025}$ = 1.96 into

the confidence-interval formula for estimating the population proportion of the target group from the sample proportion of the same target group.

$$0.0342 - 1.96\sqrt{(0.0342)(0.9658)/730} < p < 0.0342 + 1.96\sqrt{(0.0342)(0.9658)/730}$$

Therefore, the 95% confidence interval for the long run is :

$$\mathbf{0.0210 < p < 0.0474}$$

The maximum error for the above interval estimate is :

$$E = 1.96\sqrt{(0.7014)(0.2986)/730}$$

$$\mathbf{= 0.0132}$$

Since the Maximum Error of Interval Estimate for the second neutral effect is small, the sample proportion of this category can be used to infer the population proportion of the same category.

Table 5.57 Summary of Interval Estimation of Proportion & Maximum Error of Estimate

Effect	Interval Estimation of Proportion	Maximum Error of Estimate
1	$0.1083 < p < 0.1575$	0.0246
2	$0.0920 < p < 0.1382$	0.0231
3	$0.7208 < p < 0.7834$	0.0313
4	$0.0907 < p < 0.1367$	0.0230
5	$0.8633 < p < 0.9093$	0.0230
Short Run Negative Coefficient	$0.0820 < p < 0.1262$	0.0221
Long Run Negative Coefficient	$0.0610 < p < 0.1006$	0.0198
Long Run Positive Coefficient	$0.0348 < p < 0.0667$	0.0159
Short Run Negative, Long Run Positive Coefficient	$0.0167 < p < 0.0409$	0.0121
First Neutral Coefficient	$0.6684 < p < 0.7344$	0.033
Second Neutral Coefficient	$0.0210 < p < 0.0474$	0.0132

*** The Interval Estimation of Proportion & the Maximum Error of Estimate take 95% confidence interval.**

1 = If there had not been the TPS, the sample proportion of the target tenants would buy the HOS in the short run.

2 = If there had not been the TPS, the sample proportion of the target tenants would buy the HOS in the long run.

3 = If there had not been the TPS, the sample proportion of the target tenants would not buy the HOS in both the short run and the long run.

4 = After the resale of PRH is permitted, the sample proportion of the target tenants will buy the HOS.

5 = After the resale of PRH is permitted, the sample proportion of the target tenants will not buy the HOS.

Short Run Negative Coefficient = Combination of 1 & 5

Long Run Negative Coefficient = Combination of 2 & 5

Long Run Positive Coefficient = Combination of 3 & 4

Short Run Negative but Long Run Positive Coefficient = Combination of 2 & 4

First Neutral Coefficient = Combination of 3 & 5

Second Neutral Coefficient = Combination of 2 & 4

After doing the population proportions estimation from the sample proportions and estimating the maximum errors of such estimates, it is statistically significant for the sample proportions to infer for the population proportions of the target groups.

5.32 Empirical Findings of the Impact of TPS on HOS Market

Based on the equation 2 built up in Chapter 3 for the estimation of the net ownership effect of TPS on the HOS market, the results are shown in Table 5.61.

Table 5.58 First Calculation (Calculate all the Effects of TPS on the HOS Market by ONE Year As A Base)

Year	Short-Run Negative Coefficient	Long-Run Negative Coefficient	Long-Run Positive Coefficient	Short-Run Negative, but Long-Run Positive Coefficient (Focus on Short-Run)	Short-Run Negative, but Long-Run Positive Coefficient (Focus on Long-Run)	Total
1998 – 1999	76/730*27525*730/950 = 2202	Nil	Nil	21/730*27525*730/950 = 608	Nil	2810
1999 – 2000	76/730*27161*730/950 = 2173	Nil	Nil	21/730*27161*730/950 = 600	Nil	2773
2000 – 2001	76/730*28218*730/950 = 2257	Nil	Nil	21/730*28218*730/950 = 624	Nil	2881
2001 – 2002	76/730*27444*730/950 = 2196	59/730*27525*730/950 = 1709	37/730*27525*730/950 = 1072	21/730*27444*730/950 = 607	21/730*27525*730/950 = 608	2832
2002 – 2003	76/730*26486*730/950 = 2119	59/730*27161*730/950 = 1687	37/730*27161*730/950 = 1058	21/730*26486*730/950 = 585	21/730*27161*730/950 = 600	2733
early 2003 – late 2003	76/730*26312*730/950 = 2105	59/730*28218*730/950 = 1752	37/730*28218*730/950 = 1099	21/730*26312*730/950 = 582	21/730*28218*730/950 = 624	2716
late 2003 – 2005	76/730*23451*730/950 = 1876	59/730*27444*730/950 = 1704	37/730*27444*730/950 = 1069	21/730*23451*730/950 = 518	21/730*27444*730/950 = 607	2422
2005 – 2006	76/730*21134*730/950 = 1691	59/730*26486*730/950 = 1645	37/730*26486*730/950 = 1032	21/730*21134*730/950 = 467	21/730*26486*730/950 = 585	2186
2006 – 2007	76/730*21134*730/950 = 1691	59/730*26312*730/950 = 1634	37/730*26312*730/950 = 1025	21/730*21134*730/950 = 467	21/730*26312*730/950 = 582	2185
2007 – 2008	76/730*21134*730/950 = 1691	59/730*23451*730/950 = 1456	37/730*23451*730/950 = 913	21/730*21134*730/950 = 467	21/730*23451*730/950 = 518	2183
Total						25721

Table 5.58 shows that the HOS market will lose 25721 PRH buyers over a period of 10 years if the TPS continues to be implemented. Since the number of successful green form applicants living in the Public Rental Estate is 9347 in 1998 and 4489 in 1999, and the transaction volume of second-hand HOS market is 6556 in 1998 and 8702 in 1999, the TPS reduces approximately 17.67% and 21.02% of the transaction volume of whole HOS market. This is just equal to approximately 30.06% and 61.78% of the transaction volume of first-hand HOS market or approximately 42.86% and 31.87% of the transaction volume of second-hand HOS market in 1998 and 1999 respectively. So, based on the empirical findings for the cross-sectional analysis, the TPS is shown to have greatly paralyzed the HOS market. Furthermore, it is not difficult to understand that the TPS estates are quite old-fashioned. Therefore,

even if the PRH owners intend to sell their flats after the resale is permitted, there is very likely to have inadequate demand for it. As a result, the Long-Run Positive Coefficient may be lowered. And it is explained as the Demand Side Leakage Effect. Suppose the Long-Run Positive Coefficient is lowered by 50% by the Demand Side Leakage Effect. The collapsing effect of TPS on the HOS market is higher. Table 5.59 shows the results.

Table 5.59 Second Calculation (Calculate all the Effects of TPS on the HOS Market With the Consideration of the Demand Side Leakage Effect by ONE year as a base)

Year	Short-Run Negative Coefficient	Long-Run Negative Coefficient	Long-Run Positive Coefficient	Short-Run Negative, but Long-Run Positive Coefficient	Short-Run Negative, but Long-Run Positive Coefficient	Total
1998 – 1999	76/730*27525*730/950 = 2202	Nil	Nil	21/730*27525*730/950 = 608	Nil	2810
1999 – 2000	76/730*27161*730/950 = 2173	Nil	Nil	21/730*27161*730/950 = 600	Nil	2773
2000 – 2001	76/730*28218*730/950 = 2257	Nil	Nil	21/730*28218*730/950 = 624	Nil	2881
2001 – 2002	76/730*27444*730/950 = 2196	59/730*27525*730/950 = 1709	18.5/730*27525*730/950 = 536	21/730*27444*730/950 = 607	21/730*27525*730/950 = 608	3368
2002 – 2003	76/730*26486*730/950 = 2119	59/730*27161*730/950 = 1687	18.5/730*27161*730/950 = 529	21/730*26486*730/950 = 585	21/730*27161*730/950 = 600	3262
early 2003 – late 2003	76/730*26312*730/950 = 2105	59/730*28218*730/950 = 1752	18.5/730*28218*730/950 = 549.5	21/730*26312*730/950 = 582	21/730*28218*730/950 = 624	3265.5
late 2003 – 2005	76/730*23451*730/950 = 1876	59/730*27444*730/950 = 1704	18.5/730*27444*730/950 = 534.5	21/730*23451*730/950 = 518	21/730*27444*730/950 = 607	2956.5
2005 – 2006	76/730*21134*730/950 = 1691	59/730*26486*730/950 = 1645	18.5/730*26486*730/950 = 516	21/730*21134*730/950 = 467	21/730*26486*730/950 = 585	2702
2006 – 2007	76/730*21134*730/950 = 1691	59/730*26312*730/950 = 1634	18.5/730*26312*730/950 = 512.5	21/730*21134*730/950 = 467	21/730*26312*730/950 = 582	2697.5
2007 – 2008	76/730*21134*730/950 = 1691	59/730*23451*730/950 = 1456	18.5/730*23451*730/950 = 456.5	21/730*21134*730/950 = 467	21/730*23451*730/950 = 518	2639.5
Total						29355

Table 5.59 shows that with the Demand Side Leakage Effect, the HOS market will lose 29355 PRH buyers over a period of 10 years if the TPS continues to be implemented. As explained in Chapter 3, the equation 2 only calculates the Short Run Just Within One Year As a Base, it may be somewhat not so precise because the Short Run may also include Within Two Years and Within Three Years. Therefore, the equation 3 is set to take Just Within Three Years for Short Run As a Base simultaneously so that the analysis is more comprehensive. The same rationale is applicable to the Long Run Analysis. And the results are shown in Table 5.60.

