

**Pacific Rim Real Estate Society
Conference 2000**

Sydney, 23-27 January, 2000

**SELECTED EFFECTS OF PUBLIC POLICY ON PRIVATE RENTAL
HOUSING IN HONG KONG**

F. Pretorius*
A.R. La Grange**
K W Chau*

*Department of Real Estate and Construction
The University of Hong Kong

**Department of Public and Social Administration, City University of Hong Kong

ABSTRACT

In general, Hong Kong contributes two principal insights into the role of private rental housing in many economies. Firstly, although sharing an international trend towards a declining rental sector, Hong Kong's private rental sector has declined more severely over the last two-three decades than many other countries. This is despite the pivotal past role it played in housing Hong Kong's people, especially in meeting the housing needs of a massive inflow of migrants in the two decades after World War Two. The second insight is that a major reason for this decline may be attributed to government policy, although the Hong Kong Government has not been overtly hostile to the sector (as many governments elsewhere have been). This paper presents selected housing indicators to illustrate the recent performance of private housing in Hong Kong (both rental and owner-occupied); and a critical analysis of important aspects of the Government's housing policy. It is argued that fundamental causes of the decline in the private rental sector include the crowding out of the private rental sector by Hong Kong's large-scale public housing program; and secondly, distortion in the demand for (and price of) private housing as an investment good partly as a result of the Currency Board Arrangement that dominates monetary policy in Hong Kong. In general, it is proposed that it is a serious public policy failure to neglect the role of an efficient private rental housing sector as substitute tenure in facilitating price competition in housing services.

Keywords: Housing, Hong Kong, Private Rental Sector, User Cost of Housing Capital.

Contact Author: F Pretorius, HKU, Pokfulam Rd, HK. Email: fredpre@hkucc.hku.hk

SELECTED EFFECTS OF PUBLIC POLICY ON PRIVATE RENTAL HOUSING IN HONG KONG

F. Pretorius, A R La Grange and K W Chau

This paper on aspects of housing policy attempts to offer insights that are systemic rather than narrowly demarcated. We feel therefore that it is useful to state at an early stage the central concern of the paper; namely that it is economically irresponsible to systematically undermine the viability of one sector of the housing system in an economy through public policy preference, and still expect the market mechanism to function and achieve allocational efficiency in the distribution of a society's housing resources.

Although this may seem a fairly rational premise in itself, there is seldom a display of rationality in public policy-making when a socially and politically sensitive issue such as housing is at stake, and although to some extent understandable, housing policy in Hong Kong is no different. Also, this paper shows in at least one way how unintended effects of general economic policy may inadvertently affect particular sectors of an economy.

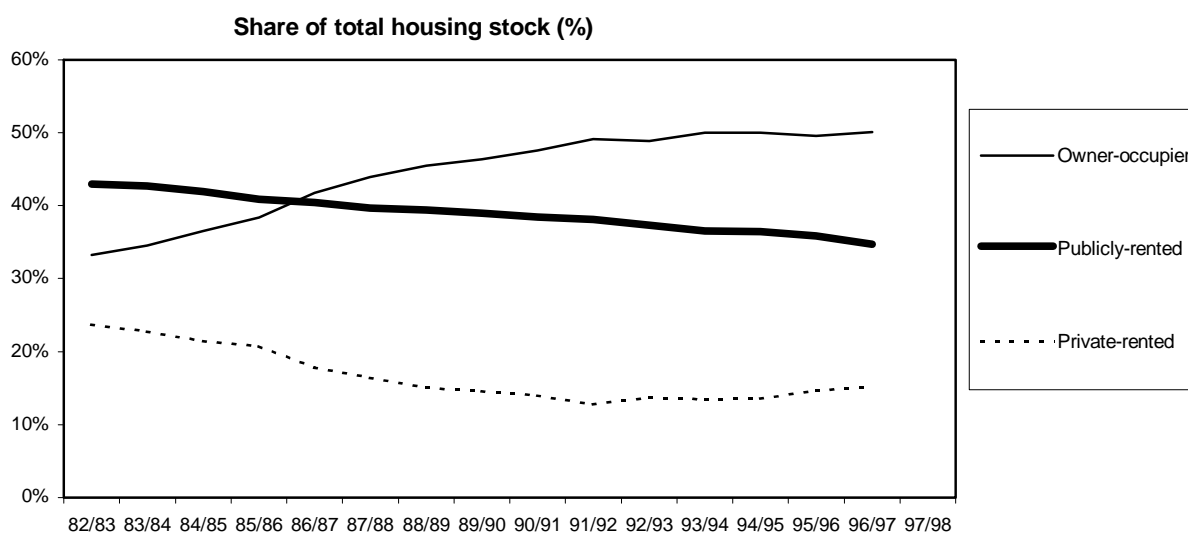
Housing policy in Hong Kong has been dominated for almost fifty years by a large-scale public housing program, consisting of both public rental housing and a program of publicly assisted home ownership. The government's current emphasis is on the vigorous promotion of home ownership, both private and publicly assisted. The increase in home ownership rates over the study period covered by our paper, generally 1982-97, has then also been impressive in both the public housing and private housing sector and overall. From 1982 to 1997, home ownership increased from 56 per cent to around 72 per cent of the private sector housing stock, a rate of increase of some 1.7% from an already high base; while in the public sector the rate of increase in ownership was a spectacular 16 per cent per annum, to 25 per cent (albeit from a low base). A combined view of both sectors indicates that the rate of home ownership expanded rapidly over the last fifteen years: while in 1983 about a third of the total housing stock was owner occupied, it had increased to half by 1997. Of note however is that the owner-occupied sector alone absorbed about 570,000 units over this period, about two thirds comprising private sector stock and one third comprising the public sector's "build-for-sale" stock. Much of this increase in home ownership, particularly in the private sector, also occurred in the face of severe affordability constraints which had to be accompanied by extraordinary household sacrifice. Hong Kong's present overall rate of home ownership also reflects the extent of

public rental housing, which, in spite of a large decline in its relative size, still comprises about a third of the housing stock (See Appendix A for an overall structural impression of Hong Kong's housing stock). It is expected that the present policy proposal to sell off 250,000 public housing units over ten years (more than a third of the total stock in 1997) will play a major role in increasing home ownership rates even further over the next decade.

A useful point of departure to commence an exploration of public policy and private housing in Hong Kong, including the private rental sector, is with a truncated reference to the international debate on housing tenure, because so much of the internal discourse on housing in Hong Kong is cast in terms of tenure ideology. This is to be seen against rising rates of home ownership internationally, often a direct consequence of public promotion of this tenure, and often so at the expense of the private rental sector in these jurisdictions. Home ownership is often presented as offering significant benefits compared to public or private rental housing, including households' acquisition of a valuable asset over time, security of tenure and exercise of greater personal choice in the housing they occupy. Governments too are perceived to enjoy practical benefits from promoting home ownership, particularly in jurisdictions with large public housing programs; including reduction in responsibility for the management and maintenance of public rental housing and better targeting of public resources. Although these are debatable concepts, a singular policy focus on home ownership nevertheless cannot be viewed without concern if it results in policy which has resource allocation implications which are tenure-biased, because this invariably has to lead to a distortion of the allocational mechanism in private market-based housing systems.

When emphasising the private sector only, the increase in the rate of home ownership in the private sector has necessarily been largely at the expense of the rental sector in Hong Kong, given the choice of two tenures in conventional housing systems. As will be explained, intervention in the housing sector, in particular policies favouring home ownership, and the general pace of economic development over the last two to three decades, have likely acted collectively to render the private residential rental sector in Hong Kong fragile; given also the substantial time required for adjustment to take place in the composition of housing stock in any economy. Figure 1 abstracts from Appendix A and relevant censuses and illustrates graphically the substantial decline of Hong Kong's private rental sector since 1971.