Table 5.60 Third Calculation (Calculate all the Effects of TPS on the HOS Market by THREE years as a base)

Year	Short-Run Negative Coefficient	Long-Run Negative Coefficient	Long-Run Positive Coefficient	Short-Run Negative, but Long-Run Positive Coefficient (Focus on Short-Run)	Short-Run Negative, but Long-Run Positive Coefficient (Focus on Long-Run)	Total
1998 – 1999	76/730*27525*730/950/3 = 734	Nil	Nil	21/730*27525*730/950/3 = 203	Nil	937
1999 – 2000	76/730*27525*730/950/3 = 734 76/730*27161*730/950/3 = 724	Nil	Nil	21/730*27525*730/950/3 = 203 21/730*27161*730/950/3 = 200	Nil	1861
2000 – 2001	76/730*27525*730/950/3 = 734 76/730*27161*730/950/3 = 724 76/730*28218*730/950/3 = 752	Nil	Nil	21/730*27525*730/950/3 = 203 21/730*27161*730/950/3 = 200 21/730*28218*730/950/3 = 208	Nil	2821
2001 – 2002	76/730*27161*730/950/3 = 724 76/730*28218*730/950/3 = 752 76/730*27444*730/950/3 = 732	59/730*27525*730/950/3 = 570	37/730*27525*730/950/3 = 357	21/730*27161*730/950/3 = 200 21/730*28218*730/950/3 = 208 21/730*27444*730/950/3 = 203	21/730*27525*730/950/3 = 203	2829
2002 – 2003	76/730*28218*730/950/3 = 752 76/730*27444*730/950/3 = 732 76/730*26486*730/950/3 = 706	59/730*27525*730/950/3 = 570 59/730*27161*730/950/3 = 562	37/730*27525*730/950/3 = 357 37/730*27161*730/950/3 = 353	21/730*28218*730/950/3 = 208 21/730*27444*730/950/3 = 203 21/730*26486*730/950/3 = 195	21/730*27525*730/950/3 = 203 21/730*27161*730/950/3 = 200	2815
early 2003 – late 2003	76/730*27444*730/950/3 = 732 76/730*26486*730/950/3 = 706 76/730*26312*730/950/3 = 702	59/730*27525*730/950/3 = 570 59/730*27161*730/950/3 = 562 59/730*28218*730/950/3 = 584	37/730*27525*730/950/3 = 357 37/730*27161*730/950/3 = 353 37/730*28218*730/950/3 = 366	21/730*27444*730/950/3 = 203 21/730*26486*730/950/3 = 195 21/730*26312*730/950/3 = 194	21/730*27525*730/950/3 = 203 21/730*27161*730/950/3 = 200 21/730*28218*730/950/3 = 208	2761
late 2003 – 2005	76/730*26486*730/950/3 = 706 76/730*26312*730/950/3 = 702 76/730*23451*730/950/3 = 625	59/730*27161*730/950/3 = 562 59/730*28218*730/950/3 = 584 59/730*27444*730/950/3 = 568	37/730*27161*730/950/3 = 353 37/730*28218*730/950/3 = 366 37/730*27444*730/950/3 = 356	21/730*26486*730/950/3 = 195 21/730*26312*730/950/3 = 194 21/730*23451*730/950/3 = 173	21/730*27161*730/950/3 = 200 21/730*28218*730/950/3 = 208 21/730*27444*730/950/3 = 203	2623
2005 – 2006	76/730*26312*730/950/3 = 702 76/730*23451*730/950/3 = 625 76/730*21134*730/950/3 = 564	59/730*28218*730/950/3 = 584 59/730*27444*730/950/3 = 568 59/730*26486*730/950/3 = 548	37/730*28218*730/950/3 = 366 37/730*27444*730/950/3 = 356 37/730*26486*730/950/3 = 344	21/730*26312*730/950/3 = 194 21/730*23451*730/950/3 = 173 21/730*21134*730/950/3 = 156	21/730*28218*730/950/3 = 208 21/730*27444*730/950/3 = 203 21/730*26486*730/950/3 = 195	2442
2006 – 2007	76/730*23451*730/950/3 = 625 76/730*21134*730/950/3 = 564 76/730*21134*730/950/3 = 564	59/730*27444*730/950/3 = 568 59/730*26486*730/950/3 = 548 59/730*26312*730/950/3 = 545	37/730*27444*730/950/3 = 356 37/730*26486*730/950/3 = 344 37/730*26312*730/950/3 = 342	21/730*23451*730/950/3 = 173 21/730*21134*730/950/3 = 156 21/730*21134*730/950/3 = 156	21/730*27444*730/950/3 = 203 21/730*26486*730/950/3 = 195 21/730*26312*730/950/3 = 194	2265
2007 – 2008	76/730*21134*730/950/3 = 564 76/730*21134*730/950/3 = 564 76/730*21134*730/950/3 = 564	59/730*26486*730/950/3 = 548 59/730*26312*730/950/3 = 545 59/730*23451*730/950/3 = 485	37/730*26486*730/950/3 = 344 37/730*26312*730/950/3 = 342 37/730*23451*730/950/3 = 304	21/730*21134*730/950/3 = 156 21/730*21134*730/950/3 = 156 21/730*21134*730/950/3 = 156	21/730*26486*730/950/3 = 195 21/730*26312*730/950/3 = 194 21/730*23451*730/950/3 = 173	2286
Total						23640

Table 5.60 shows that the HOS market will lose 23,640 PRH buyers over a period of 10 years if the TPS continues to be implemented. This figure is just similar to the first calculation of 25,721. However, based on this calculation, the TPS only reduces approximately 5.89% and 14.11% of the transaction volume of whole HOS market. This is just equal to approximately 10.02% and 41.46% of the transaction volume of first-hand HOS market or approximately 14.29% and 21.39% of the transaction volume of second-hand HOS market in 1998 and 1999 respectively. Suppose the Long-Run Positive Coefficient is lowered by 50% by the Demand Side Leakage Effect like the Calculation 2, the dampening effect of TPS on the HOS market is higher. Table 5.61 shows the results.

Table 5.61 Fourth Calculation (Calculate all the Effects of TPS on the HOS Market With the Consideration of the Demand Side Leakage Effect by THREE Year As A Base)

Year	Short-Run Negative Coefficient	Long-Run Negative Coefficient	Long-Run Positive Coefficient	Short-Run Negative, but Long-Run Positive	Short-Run Negative, but Long-Run	Total
1998 – 1999	76/730*27525*730/950/3 = 734	Nil	Nil	21/730*27525*730/950/3 = 203	Nil	937
1999 – 2000	76/730*27525*730/950/3 = 734 76/730*27161*730/950/3 = 724	Nil	Nil	21/730*27525*730/950/3 = 203 21/730*27161*730/950/3 = 200	Nil	1861
2000 – 2001	76/730*27525*730/950/3 = 734 76/730*27161*730/950/3 = 724 76/730*28218*730/950/3 = 752	Nil	Nil	21/730*27525*730/950/3 = 203 21/730*27161*730/950/3 = 200 21/730*28218*730/950/3 = 208	Nil	2821
2001 – 2002	76/730*27161*730/950/3 = 724 76/730*28218*730/950/3 = 752 76/730*27444*730/950/3 = 732	59/730*27525*730/950/3 = 570	18.5/730*27525*730/950/3 = 178.5	21/730*27161*730/950/3 = 200 21/730*28218*730/950/3 = 208 21/730*27444*730/950/3 = 203	21/730*27525*730/950/3 = 203	3007.5
2002 – 2003	76/730*28218*730/950/3 = 752 76/730*27444*730/950/3 = 732 76/730*26486*730/950/3 = 706	59/730*27525*730/950/3 = 570 59/730*27161*730/950/3 = 562	18.5/730*27525*730/950/3 = 178.5 18.5/730*27161*730/950/3 = 176.5	21/730*28218*730/950/3 = 208 21/730*27444*730/950/3 = 203 21/730*26486*730/950/3 = 195	21/730*27525*730/950/3 = 203 21/730*27161*730/950/3 = 200	3170
early 2003 – late 2003	76/730*27444*730/950/3 = 732 76/730*26486*730/950/3 = 706 76/730*26312*730/950/3 = 702	59/730*27525*730/950/3 = 570 59/730*27161*730/950/3 = 562 59/730*28218*730/950/3 = 584	18.5/730*27525*730/950/3 = 178.5 18.5/730*27161*730/950/3 = 176.5 18.5/730*28218*730/950/3 = 183	21/730*27444*730/950/3 = 203 21/730*26486*730/950/3 = 195 21/730*26312*730/950/3 = 194	21/730*27525*730/950/3 = 203 21/730*27161*730/950/3 = 200 21/730*28218*730/950/3 = 208	3299
late 2003 – 2005	76/730*26486*730/950/3 = 706 76/730*26312*730/950/3 = 702 76/730*23451*730/950/3 = 625	59/730*27161*730/950/3 = 562 59/730*28218*730/950/3 = 584 59/730*27444*730/950/3 = 568	18.5/730*27161*730/950/3 = 176.5 18.5/730*28218*730/950/3 = 183 18.5/730*27444*730/950/3 = 178	21/730*26486*730/950/3 = 195 21/730*26312*730/950/3 = 194 21/730*23451*730/950/3 = 173	21/730*27161*730/950/3 = 200 21/730*28218*730/950/3 = 208 21/730*27444*730/950/3 = 203	3160.5
2005 – 2006	76/730*26312*730/950/3 = 702 76/730*23451*730/950/3 = 625 76/730*21134*730/950/3 = 564	59/730*28218*730/950/3 = 584 59/730*27444*730/950/3 = 568 59/730*26486*730/950/3 = 548	18.5/730*28218*730/950/3 = 183 18.5/730*27444*730/950/3 = 178 18.5/730*26486*730/950/3 = 172	21/730*26312*730/950/3 = 194 21/730*23451*730/950/3 = 173 21/730*21134*730/950/3 = 156	21/730*28218*730/950/3 = 208 21/730*27444*730/950/3 = 203 21/730*26486*730/950/3 = 195	2975
2006 – 2007	76/730*23451*730/950/3 = 625 76/730*21134*730/950/3 = 564 76/730*21134*730/950/3 = 564	59/730*27444*730/950/3 = 568 59/730*26486*730/950/3 = 548 59/730*26312*730/950/3 = 545	18.5/730*27444*730/950/3 = 178 18.5/730*26486*730/950/3 = 172 18.5/730*26312*730/950/3 = 171	21/730*23451*730/950/3 = 173 21/730*21134*730/950/3 = 156 21/730*21134*730/950/3 = 156	21/730*27444*730/950/3 = 203 21/730*26486*730/950/3 = 195 21/730*26312*730/950/3 = 194	2786
2007 – 2008	76/730*21134*730/950/3 = 564 76/730*21134*730/950/3 = 564 76/730*21134*730/950/3 = 564	59/730*26486*730/950/3 = 548 59/730*26312*730/950/3 = 545 59/730*23451*730/950/3 = 485	18.5/730*26486*730/950/3 = 172 18.5/730*26312*730/950/3 = 171 18.5/730*23451*730/950/3 = 152	21/730*21134*730/950/3 = 156 21/730*21134*730/950/3 = 156 21/730*21134*730/950/3 = 156	21/730*26486*730/950/3 = 195 21/730*26312*730/950/3 = 194 21/730*23451*730/950/3 = 173	2681
Total						26698

Table 5.61 shows that with the Demand Side Leakage Effect, the HOS market will lose 26698 PRH buyers over a period of 10 years if the TPS continues to be implemented. It should be noted that all of these four calculations are all conservative. As a matter of fact, the implementation of TPS in 1998 is very likely to affect other TPS estates beside the tenants who live in Phase 1. The reason behind is that other tenants who live in public rental estates may think that the estates they live will eventually be selected as TPS estates. As a result, the base for all the above-mentioned four calculations should be enlarged so that the results have to be higher. If the base for estimation covers all the PRH tenants, the HOS market will lose more than 82,000 PRH potential buyers. So, all the above calculations are said to be "Extremely Conservative".

5.33 Analysis of the Effect of TPS on the Efficiency of Resource Allocation

As mentioned earlier, both the Short-Run Negative Coefficient and the Long-Run Negative Coefficient refer to the target tenants who would have purchased a HOS flat in the short run and the long run respectively if the TPS had not been implemented. As a result of implementation of TPS, they will not purchase the HOS flat. 135 respondents in the survey fall into this category. On the other hand, the Long-Run Positive Coefficient refers to the target tenants who would not purchase a HOS flat both in the short run and the long run. However, after the resale of PRH is permitted, they will purchase the HOS flat. In other words, these tenants are not going to purchase the HOS flat without TPS. 37 respondents in the survey are in this category.

To compare some of their occupation structures, the number of income earners and the employment status after the Asian Financial Crisis, it has been found that the TPS induces serious inefficiency of resource allocation. Table 5.62, 5.63 and 5.64 illustrate the situation.

Table 5.62 (Occupation Structure)

	Tenants Refer To Both the Short-Run Negative Coefficient and the Long-Run Negative Coefficient		**Tenants Refer to the Long-Run Positive Coefficient**	
Occupation	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Blue Collar	27	**20.0**	5	**13.5**
White Collar	11	**8.1**	5	**13.5**
Services	13	**9.6**	3	**8.1**
Self-employed	2	**1.5**	0	**0**
Managerial	3	**2.2**	0	**0**
Professional	1	**0.7**	1	**2.7**
Housewife	54	**40.0**	14	**37.8**
Unemployed	5	**3.7**	2	**5.4**
Retired	8	**5.9**	3	**8.1**
Others	11	**8.1**	4	**10.8**
Total	**135**	**100.0**	**37**	**100.0**

Table 5.62 shows that the occupation structures are similar for the tenants referring to both the Short-Run & the Long-Run Negative Coefficient and the Long-Run Positive Coefficient. Therefore, once the number of income earners for the former is by far higher than the later, the resource allocation is said to be "extremely inefficient"[34]. It is because based on the principle of resource allocation, the wealthier PRH tenants should shift to buy HOS flat while the poorer PRH tenants should enjoy the subsidy and remain as either PRH renter or become PRH owner. Table 5.63 and 5.64 show that the implementation of TPS up to this moment has perverse effects in this regard.

[34] This means that the resource allocation spent by TPS has redistributed effects among the TPS tenants.

Table 5.63 (Number of Income Earners)

	Tenants Refer To Both the Short-Run Negative Coefficient and the Long-Run Negative Coefficient		Tenants Refer to the Long-Run Positive Coefficient	
No. of Income Earners	**Frequency**	**Percentage**	**Frequency**	**Percentage**
None	1	**0.7**	3	**8.1**
One	52	**38.5**	18	**48.6**
Two	42	**31.1**	13	**35.1**
Three	25	**18.5**	3	**8.1**
Four	15	**11.1**	0	**0**
Total	**135**	**100.0**	**37**	**100.0**

Table 5.63 shows that the number of income earners are significantly different for the target tenants referring to both the Short-Run & the Long-Run Negative Coefficient and the Long-Run Positive Coefficient. For the former, it takes 29.6% for the household who has at least 3 income earners. However, for the latter, it only takes 8.1% for the household who has at least 3 income earners. Combined with the similar occupation structures shown in table 5.65, one can logically infer that the household income for the former is by far higher than that of the later on the average. Therefore, it is not difficult to understand that the policy efficiency[35] is low.

Table 5.64 (Have You Been Laid Off After the Asian Financial Crisis)

	Tenants Refer To Both the Short-Run Negative Coefficient and the Long-Run Negative Coefficient		Tenants Refer to the Long-Run Positive Coefficient	
Have you Been Laid Off since the AFC	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Yes	32	**23.7**	13	**35.1**
No	103	**76.3**	24	**64.9**
Total	**135**	**100.0**	**37**	**100.0**

[35] Policy inefficiency, as defined by Ho (1995), means a stipulated policy objective using a given amount of public resources.

Table 5.64 reveals that the employment status for the tenants referring to both the Short-Run & the Long-Run Negative Coefficient and the Long-Run Positive Coefficient are quite different. For the former, it takes 23.7% of the former respondents who have ever been unemployed since the AFC. However, for the latter, the figure is 35.1%. So, one can see that the employment status is more stable for the former than the later. As a result, it can be concluded that it is the former tenants, but not the latter one, should purchase the HOS flat. Both table 5.65 and table 5.66 demonstrates that the inefficiency of resource allocation is induced by TPS.

Table 5.65, 5.66, 5.67 and 5.68 altogether provide a more comprehensive study for the reasons inducing the inefficiency of resource allocation for the above-mentioned two target tenants.

Table 5.65 (Reasons for Buying A HOS Flat in the Short Run/Long Run If There Had Not Been the TPS For the WEALTHIER Tenants whom They are Referred To Both the Short-Run Negative Coefficient and the Long-Run Negative Coefficient)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Desire to Own**	**57**	**42.2%**
2	**Others**	**24**	**17.8%**
3	**Avoidance of No Inheritance**	**20**	**14.8%**
4	Mortgage Cost Approximately Same As Rent In the Short Run	9	6.7%
5	Autonomy	8	5.9%
6	Enhancement of Security and Satisfaction	8	5.9%
7	Property Price Fall of HOS Market In Recent Years	6	4.4%
8	Asset Appreciation	3	2.2%
9	Favourable Loan Scheme Provision by HKHA	0	0%
10	Enhancement of Social Status	0	0%

As indicated in table 5.65, it lists, in descending order of significance, the reasons for

the respondents to buy the HOS flat in the Short Run if there had not been the TPS for the WEALTHIER Tenants whom they are referred to both the Short-Run Negative Coefficient and the Long-Run Negative Coefficient. Among the 10 reasons, "Desire to Own" accounts for 42.2% of the 135 target tenants and takes the first rank. Surprisingly, "Others" takes the second ranking at 17.8% while "Avoidance of No Inheritance" takes the third ranking at 14.8%.

Table 5.66 (Reasons of Not Purchasing of HOS Flat After the Resale of PRH Is Permitted For the WEALTHIER Tenants whom They are Referred To Both the Short-Run Negative Coefficient and the Long-Run Negative Coefficient)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Adequate Satisfaction In Self-Purchase**	**36**	**26.7%**
2	Others	27	20.0%
3	Not Affordable Now	19	14.1%
4	Habitation of Living Environment	15	11.1%
5	Unreasonably High Price of HOS Flat	13	9.6%
6	**Less Attraction of Buying the HOS Flat Due to The TPS**	**12**	**8.9%**
7	Afraid of Not Being Able to Afford In Future	6	4.4%
8	Unwilling to Change the Consumption Pattern	5	3.7%
9	Prediction of Further Property Price Fall of HOS Market	1	0.7%
10	Mortgage Cost for PRH Greatly Different From That of HOS Flat	1	0.7%

Table 5.66 lists, in descending order of significance, the reasons for the respondents not to buy the HOS flat after the resale of PRH is permitted for the WEALTHIER Tenants whom they are referred to both the Short-Run Negative Coefficient and the Long-Run Negative Coefficient. Among the 10 reasons, "Adequate Satisfaction in Self-Purchase" accounts for 26.7% of the 135 target tenants and takes the first rank. "Others" takes the second ranking at 20.0% while "Not Affordable Now" takes the

third ranking at 14.1%. It should be remarkable that the nature of "Less Attraction of Buying the HOS Flat Due to the TPS" and "Adequate Satisfaction In Self-Purchase" are the same in which they both imply the HOS market is adversely affected by the TPS. Their only difference is that the former imply explicitly while the latter implicitly. They sum to account for 35.6% of the 135 target tenants.

Table 5.67 (Reasons for Not Buying A HOS Flat in both the Short Run and the Long Run Even If There Had Not Been the TPS for the POORER TENANTS whom They are Referred To the Long-Run Positive Coefficient)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Not Affordable Now**	**21**	**56.8%**
2	**Unreasonably High Price of HOS Flat**	**12**	**32.4%**
3	**Habitation of Living Environment**	**3**	**8.1%**
4	Afraid of Not Being Able to Afford In Future	1	2.7%
5	Others	0	0.0%
6	Mortgage Cost for PRH Greatly Different from that of HOS Flat	0	0.0%
7	Unwilling to Change the Consumption Pattern	0	0.0%
8	Prediction of Further Property Price Fall of HOS Market	0	0.0%

Table 5.67 lists in descending order of significance of the reasons for the respondents not to buy the HOS flat in both the Short Run and the Long Run even if there had not been the TPS for the POORER TENANTS whom they are referred to the Long-Run Positive Coefficient. Among the 10 reasons, "Not Affordable Now" accounts for 56.8% of the 37 target tenants and takes the first rank. "Unreasonably High Price of HOS Flat" takes the second ranking at 32.4% while "Habitation of Living Environment" takes the third ranking at 8.1%.