Figure 1: Changes in Housing Tenure in Hong Kong, 1971-1997



Source : Housing Authority Administrative Records.

The purpose of this paper is to review selected aspects of housing policy in Hong Kong, and expand in particular on how housing policy has been unintentionally detrimental towards the private rental sector. Its ambitions are modest, in part because so little has been written about private rental housing in Hong Kong, and there is relatively little data and analysis to draw on. This is a consequence of the small size of the sector, as well as the concentration of academic and political attention on the other major sectors namely public renting and home ownership. Therefore we view it as an exploratory analysis only. The paper is ordered into three principal sections. This introduction is followed by a brief review of housing policy in Hong Kong, with emphasis on home ownership as preferred tenure, and raises questions about the ability of the sector to perform its economic function adequately. We then present a brief assessment of the economic performance of private rental housing in Hong Kong; and thereafter we offer reasons for the decline of the rental sector. A brief conclusion speculates on the nature of the problems policy-makers face in addressing private housing in general, including the rental sector.

1. ONTOLOGY RHETORIC AND OFFICIAL PROMOTION OF HOME OWNERSHIP AS PREFERRED TENURE

As stated, although Hong Kong is well known for the large scale provision of public housing, the government's current emphasis is on the vigorous promotion of home ownership, premised on an express belief in home ownership as the innately preferred household tenure – the so-called “ontological” explanation for household tenure decisions. Whereas an analysis of market and ontological explanations of tenure decisions is important for the international housing debate, the opposing considerations of affordability and preferences with that of ontological motives, together with the role of housing policy in tenure decisions, is fundamental to Hong Kong's internal housing debate. The nature of the debate is, in many respects, counterintuitive, given the market orientation of much of public policy debate in Hong Kong, as well as the market orientation of Hong Kong's psyche, particularly pertaining to attitudes to real estate. It is perhaps even more counterintuitive when it is considered that a principal housing policy focus is the vigorous promotion of home ownership, legitimised by rhetoric based on an explicit belief in the ontology of home ownership. The nature of arguments that propose an ontological desire for home ownership in Hong Kong are supported by frequent statements such as:

“The Government's goal is to encourage home ownership in the community. Home ownership helps to foster social stability and a sense of belonging, and to provide personal financial security” (Housing Branch, 1997: ix).

“... there are good policy reasons to increase the home ownership rate within the public sector such as social anchorage, a greater sense of belonging, less management commitment etc” (Hong Kong Housing Authority, 1993:27).

These statements are typical of politicians' and government officials' public vocabulary in housing policy matters for at least the last decade, but also commonly enter general social discourse. There are however also ideological, political, financial and other dimensions to the Hong Kong Government's concern to increase rates of home ownership (see La Grange, 1998), including concern for high rates of emigration from Hong Kong in the run-up to its return to China in 1997. Thus promoting home ownership is premised on an explicit belief by the Hong Kong Government (both past and present) in the ontology of home ownership: not only is home ownership regarded as the intrinsically preferred tenure of Hong Kong people, but ownership is seen to play a crucial role in anchoring Hong Kong's population to their home by increasing their sense of social belonging to the city, given its uncertain political climate.