Table 5.68 (Reasons of Purchasing of HOS Flat After the Resale of PRH Is Permitted for the POORER TENANTS whom They are Referred To the Long-Run Positive Coefficient)

Ranking	Reason	Frequency for 1st Rank only	Percentage for 1st Rank only
1	**Others**	**14**	**37.8%**
2	**Better Living Environment and Adequate Facilities of HOS Flat**	**7**	**18.9%**
3	**More Value-Added of Purchasing HOS Flat Than That of PRH**	**7**	**18.9%**
4	Better Physical Quality of HOS Flat	6	16.2%
5	Better Estate Management of HOS Flat	3	8.1%
6	More Upgrading the Social Status of Purchasing HOS Flat Than That of PRH	0	0%

As seen in table 5.68, it lists, in descending order of significance, the reasons for the respondents to buy the HOS flat after the Resale of PRH is permitted. Among the 6 reasons, surprisingly, "Others" accounts for 37.8% of the 37 target tenants and takes the first rank. Both "Better Living Environment and Adequate Facilities of HOS Flat" and "More Value-Added of Purchasing HOS Flat Than That of PRH" take the second ranking at 18.9%.

Both table 5.65 and 5.66 altogether account for the reasons behind for the wealthier tenants who prefer to remain as PRH owners rather than HOS buyers. While table 5.67 and 5.68 altogether account for the reasons behind for the poorer tenants who prefer to promoting to be HOS buyers rather than remaining as PRH owners so that the resource is inefficiently allocated.

CHAPTER SIX

6. POLICY ANALYSIS AND RECOMMENDATION

The time-series analysis reported in previous chapter shows that the TPS, rather than the AFC, is the more important factor that caused the collapse of Hong Kong's entire housing market since 1998. Actually, the TPS seriously disrupts the entire housing market through a domino effect. The initial impact is on the second-hand HOS free market. Afterwards, the damage is spread to secondary property market and finally the overall property market. The cross-sectional analysis also suggests that the TPS has eliminated approximately 30,000 potential HOS buyers over a ten-year period. The true figure is very likely to be more than 82,000 potential HOS buyers. On deeper analysis, it shows that "Reasonable Price", "Desire to Own" and "Fear of Paying Extra-Rent are the first three reasons for the target TPS tenants to purchase the PRH. The major reason for them to buy HOS flats both in the short run and in the long run without TPS is the same, that is, "Desire to Own". On the other hand, "Adequate Satisfaction in Self-Purchase" and "Less Attraction of Buying the HOS Flat due to the TPS" were cited as to the most important reasons not to buy the HOS flat after PRH has become open to purchase. Clearly, their responses show that PRH and HOS flat are highly substitutes.

On the other hand, it shows that both the household incomes and the tenants' employment status are greatly different for various target groupings of TPS buyers. In particular, the poorer TPS buyers (who refer to the Long-Run Positive Coefficient)

are inclined to buy the HOS flats but the wealthier TPS buyers (who refer to the Short-Run Negative Coefficient and the Long-Run Negative Coefficient) are inclined to remain as permanent TPS buyers. This reverse result reflects the TPS to be policy-inefficient. The reasons behind are as follows. For the wealthier TPS buyers, they express that adequate satisfaction in self-purchase is the most important reason for them not to purchase HOS flat after the resale of PRH is permitted. However, for the poorer TPS buyers, they show that there are three reasons for them to strive to buy HOS flats after the resale of PRH is permitted. The first one is "Others", which is probably "the wealth accumulation by TPS", the second one is "the better living environment and adequate facilities of HOS flat" and the third one is "more value-added of purchasing HOS flat than that of PRH".

All the empirical findings are both consistent and persuasive enough to draw a conclusion that the TPS is the culprit for both the break down of Hong Kong's housing market and the policy inefficiency of resource allocation.

In fact, the analysis of the details of the prevalent TPS is contributory to understanding its adverse effect on the ecology of Hong Kong's housing market and the policy inefficiency of resource allocation. Based on the criteria of economic efficiency, policy efficiency and equity discussed in Chapter 2, the pitfalls made by HKHA are first analyzed. After that, three policy recommendations are discussed and their merits and drawbacks are compared with each other so that the most appropriate policy is finally selected.

6.1 The Pitfalls of TPS

The HKHA introduced the TPS to assist tenants of the HKHA to buy the flats they are currently renting. At least 250,000 public housing flats will be offered for sale over a ten-year period, commencing with 27,525 in early 1998. The TPS obviously is in line with the Chief Executive's (CE) pledge to raise the proportion of home ownership to 70% by 2007.

There are two criteria for the HKHA to select the sale of estates. Firstly, the HKHA assumes that tenants of older public rental estates may have concerns about the cost of maintenance and the possibility of redevelopment. On the other hand, new tenants in estates may have difficulty in finding increased monthly outgoings. The HKHA has therefore targeted for the estates for the first three phases between 1985 and 1992 (principally Trident blocks) in as wide a range of districts as possible. Other types of block in selected estates will also be sold. The patterns of response will be analyzed for assisting the future selection of appropriate estates for sale, too.

Lee (2000) pointed out that out of the existing 650,000 PRH tenants, the HKHA would like to turn 38% into homeowners through the TPS over a period of ten years. Clearly, it is extremely inequitable for the remaining 62% of PRH tenants, whom they are given less chance to purchase their own flats even there is redevelopment at a later stage. On deeper analysis, different pace for the implementation of TPS among different prospective buyers in different estates is also inequitable. It is because the faster the TPS estate is implemented, the faster the PRH units can be

sold under the present time-based resale restrictions[36]. The transaction value, therefore, may be higher.

As to the sale price of the TPS flat for the first phase in 1998, it states that a "list price" has been calculated for each flat to be sold, representing a discount of 70% on market value. Flats are offered for sale at this price less a "tenant's credit" at 60% of the "list price". A purchaser may, if he/she wishes, select for a lower discount of 50% or 60%. This effect would reduce the premium payable to the HKHA in the event of future sale of the flat in the open market. Regardless of the discount selected, the amount of tenant's credit will remain the same. With slight difference of discount rate, the sale price for the second phase and the third phase is just similar with that of the first phase. Clearly, such a "central price-setting scheme" induces policy inefficiency because both the wealthier tenants and the poorer tenants enjoy the same benefit once their estates are selected to join the TPS. Therefore, the motivation for the better-off tenants to buy HOS flat is sharply reduced. As a result, the TPS greatly paralyzes the HOS market since 1998.

The present time-based resale restrictions lead to economic inefficiency because it reduces the attractiveness of the scheme to tenants and reduces the price at which tenants are willing to purchase the units. Besides, the greater majority of

[36] It states that for the first two years, resale is permitted only to the HA at the original price. However, it is subject to the return of the "tenant's credit" received during the initial purchase to the HA. During the subsequent three years, flats may be resold to the Authority at the prevailing TPS price (subject to return of the tenant's credit) or in the secondary market. After five years, flats may be sold in the open market subject to payment of a premium to the HA equivalent to the current value of the discount offered on market value at the time of initial sale.

tenants-turned-homeowners would rather wait through the 5 years in order to realize any capital gain. Therefore, it is unlikely that the HKHA will stand to gain anything with this provision. The present TPS is certainly economically inefficient relative to one without any restrictions. The restrictions generate a cost without any offsetting benefit. The only advantage of these resale restrictions is that it serves to discourage profit seekers from joining the queue.

On the other hand, TPS purchasers can only retain the right to apply for HOS flats as White Form (private sector) applicants under the present regulations. Those successful in applying for HOS can proceed to purchase subject to resale of their TPS flats either to the HA or in the secondary market to Green Form purchasers from the third year onwards. Since the subscription rate for White Form applicant is generally more than that of Green Form applicant by several times[37], the TPS purchasers are less likely to successfully purchase the HOS flat even if they would like to. This also lowers the incentive for TPS owners to apply for HOS flats.

To sum up, the collapse of Hong Kong's entire housing market and the inefficiency of resource allocation among PRH buyers are caused by the economic inefficiency, policy inefficiency and inequity under the present TPS. While the inefficiencies and inequity are induced by its centrally planned sale price, time-based resale restrictions, partial implementation of TPS in public rental estates with different phases and less chance for TPS owners to successfully apply for HOS flats.

[37] The subscription rates for Green Form applicants and White Form applicants are 4.7 times and 20.8 times 0in 1995/96, 5.2 times and 39.5 times in 1996/97, 4.5 times and 21.7 times in 1997/98, 4 times and 13 times in 1998/99.

6.2 Policy Recommendations for Implementation of TPS

In this part, three alternative privatization schemes are discussed. They are :

1. The HKCER Model (Richard Wong, HKCER Letters, July 1990 and September 1992 ; Alan Siu, HKCER Letters, Nov. 1990)

2. The Wong Model (Richard Wong, On Privatizing Public Housing, The Hong Kong Economic Policy Studies Series, 1998)

3. The Ho Model (Lok Sang Ho, Towards an Optimal Public Housing Policy, Urban Studies, 1988 ; Privatization of Public Housing : An Analysis of Policy Alternatives, Contemporary Economic Policy, July 1995)

6.21 The HKCER Model

During the first attempt of the implementation of TPS in 1991, Hong Kong Centre for Economic Research[38] (HKCER) had proposed that privatization would proceed with no restriction whatsoever on resale. (Alan Siu, Nov. 1990 ; Richard Wong, July 1990 , Sept. 1992) There are two basic considerations for removing all restrictions on sale. Siu (1990) considered that it should give public housing units a chance to realize their full value in the open market. Wong (1992) argued that land on which

[38] Hong Kong Centre for Economic Research (HKCER) is a privately-funded research institute advocating free enterprise and small government.

these massive estates sit had already been given away and it was only a matter of permitting them to realize their full market value. He explained that the main obstacle to successful privatization was really restrictions to transferability. Actually, successful privatization would make available "vast resources" to provide more public housing and home ownership units.

These two fundamental considerations are both valid and strong. It is clear that removing all resale restrictions allows each housing unit to realize its full potential value in the open market, thus maximizing wealth and achieving economic efficiency. It should be noted that their analyses take static consideration only. In fact, from the dynamic point of view, there is possible fallacy of competition. In addition, the HKCER model also boosts the ranks of the eligible target tenants, that is, the promise of a sizeable arbitrage profit attracts households to apply for public housing independent of the real need.

On the other hand, Ho (1995) analyzed that if any restriction was to apply (implying there is an economic cost), the restriction had to serve some recognized and acceptable public objectives (implying that the cost must be at least offset by a recognized benefit). He believed that it was unrealistic to expect that the time-based restrictions would help conserve the resources of the HKHA. The reason was that any purchaser would strive to hold on his property through the restriction period in order to realize the capital gain.

As a matter of fact, the HKCER model is subject to other vital drawbacks. Firstly, Ho explained that if the PRH was sold to the target group(s) at low and subsidized prices

without any restriction for resale, the potential arbitrage profit might well prompt households to disguise themselves as members of target group. Perhaps they will apply for public housing even if they have little need. Secondly, he added that the expectation for large capital gains might well prompt households to hold on to their units even when they were ready to move out. To avoid these problems, establishing a set of eligibility in favour of the lower income households will be necessary. Furthermore, the quality of the public housing has to be kept low enough compared with the HOS flat. Therefore, this would make PRH less attractive to the better-off households so that the incentive for them to purchase a HOS flat or even private housing would be higher.

6.22 The Wong Model

Wong wrote a book, entitled "On Privatizing Public Housing" in 1998 and he explored the proper ways of privatizing public housing, in which they were still fundamental of achieving economic efficiency through the free market mechanism. However, he analyzed it with the consideration of political economy simultaneously.
In designing a scheme to privatize the public housing, Wong (1998) indicated that it was necessary to take into account of five related issues. (p.104)

1. **The treatment of restrictions on subsequent transfers.**

2. **No privatization scheme could be set without making reference to the existing policies governing the initial sales and subsequent transfers of HOS units.**

3. **The initial sales price of the units.**

4. **The number and selection of units to be privatized.**

5. **The future redevelopment opportunities of public housing estates to be privatized.**

Here it would highlight the discussion of the first four issues as they are probably the most critical factors to be considered for the success of TPS' implementation.

1. Relaxation of Subsequent Transfer Restrictions

Wong (1998) considered that any attempt to privatize public housing units had to include removing or at least relaxing restrictions on subsequent transfer. Otherwise, there was little reason to privatize at all. Obviously, restrictions on subsequent transfers have extremely vital consequences for the value of public rental housing units to be privatized. If public housing units cannot be subsequently transferred, they are much less valuable to prospective buyers. He considered that even if the sitting tenant inclined to remain as permanent TPS owners, the right to transfer the unit freely was still valuable because the plans of the tenant-turned-owner might change in the future.

He estimated that if one were unable to subsequently transfer privatized public housing units, the average public housing tenants valued their units at only from 60% to 70% of the units' market value. He further added that the median public housing

tenant would probably value the unit at an even lower percentage level. In fact, the gap between a household's personal valuation of the unit and its market value will vary across households. The difference between the gross subsidy and the net benefit reflects the underlying inefficiency of the public housing programme.

He believed that in the presence of severe restrictions on transfers and on the basis of the above-mentioned estimation, it was possible that less than half of the units could be sold if their prices were set at 50% of the market value. Moreover, households in old public housing estates are less likely to buy their units. Besides, these estates are very difficult to be successfully sold unless the prices are set at very low levels. He added that this effect was independent of the quality or age of the unit. This was because the latter affected only the market value but not the gap between the household's personal valuation of the unit and its market value.

Wong conjectured that prices could not be set at more than 25% if a majority of the units in old public housing estates were to be sold unless all restrictions are removed. In contrast, the household's personal valuation of the worth of the unit would coincide with its market value if there were no transfer restrictions. Under such a circumstance, a moderate discount from market prices would make the units sufficiently attractive to most tenants.

2. Convergence with HOS Transfer Regulations

Wong expressed that resale restriction for the privatizing PRH units and the HOS flats could not be set independently. This is because convergence in transfer

regulations avoids making false institutional distinctions between the two types of units. As a matter of fact, the present resale restrictions for the TPS flats and the HOS flats are the same. However, the present convergence of TPS with HOS transfer regulations cannot realize the full benefits of privatization. Based on the previous analysis, the benefits will rise if HOS regulations are further relaxed.

Wong pointed out that this could occur in a number of ways. Firstly, the first three-year period could be reduced. Secondly, the three-to five-year (based on the most updated regulation) could be shortened. Here the time periods refer to the date when the units were first occupied and not to the date when they were privatized. Thirdly, further discount on the payment of land premium to the government is permitted when the units are sold in the open market. Fourthly, the sale price of PRH units could be lowered.

From an economic perspective, relaxing the first two of these four regulations allows the economy to reap more benefits sooner and achieve economic efficiency.

3. Determination of the Sales Price

It is extremely controversial and complex for the determination of the sales price of privatized public housing units. The market value of a unit consists of two components. The first one is the replacement cost of the structure while the second one is the market value of the land. Under the current arrangements for the sale of HOS flats, 50% of the land premium is paid to the government at the time of the sale and 50% is fully subsidized when the units are first released. Afterwards, owners

who later sell the HOS units in the open market return to the government the updated value of the fully subsidized portion of the land premium.

Wong agreed the rationale of determination of PRH flats could be same as that of HOS. By taking the same type of determination, the sale price of the PRH flats could be set at a level that was equal to the replacement cost of the structure plus 50% of the value of the land premium at the time of the sale. Certainly, the price of the unit will vary with the age, quality and location of the estate, and other specific attributes of the unit within the estate.

Actually, it is a difficult task to determine the sales price based on all these factors. For simplification, Wong proposed a workable benchmark. He used the present discounted value of the rental payments of the public housing units as the sales price. This replaces the previous implied sales price that the replacement cost of the structure plus 50% of the value of the land premium. He supplemented that the appropriate period over which the rental payments should be discounted for tenants in the public housing programme should be close to infinity. Besides, the age of the unit might be taken into account to a certain degree because a permanent entitlement with privatization was exchanged for a marketable unit whose value depended partly on its age.

He took an operational definition of the appropriate time horizon between 10 and 30 years. The discount rate to be adopted was 5%. Three kinds of rent levels were distinguished. The first one was high monthly rents of $2,500, the second one was medium monthly rents of $1,500 and the third one was low monthly rents of $500.

Table 6.1 shows the estimated sales price for public housing units that are charging different rents.

Table 6.1 Present Discounted Value of Public Housing Rental Payments

Current Monthly Rent	Present Value (Years = 10)	Present Value (Years = 20)	Present Value (Years = 30)
Low = $500	60,000	120,000	180,000
Medium = $1,500	180,000	360,000	540,000
High = $2,500	300,000	600,000	900,000

Note : The discount rate and the future rental growth rate are both assumed to be 5%.

Source : Wong, Y.C. (1998) ***On Privatizating Public Housing.*** **Hong Kong : City University of Hong Kong Press**

4. Scope and Pace of Privatization

Based on the present TPS, almost 40% of the entire public housing stock will be privatized over a ten-year period. Clearly, it poses an extreme inequity for the remaining approximately 60% public housing tenants who may not have the chance to buy their PRH flats. On the other hand, it is also inequitable for the tenants selected for latter phases because the tenants selected for the earlier phases tend to enjoy more benefits from privatization.

Wong considered that an equitable way of privatizing the public housing stock and ensuring an active and stable market in these units required the privatization process to be completed within a short span of time and to involve as many units as possible. On grounds of economic efficiency and equity, he believed that there was no obvious

reason why the units could not be privatized in one instance.

In fact, an active and stable secondary market for ex-public housing units can only emerge when a substantial number of units that are differentiated in terms of their selection placed on the market. As a result, it will help greater and more immediate efficiency gains and will also seem more equitable. One should bear in mind that given the available quality and selection of public housing units, the potential buyers are primarily those living in the public housing sector. Since both the buyers and the sellers are largely either the same PRH tenants or owners, it is essential to privatize a large number of public housing units so that an active market can be created. Wong added that households on the waiting list for public housing could constitute a second group of potential buyers. Nevertheless, their numbers only took a small proportion when compared with the total stock of public housing households.

If only a small number of units are available on the market in the beginning, the transaction will be low. Clearly, the gradual privatization, in addition to proportional implementation of TPS, also makes the active and stable secondary market impossible. At the same time, it will pose a random element on the welfare gains for all public housing households. Indeed, the present TPS is so unfair that it leads the households in early privatization to result in considerable gains while the later one to induce serious losses.

Summary of Policy Recommendations

Out of ten main policy recommendations of Wong's model, six of them are

considered to be more important, are summarized as follows. (p.119)

1. **Permit all public housing units that are at least three years old to be privatized immediately and as quickly as possible. Gradual privatization must be avoided.**

2. **Relax transfer restrictions and ensure that they converge with those that apply to HOS units.**

3. **Revise transfer restrictions on all privatized public housing units and HOS units to allow all units that are three years old to be transferred at market-determined prices among ex-public housing tenants and applicants for public housing units on the waiting list.**

4. **Revise transfer restrictions on all privatized public housing units and HOS units to allow all units that are five years old to be transferred in the open market at market-determined prices. The updated value of the subsidized portion of the land premium should be returned to the government. The subsidized portion is typically 50% of the market value for both public housing and HOS units.**

5. **The sales price of the privatized units should be set at a level roughly equal to the present discounted value of future rental payments over a 20-year to 30-year period.**

6. **The implied sales prices for the units with different levels of rents are given at Table 6.1. It should be emphasized that these are for illustrative purposes and could be further refined to take into account other relevant factors.**

One should bear in mind that although the above-mentioned summary of policy recommendation exerts certain time-related resale restrictions and centrally-designed sales price, the nature of Wong Model is still similar to that of HKCER Model to a certain extent. That is, trying to keep the least restrictions on resale and inclining to set reasonably subsidized sales price based on the present discounted value of future rental payments. Their major difference is that the Wong Model also considers the aspect of political economy at the same time.

The Ho Model

Ho (1995) proposed "conditional bidding" mechanism for optimal public housing policy. The "conditional bidding" mechanism refers to a mechanism in which the public housing units are either rented or sold in the free market (but not entirely open) to prospective "eligible target group households only". Here the target group households refer to the lower income group as the PRH is originally designed for assisting the poor people in the society. It is possible to imagine more than one target group (but certainly not a large number), each have access to a category of assisted housing. As discussed before, Ho divided equity into two types: horizontal equity and vertical equity. Putting households in the same target group on an equal footing ensures horizontal equity while putting households in different target groups with different requirements on different footings ensures vertical equity (p.58). And under

Ho model (1995), privatization of public housing units is both policy-efficient and equitable in the following way. After purchase, all TPS' households can resell their public housing units at any time in the free market on the condition that resale must be to the designated target group members only as determined by the government. There are no additional strings attached to the sale, and no requirement in terms of a waiting period before transfer. Moreover, the sale price is to be determined freely in the market designated for target group members through the interplay of supply and demand.