Where Hong Kong's public figures have pronounced the desirability of home ownership and there has been substantial success with publicly assisted home ownership programs (see La Grange and Pretorius, 1999); in the private sector the Hong Kong Government has thus far not implemented active direct housing policy which is tenure-biased (despite the rhetoric).¹ This contrasts with many countries' tenure-biased housing policies, often in favour of the home ownership sector. This includes, for example, provision of mortgage interest tax relief, discounts on the sale of social housing, capital grants or low interest loans to producers or consumers of owner occupied housing, and regulations that restrict the normal functioning of the private rental sector through distortion of property rights. Frequently cited examples of tenure-biased housing policy are Britain, Singapore, the USA and Australia, where policies are clearly geared to promoting home ownership (Forrest and Murie, 1988; Pickvance, 1994; Hays, 1994. In essence tenure-biased housing policy functions to limit household choice by limiting the availability of viable housing substitutes, for example, by reducing the rental sector to inefficient levels and inevitable subsequent distortion of home ownership affordability in a number of different ways. A lack of substitutes then might render tenure-biased housing policy a self-fulfilling prophesy, but at a theoretical level it must be pointed out that tenure-biased housing policy fundamentally acts to distort market mechanisms, and may be viewed as philosophically anti-market.

The emphasis of housing policy in Hong Kong on home ownership is possibly best exemplified in the Long Term Housing Strategy (1987) which provides the framework for the territory's public housing policies up to 2001 (for comprehensive reviews of housing policy in Hong Kong and its development, see Wong, 1998; Castells, Goh and Kwok, 1990; Smart, 1992). Apart from aims to foster social stability and sense of belonging to Hong Kong by securing better conditions for the needy, one of its fundamental principles is to maximize the opportunity for home purchase, which is a recurring theme in the government's policy documents. The Hong Kong Government has thus been informally committed to expanding home ownership since the mid-1970s, and formally for at least the decade 1987-97.² Implementation of housing tenure preferences reflect very strongly in assumptions about housing tenure preferences in the way housing

¹ Home ownership incentives through taxation benefits aimed at private sector buyers in 1998-9 are more accurately categorised as temporary efforts to generate activity in the housing market during the Asian Financial Crisis.

² The commitment to expand home ownership reaffirmed by the new Chief Executive in his inaugural speech after the establishment of the Hong Kong Special Administrative Region (SAR), in which it was proposed to expand further home ownership from 52 to 70 percent of the housing stock between 1997 and 2007.

demand is formulated and expressed in the LTHS. A quite mechanistic relationship between household income and families' aspirations for home ownership was assumed: home ownership is envisaged to increase in line with the Territory's growing affluence, despite at best neutral international evidence to support this view (see Malpezzi and Mayo, 1997), and at worst that observed correlation may be confused with causation. For example, in estimating the demand for housing in different tenures, household income was used almost as the sole criterion to reflect tenure assumed preferences. Households with incomes below the income eligibility limit for public rental housing were perceived to comprise demand for this tenure, while households with incomes between the income eligibility limit for public rental housing and the limit for assisted home ownership comprised demand for assisted home ownership, and those with incomes above the latter income limit would meet their housing needs without government assistance. In general, the provision of public rental housing at scale has been based primarily on social rents without direct consideration of private rental market dynamics; nor any interest in or consideration of its effect on the private rental sector. No specific role was assigned to private renting (a continuing principle), indeed, one of the LTHS's underlying assumptions appears to be the virtual disappearance of the private rental sector. A generous analysis may attribute this to oversight, but with a policy statement of such far-reaching importance it is reasonable to conclude that the risk of damaging market processes through policy-bias may have been clearly weighed and accepted.

Against the policy activism surrounding the public housing sector, the limited attention given to the private rental sector is striking – it seems that attitudes to housing in Hong Kong have been transformed from the need for public sector domination to domination by a stated preference for a particular tenure form, namely home ownership. At the same time, behaviour in the private housing market clearly favoured ownership over renting, evidenced by the significant increase in home ownership rates illustrated in Figure 1. The desirability of an efficient private rental sector as a necessary economic substitute to home ownership in the meantime did not seem to feature in policy making in this most market oriented economy. Independently of speculation if this was induced by the continuous publicly stated preference for this tenure, we thus came to question the private rental sector's ability to perform efficiently, given its systematic decline and official hostility to this tenure. We therefore prepared a number of performance indicators to test the case generally, and report on these indicators in the next section.