The Ho model eliminates the time-related resale restrictions but specifies that resale must be for certified eligible purchasers only. From the policy efficiency perspective, it seems that eligible purchasers should be identical with the same target group for public housing assistance. It is logical that privatized housing units continue to serve the target group indefinitely under the "conditional bidding" mechanism. Although no additional strings are attached to the sale other than the condition that buyers must be certified "eligible", Ho indicated that the supply of public housing for the target group was higher than under the "pure" free market. As both sale prices and resale prices are determined in the market, he explained that his model eliminated queues more successfully than did the HKCER model.

However, compared with the HKCER model, the Ho model would not realize the "full potential value" of the housing unit because it had to place some restrictions on transfer. As illustrated by Ho, the HKCER model provided that the housing units fetched a value reflecting the bid price of the last household successfully outbidding all other households. The Ho model, on the other hand, provided that the housing

units fetched a value reflecting the bid price of the last household successfully outbidding all other households among qualified target group members. This means that the Ho model allows the units to realize the maximum value among the target group households.

Since the PRH units have been originally built for assisting the target group, realizing the maximum value among the target group households brings closer to the policy objective of helping the target group than does the HKCER Model.

Another merit for the Ho model is that the HKCER Model allows resources intended for the target group to spill out for non-target group members (when the flats are resold in the open market), more public housing may have to be built under the HKCER Model than the Ho Model. Nevertheless, the Ho Model has the disadvantage that the proceeds from the privatization will be less than that of the HKCER Model.

“Conditional Sale” of publicly assisted housing units to target group households in the open market will greatly improve efficiency in allocating housing units. It limits any capital gains that may accrue to buyers even if it may bot eliminate them altogether. Ho explained capital gains might arise as a result of absolute improvement in household incomes among the target groups. Capital gains or losses also may arise because of changes in expectations and preferences. However, the Ho Model eliminates pure arbitrage profit that may arise if households are free to sell the units openly on assumption of the title.

Apparently, the Ho Model is not as efficient as the HKCER Model because restricting free bidding for public housing units to the target group households only implies restricting resale by purchasers. However, it is only true for the consideration of static aspect. As to the dynamic aspect, the HOS market is less likely to be adversely affected by the PRH market as suggested by the Ho Model because his model only allows eligible target buyers, the low-income households to purchase and resale among themselves. This means that it is economically efficient when dynamics are considered. Besides, it is more policy-efficient when compared with the HKCER Model and the Wong Model. As a policy analyst, the Ho Model seems to be the most appropriate policy for the implementation of TPS. This is because his model considers all the policy efficiency, economic efficiency and equity and based on all these criteria, this model provides the optimal solution when compared with the HKCER Model and the Wong Model. Furthermore, the target group households can be further divided into two types, that are, the lowest income households and the second lowest income households through the means test so that the policy efficiencies can be achieved for the two different target groups.

Since all of these models are largely based on the market force, it should be noted that the government's target for increasing ownership to 70% by 2007 is not probably achieved. Nevertheless, facing with the economic downturn, this target seems to be indefensible.

If the HKHA does not modify the details of the implementation of TPS, that are, time-based resale restrictions, setting of sales price and scope and pace of privatization, it will continue to adversely affect our entire housing market and

economy. So, it suggests that the HKHA should change the criteria of TPS' implementation as soon as possible.

CHAPTER SEVEN

7. CONCLUSION

7.1 Introduction

Before ending up the concluding chapter, an introductory paragraph here is a good chance to have a quick review of the preceding chapters. Chapter One gives a general background and significance of this research, and the outline of the dissertation. Having explored the range of literature in Chapter Two, it goes on to explain the theoretical frameworks for both the time-series analysis and the cross-sectional analysis. Chapter Four provides the research methodologies for them, which contains data collection, data manipulation and data processing of time-series analysis and sampling method, sampling procedure, questionnaire, employment of part-time enumerators, briefing and training, pilot survey and main survey, and data processing of cross-sectional analysis. Central to this research is the empirical findings for them, which is recorded in Chapter Five. Following that, Chapter Six tries to synthesize and analyze relevant data to discuss the pitfalls of the present TPS and introduce policy recommendations to it.

7.2 The Effect of TPS on Hong Kong Housing Market

This study clearly demonstrates that the TPS not only greatly paralyzed the entire housing market since the AFC, but it also induced policy inefficiency in resource

allocation. Both the time-series regression analysis and the cross-sectional statistical analysis provide strong empirical support for this hypothesis. The empirical findings for the time-series regression analysis are on the macro level. They consistently suggest that the adverse effects of TPS on both the transaction volume and real transaction value are much higher than that of the AFC in the second-hand HOS market, the secondary property market and the whole property market. And the collapse of entire property market has been shown to firstly work through the collapse of HOS free market, and then to the secondary property market and finally to the overall property market. On the other hand, the empirical findings for the cross-sectional statistical analysis from the survey are on the micro level and they clearly testify the adverse effect of TPS on both the HOS market and the policy inefficiency of resource allocation.

7.3 Policy Analysis and Recommendation

There is no doubt that there are many serious pitfalls in the present TPS. The main problem appears to be the overly centralized implementation of TPS by HKHA, especially the sale price, resale constraints and scope and pace of privatization, with neglecting the Scheme to be implemented, or at least mainly regulated by free market mechanism. Clearly, the PRH and the HOS flat have become close substitute given that the quality of present PRH has been getting higher and higher while the quality of present HOS has been getting lower and lower. It is suggested that the implementation of TPS in the forthcoming phases with persistent improvement of the quality of PRH will not only adversely affect the HOS market, but also probably the private housing market directly.

Therefore, the regulations of the TPS have to be altered as soon as possible to avoid further damages to the housing markets and to the economy. All the three models, the HKCER model, the Wong Model and the Ho model, as outlined previously, seem to be an improvement over what had prevailed. However, both the HKCER and the Wong model only considers the implementation of public housing privatization on "economic efficiency" by the aspect of "free market mechanism" and "political economy". As a result, their recommendations are very likely not to finally benefit the target PRH tenants, the lower income households. Therefore, as a policy analyst, it is recommended that the Ho model is the best policy for the change of present TPS because the policy efficiency is the highest when compared with the HKCER model and the Wong Model. And this model is still based on the criteria of economic efficiency and equity.

7.4 Conclusion

To conclude, if the HKHA does not modify the details of the present TPS, it will continue to adversely affect our entire housing market and economy. Therefore, the HKHA is urged to alter the conditions for sale of PRH as soon as possible.

Appendix I

Questions & Answers of Tenants Purchase Scheme (TPS) Provided by Housing Department

Q1 What is the Tenants Purchase Scheme (TPS) ?

The TPS is a scheme introduced by the Housing Authority (HA) to assist tenants of the HA to buy the flats they currently rent. At least 250,000 public housing flats will be offered for sale over the next ten years, commencing with 27,000 in early 1998.

Q2 What is the thinking behind the scheme ?

The Government has set a target of increasing the proportion of home ownership to 70% by 2007. Home Ownership helps foster a sense of belonging and gives owners greater security. It also provides purchasers with a first step on the housing ladder, and by providing added opportunities for upward mobility promotes the release of scarce public housing resources for those in need.

Q3 What are the benefits of home ownership ?

As a home owner, you have a stake in the land and reap the benefits of capital appreciation. Although initially monthly costs will be higher, within ten years inflation may mean that buying is cheaper than renting. Greater certainty on

housing expenses assists personal financial planning. Ownership also gives you a stronger voice in shaping your local environment.

Q4 How is the Housing Authority (HA) selecting the estates for sale ?

It is accepted that tenants of the older HA estates may have concerns about the cost of maintenance, and the possibility of redevelopment. On the other hand, tenants in estates recently occupied may have difficulty in finding increased monthly outgoings. The HA has therefore targeted for the first phase estates built between 1985 and 1992 (principally Trident blocks) in as wide a range of districts as possible. Other types of block in selected estates will also be sold and the pattern of response analyzed for assistance in selecting estates for future sales.

Q5 Who is eligible to purchase ?

All sitting tenants in the selected estates in self-contained flats will be offered the opportunity for purchase providing there is no breach of the existing tenancy agreement, except 1. Housing for Senior Citizens 2. Caretakers flats 3. Flats let to non-domestic tenants 4. Flats exceeding 22 meters square 5. Those on Use and Occupation Licenses or where Notice to Quit has been served

Q6 What are the costs of purchase ?

In addition to the purchase price, you will also need to pay Stamp Duty and

Legal Costs, Details of these costs will be available when you are invited to buy.

Q7 As an owner, what monthly costs will I have to pay ?

As a tenant, your monthly rent includes rates, management and maintenance charges in one payment. An owner makes payments separately. You will be billed direct from the Commissioner of Rating and Valuation for rates and Government rent. If you borrow part of the purchase price from a bank or deposit-taking company, you will make monthly repayments. You will also pay a monthly management fee, which pays for the costs of management and maintenance of your estate. Details of these expenses will be available when your are invited to buy.

Q8 How can I get mortgage finance ?

The Authority has negotiated with a number of banks and deposit-taking companies to provide mortgages of up to 95% of the purchase price for up to 25 years, at competitive rates of interest. Further details will be made available when you are invited to buy.

Q9 At what price will the flats be sold ?

A “List Price” has been calculated for each flat to be sold, representing a discount of 70% on market value. Flats are offered for sale at this price less a “tenant’s credit” of 60% of the “List Price”. A purchaser may, if he wishes,

select for a lower discount of 50% or 60% ; the effect of this would be to reduce the premium payable to the HA in the event of future sale of the flat on the open market. Regardless of the discount selected, the amount of tenants credit will remain the same.

Q10 What restrictions are imposed on resale ?

For the first two years, resale is permitted only to the HA at the original price, and subject to the return of the "tenant's credit" received during the initial purchase to the HA. During the subsequent three years, flats may be resold to the Authority at the prevailing TPS price (subject to return of the "tenant's credit") or in the secondary market. After five years, flats may be sold in the open market subject to payment of a premium to the HA equivalent to the current value of the discount offered on market value at the time of initial sale.

Q11 What rights are included in purchase ?

You purchase the exclusive right to occupy your flat, and the right to use the common parts of the estate : corridors, lobbies and lifts within your block and external open areas and walkways. Commercial centres, carparks, schools, bus termini and areas let for educational, welfare or other purposes will remain under the control of the HA with separate management accounts. A plan showing the boundary of the estate will be made available when you are invited to purchase.

Q12 What will be the arrangements for management after sale ?

The HA will encourage formation of an Owners Corporation (OC) within one year of the first sales and assist the OC in making suitable arrangements for ongoing management. The HA will attend the OC as the owner of any unsold flats ; as the percentage of flats sold increases the voice of the owners will correspondingly increase. The HA will continue to consult the Estate Management Advisory Committee, Mutual Aid Committees and Residents' Committees on tenants' views and represent these views to the OC where appropriate. The OC will be invited to consider whether the HA should continue as manager, or whether HA should be replaced by a private sector manager, within two years of the first sales.

Q13 Can I be sure of the structural safety of my block ?

The HA will give a guarantee of structural safety for seven years.

Q14 Will I be liable for high maintenance costs after purchase ?

Blocks in estates for sale are selected as being in good condition with no major maintenance works outstanding or likely to be necessary within the next few years. However, to reassure purchasers the HA will contribute out of the potential sales proceeds from the estates $14,000 per flat into an estate maintenance fund, to cover maintenance expenses other than routine maintenance for a period of about ten years. In some blocks, the HA is

undertaking minor upgrading works and completing ongoing programmes immediately before sale ; these costs will be charged to the HA and not to the new owners' maintenance fund.

Q15 After sale, can I revert to tenant status ?

Purchasers can revert to tenant status and remain in their flat subject to a recommendation from the Social Welfare Department on compassionate grounds and resale of their flat to HA.

Q16 What if I do not wish to purchase ?

The HA accepts that some people will not wish to purchase, or may have financial difficulty in doing so. Such tenants can continue to occupy as prior to the commencement of TPS.

Q17 What if my estate is not selected ?

The HA is not proposing to sell all estates, and not all tenants will get the chance to buy their own flat. The HA recognizes that some tenants will be unhappy that the opportunity to purchase is not available. However, such tenants will retain their "Green Form" status for purchase under the Home Ownership Scheme, which has recently been expanded to an annual production of about 30,000, or in the private sector with the assistance of the Home Purchase Loan Scheme.

Q18 Will sitting tenants be offered the purchase of vacant flats ?

A single opportunity will be offered for sitting tenants to apply to purchase vacant flats in their estate. In the event of multiple applications for the same flat, the right to purchase will be awarded by ballot. Flats in the estate vacant following this exercise will be offered for sale together with HOS flats to "Green Form" applicants in normal regular sales exercises.

Q19 After I buy, can I apply for an HOS flat ?

TPS purchasers retain the right to apply for HOS flats as if they were White Form (private sector) applicants. Those successful in an application for HOS can proceed to purchase subject to resale of their TPS flat either to the HA, or in the secondary market to Green Form purchasers from the third year onwards.

Q20 What is my status under the Home Purchase Loan Scheme (HPLS) ?

You cannot use an HPLS loan to buy a TPS flat. TPS purchasers retain the right to apply for an HPLS loan as if they were White Form (private sector) applicants. Those successful in an application for an HPLS loan can proceed to purchase a private sector flat subject to resale of the TPS flat either to the HA or in the secondary market to Green Form purchasers from the third year onwards.

Appendix II

Estate Information

Tenants Purchase Scheme 1 (Launched in 1998)

Estates	Wah Kwai	Fung Tak	Heng On	Cheung On	Wan Tau Tong	Kin Sang
Districts	Aberdeen	Wong Tai Sin	Ma On Shan	Tsing Yi	Tai Po	Tuen Mun
No. of Blocks	5	7	7	10	3	4
No. of Domestic Units	3,264	5,428	6,076	7,338	2,767	2,652
Authorized Population	13,346	20,400	24,308	29,000	10,713	10,606
Block Types	Y4	Y3 ,Y4	Y3, Slab	Y3, Slab, Linear	Y3	Y4
Saleable Floor Area from smallest to largest (sq)	19.3 – 55.6	24.5 – 55.6	32.4 – 49.1	24.5 – 53.1	24.5 – 49.1	19.3 – 55.6
Average Price ($) From lowest to highest	108,800 – 313,600	147,000 – 340,300	124,400 – 229,800	120,600 – 248,500	120,600 – 241,600	62,500 – 180,200
Completion Dates	1990 – 1991	1991-1992	1987	1988 - 1989	1991 - 1992	1989

Tenants Purchase Scheme 2 (Launched in 1999)

Estates	Yiu On	Wah Ming	Tsui Wan	Tin King	Chuk Yuen North	Tak Tin
Districts	Ma On Shan	Fanling	Chai Wan	Tuen Mun	Wong Tai Sin	Lam Tin
No. of Blocks	7	7	4	4	8	7
No. of Domestic Units	4,798	5,071	2,340	3,156	6,736	5,060
Gross Floor Area (m)	15.9 – 72.3	17.7 – 68.4	25.3 – 72.9	40.8 – 68.2	17.7 – 63.6	15.3 – 73.5
Full Credit Price ($)	42,900 – 295,700	41,400 – 217,600	84,900 – 345,600	70,400 – 184,300	66,700 – 321,600	53,200 – 341,000
Block Types	New Slab, Y3 & Y4	Y3 & Y4	Y4	New Slab, Y3 & Y4	Y3	New Slab, Y3 & Y4
Year of Intake	1988	1990	1988	1989	1987	1991

Tenants Purchase Scheme 3 (Launched in 2000)

Estates	Choi Ha	Hin Keng	Fung Wah	Tai Po	Fu Heng	Tin Ping
Districts	Ngau Tau Kok	Tai Wai	Chai Wan	Tai Po	Tai Po	Sheung Shui
No. of Blocks	3	8	2	9	8	7
No. of Domestic Units	2,330	5,876	1,283	7,173	5,858	5,698
Area of Unit (m)	9.41 – 50.47	30.32 – 47.86	13.37 – 54.38	9.41 – 45.30	9.41 – 44.06	16.57 – 60.90
Block Types	Y3 & Y4	Y2, Y3 & Y4	Y4	New Slab & Y3	New Slab, Y3 & Y4	New Slab, Y2, Y3 & Y4
Year of Intake	1990	1986	1991	1989	1991	1986

Tenants Purchase Scheme 4 (Launched in 2001)

Estates	Kwong Yuen	King Lam	Lower Wong Tai Sin	Hing Tin	Leung King	Tsing Yi
Districts	Shatin	Tseung Kwan O	Wong Tai Sin	Lam Tin	Tuen Mun	Tsing Yi
No. of Blocks	6	7	10	3	8	4
No. of Domestic Units	4,659	5,507	4,754	2,448	6,846	3,230
Area of Unit (m)	9.41 – 50.47	9.41 – 47.86	13.37 – 54.38	9.41 – 45.30	9.41 – 44.06	16.57 – 60.90
Block Types	Y3 & Y4	New Slab, Y3 & Y4	Linear, H & Y4	Y3	New Slab, Y3 & Y4	Y2, Y3 & Y4
Year of Intake	1989	1990	1985	1987	1988	1986

Tenants Purchase Scheme 5 (Launched in 2002)

Estates	Tung Tau (II)	Pok Hong	Tsui Ping (North)	Lei Cheng Uk	Tai Ping	Kwai Hing
Districts	Kowloon Central	Shatin	Sau Mau Ping	Sham Shui Po	Fanling	Kwai Chung
No. of Blocks	20	8	12	10	4	4
No. of Domestic Units	6,820	5,479	6,398	4,832	1,429	1,528
Block Types	Y4, H & Linear	Double H, Slab & Y2	Y2, Double H, Slab & Linear	Double H, Y3, Slab & Linear	Linear	Linear
Year of Intake	1982	1982	1982	1984	1989	1991

Tenants Purchase Scheme 6A (Launched in Janaury 2003)

Estates	Cheung Wah	Lei Tung	Shan King	Po Lam
Districts	Fanling	Hong Kong	Tuen Mun	Junk Bay
No. of Blocks	10	8	9	7
No. of Domestic Units	5,120	7,542	8,643	5,007
Block Types	Double H, Slab & Y2	Y1 & Y2	Double H, Slab, Y1 & Y2	New Slab & Y2
Year of Intake	1984 - 1986	1987 - 1988	1983 - 1986	1988 – 1989

Tenants Purchase Scheme 6B (Launched in October 2003)

Estates	Cheung Fat	Fu Sin	Long Ping	Nan Cheung	Tsui Lam
Districts	Tsing Yi	Tai Po	Yuen Long	Sam Shui Po	Junk Bay
No. of Blocks	4	8	15	7	8
No. of Domestic Units	2,621	5,518	8,483	1,897	4,932
Block Types	New Slab & Y3	Y1 & Y2	Double H, New Slab & Y2	Linear and Linear 3	New Slab and Y2
Year of Intake	1989	1985 - 1986	1986 - 1989	1989	1988 – 1989

Appendix III (Questionnaire)

I am a Master of Philosophy student of Economics Department in Lingnan University. I am going to conduct an academic research on the Tenants Purchase Scheme (TPS) implemented by the Housing Authority. The Most Important Objective Is : Examining the Ownership Effect of TPS on the HOS market. This questionnaire is for academic purpose only. All data will be kept strictly confidential only. **THANK YOU FOR YOUR HELP !**

Please put a tick in the appropriate box.

Part One : Personal & Family Particulars

1. Sex 1 ☐ Male 2 ☐ Female

2. Age 1 ☐ 30 or below 2 ☐ 31-40 3 ☐ 41-50
4 ☐ 51-60 5 ☐ 61 or above

3.Education 1 ☐ Uneducated 2 ☐ Primary
3 ☐ Secondary 4 ☐ Tertiary or above

4.Occupation 1 ☐ Blue collar 2 ☐ White collar 3 ☐ Services 4 ☐ Self-employed
5 ☐ Managerial 6 ☐ Professional 7 ☐ Housewife 8 ☐ Unemployed
9 ☐ Retired 10 ☐ Other

5 You are 1 ☐ Tenant 2 ☐ Spouse of Tenant 3 ☐ Parents of Tenant
4 ☐ Other

6 No. of your family member(s) in this flat 1 ☐ 1 2 ☐ 2 3 ☐ 3
4 ☐ 4 5 ☐ 5 or above

7 No. of your family member(s) having income 1 ☐ None 2 ☐ 1 3 ☐ 2
4 ☐ 3 5 ☐ 4 or above

8 Have you ever unemployed since the Asian Financial Crisis ? 1 ☐ Yes 2 ☐ No

9 Have you ever been reduced salary since the Asian Financial Crisis ?

1 ☐ Yes 2 ☐ No

10 No. of year(s) living in the public rental housing 1 ☐ 1-5 2 ☐ 6-10
3 ☐ 11-15 4 ☐ 16 or above

11. Do/Does you or/and your family member(s) has/have other premises apart from this flat?

1. Yes ☐ 2. No ☐

Part Two : Details of Living Conditions

12. Age of your block 1 ☐ Below 5 years 2 ☐ 6-10 years 3 ☐ 11-15 years
4 ☐ 16 years or above

13. Area of your flat 1 ☐ below 250sq.ft 2 ☐ 250 – 300sq.ft
3 ☐ 301 – 400sq.ft 4 ☐ 401 –500sq.ft
5 ☐ 501sq.ft or above

14. Monthly rent of your flat 1 ☐ $500 or below 2 ☐ $501 –1000
3 ☐ $1001 –1500 4 ☐ $1501 –2000
5 ☐ $2001 – 2500 6 ☐ $2501 or above

15. The monthly rent mentioned in Q.14 is

1 ☐ The original rent 2 ☐ 1.5 fold of the original rent 3 ☐ Double rent
4 ☐ The market rent

16. What do you think about the existing rent of your flat?
1 ☐ Very Expensive 2 ☐ Expensive 3 ☐ Reasonable
4 ☐ Cheap 5 ☐ Very cheap

17. The decoration cost during intake
1 ☐ $25000 or below 2 ☐ $25001 –50000 3 ☐ $50001 –75000

4 ☐ $75001 –100000 5 ☐ $100001 or above

18. Are you satisfied with your flat?
    1 ☐ Very Satisfactory 2 ☐ Satisfactory 3 ☐ Acceptable
    4 ☐ Unsatisfactory 5 ☐ Very Unsatisfactory

Part Three : Opinion about TPS

19. Are you determined to buy your flat?
    1 ☐ Yes (Please go to Q.20)
    2 ☐ Already bought (Please go to Q.20)
    3 ☐ No (Please go to Q.21)

20. The major three reasons for you to purchase PRH (In sequential order) (Please go to Q.22)

    1 ☐ Desire to own
    2 ☐ Autonomy
    3 ☐ Reasonable price
    4 ☐ Ideal financial arrangement
    5 ☐ Fear of paying extra-rent
    6 ☐ New estate
    7 ☐ Good traffic network
    8 ☐ Good environment & adequate facilities
    9 ☐ Good management
    10☐ Good physical condition
    11☐ Good neighbourhood
    12☐ Good location
    13☐ Habitation of living environment
    14☐ Avoidance of reporting family member every two years
    15☐ Avoidance of cumbersome housing policy (Mean Test)
    16☐ Fear of no inheritance
    17☐ Others

21. The major three reasons for you NOT to purchase PRH (In sequential order) (Please go to Q.29)

1 ☐ Unreasonably high price
2 ☐ Not affordable now
3 ☐ Unsuitable financial arrangement
4 ☐ Unsuitable transfer restriction
5 ☐ Dissatisfaction of slope maintenance expenses
6 ☐ Dissatisfaction of taking maintenance reserve as burden
7 ☐ Unable to afford in future
8 ☐ Estate too old
9 ☐ Poor traffic
10☐ Bad environment and inadequate facilities
11☐ Bad estate management
12☐ Poor physical quality
13☐ Anxiety of maintenance problem in future
14☐ Flat size too small
15☐ Not ideal orientation
16☐ Reasonable rent at present
17☐ Poor social network
18☐ No large difference between renting and purchasing the PRH
19☐ Others

22. If there had not been the TPS, would you buy HOS flat?

1 ☐ Yes, I would buy in a short run (within 3 years) (Please go to Q.23)
2 ☐ Yes, I would buy in a long run (after 3 years or more) (Please go to Q.24)
3 ☐ No, I would not buy both in the short run and the long run.(Please go to Q.25)

23. The major three reasons for you to buy HOS flat in a short run if there had not been the TPS. (In sequential order) (Please go to Q.26)

1 ☐ Desire to own
2 ☐ Enhancement of security and satisfaction
3 ☐ Autonomy
4 ☐ Asset appreciation
5 ☐ Enhancement of social status

6 ☐ Avoidance of no inheritance
7 ☐ Favourable loan scheme provision by HKHA
8 ☐ Mortgage cost approximately same as rent in the short run
9 ☐ Property price fall of HOS market in recent years
10☐ Others

24. The major three reasons for you to buy HOS flat in a long run if there had not been the TPS. (In sequential order) (Please go to Q.26)

1 ☐ Desire to own
2 ☐ Enhancement of security and satisfaction
3 ☐ Autonomy
4 ☐ Asset appreciation
5 ☐ Enhancement of social status
6 ☐ Avoidance of no inheritance
7 ☐ Favourable loan scheme provision by HKHA
8 ☐ Mortgage cost approximately same as rent in the long run
9 ☐ Stand-by of the present HOS market
10☐ Others

25. The major three reasons for you NOT to buy HOS flat both in the short run and the long run if there had not been the TPS. (In sequential order) (Please go to Q.26)

1 ☐ Unreasonably high price
2 ☐ Unwilling to change the consumption pattern
3 ☐ Not affordable now
4 ☐ Afraid of unaffordable in future
5 ☐ Mortgage cost for PRH greatly different from that of HOS flat
6 ☐ Habitation of living environment
7 ☐ Prediction of further property price fall of HOS market
8 ☐ Others

26. After the resale of PRH is permitted, will you buy HOS flat?

1 ☐ Yes, I will buy. (Please go to Q.27)
2 ☐ No, I will not buy. (Please go to Q.28)

27. With reference to Q.26, the major three reasons for you to buy HOS flat are (In sequential order) (Please go to Q.35)

1 ☐ More value-added of purchasing HOS flat than that of PRH
2 ☐ More upgrading the social status of purchasing HOS flat than that of PRH
3 ☐ Better living environment and adequate facilities of HOS flat
4 ☐ Better physical quality of HOS flat
5 ☐ Better estate management of HOS flat
6 ☐ Others

28. With reference to Q.26, the major three reasons for you NOT to buy HOS flat are (In sequential order) (Please go to Q.35)

1 ☐ Less attraction of buying HOS flat due to the TPS
2 ☐ Adequate satisfaction in self-purchase
3 ☐ Unreasonably high price
4 ☐ Unwilling to change the consumption pattern
5 ☐ Not affordable now
6 ☐ Afraid of unaffordable in future
7 ☐ Unsuitable installment and mortgage mode
8 ☐ Habitation of living environment
9 ☐ Prediction of further property price fall of HOS market
10☐ Others

29. Have you applied HOS from 1994 to 1998?

1 ☐ Yes (Please go to Q.30) 2 ☐ No (Please go to Q.31)

30. The major three reasons for APPLYING to buy HOS. (In sequential order) (Please go to Q.32) (In sequential order) (Please go to Q.26)

1 ☐ Desire to own
2 ☐ Enhancement of security and satisfaction
3 ☐ Autonomy
4 ☐ Asset appreciation
5 ☐ Enhancement of social status
6 ☐ Avoidance of no inheritance

7 ☐ Favourable loan scheme provision by HKHA
8 ☐ Mortgage cost approximately same as rent
9 ☐ Property price fall of HOS market in recent years
10☐ Others

31. The major three reasons for NOT APPLYING to buy HOS flat are (In sequential order) (Please go to Q.32)

1 ☐ Less attraction of buying HOS flat due to the TPS
2 ☐ No potential of asset appreciation of HOS flat
3 ☐ Unreasonably high price
4 ☐ Unwilling to change the consumption pattern
5 ☐ Not affordable now
6 ☐ Afraid of unaffordable in future
7 ☐ Mortgage cost for PRH greatly different from that of HOS flat
8 ☐ Habitation of living environment
9 ☐ Prediction of further property price fall of HOS market
10☐ Others

32. Have you applied HOS since the implementation of TPS in 1998?

1 ☐ Yes (Please go to Q.33) 2 ☐ No (Please go to Q.34)

33. The major three reasons for APPLYING to buy HOS . (In sequential order)

1 ☐ Desire to own
2 ☐ Enhancement of security and satisfaction
3 ☐ Autonomy
4 ☐ Asset appreciation
5 ☐ Enhancement of social status
6 ☐ Avoidance of no inheritance
7 ☐ Favourable loan scheme provision by HKHA
8 ☐ Mortgage cost approximately same as rent
9 ☐ Property price fall of HOS market in recent years
10☐ Others

34. The major three reasons for NOT APPLYING to buy HOS flat are (In sequential order)

1 ☐ Less attraction of buying HOS flat due to the TPS
2 ☐ No potential of asset appreciation of HOS market
3 ☐ Unreasonably high price
4 ☐ Unwilling to change the consumption pattern
5 ☐ Not affordable now
6 ☐ Afraid of unaffordable in future
7 ☐ Mortgage cost for PRH greatly different from that of HOS flat
8 ☐ Habitation of living environment
9 ☐ Prediction of further property price fall of HOS market
10☐ Others

35. Overall, do you think that TPS is welcome to the public rental housing' s tenants?
1 ☐ Yes 2 ☐ No 3 ☐ No opinion

36. Do you think that TPS should be carried out more quickly?
1 ☐ Yes 2 ☐ No 3 ☐ No opinion

37 Do you think that TPS should be carried out in all public rental estates ?
1 ☐ Yes 2 ☐ No 3 ☐ No opinion

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