2. BACKGROUND TO THE PRIVATE RENTAL SECTOR; AND SELECTED POTENTIAL CAUSES OF THE DECLINE OF THE PRIVATE RENTAL SECTOR.

Although the early historical trends of private sector housing in Hong Kong are documented fairly comprehensively, unfortunately details are frustratingly scarce up to around 1970 – possibly as a consequence of the turbulent nature of the times and opaqueness in details which is inevitable with the large proportions of tenement dwellers and squatters. Only when the private rental sector started to formalize to a significant extent into self-contained flats around the early to mid-1970s did an impression of the sector that facilitated empirical analysis emerge, and only for the last two decades has it been possible to conduct any analyses with data that is somewhat representative.

While the private rental sector and squatting played an immensely important role in housing into the 1970s and as recently as the early 1980s, since then housing in Hong Kong is characterized by the systematic decline in the proportion of private rental housing as a component of housing stock. Appendix A provides summary statistics of growth of the housing stock and changes in tenure profiles from 1982 onwards, and illustrates the size of the public housing sector in Hong Kong (around 50 percent), as well as trends to home ownership and the decline of the private rental sector over the reported period. The extent of the decline of the private rental sector is even more apparent when considered in the context of the overall increase in housing stock in Hong Kong over the same period. While the total number of private sector flats increased by nearly 60 percent, the *absolute* number of private rental flats declined by 10 percent.

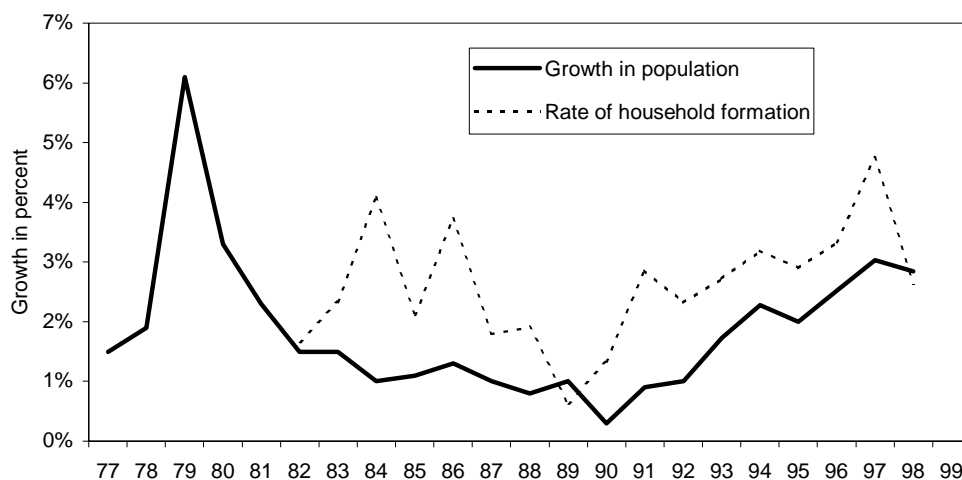
Whereas aggregate population expansion and growth in income over the last two to three decades give some indication of the pressures on housing since formalization, it does not reflect the importance of household formation on the demand for housing services that were associated with the increases in household wealth. Over the period the rate of household formation has exceeded total population growth, primarily due to the large proportion of the population in the age group of natural household formation (i.e. between 25-44 years old) and the shrinking of household size (see Figures 2 and 3; see also Renaud, et al, 1997). The supply of private housing grew slightly more slowly than household formation, at 4.8 percent during the same period, while the public housing stock expanded at 4.9 percent (see Appendix A). During the period 1990-1994, there was an additional increase in the demand for housing services from returning migrants. In all, there was a general shortfall in the supply of private sector housing; in particular stock that satisfied modern tastes, as the pace of development of new stock and redevelopment of obsolete stock simply could not satisfy the demands of a newly affluent society (see

Renaud, et al., 1997). With changes in household wealth and tastes, old housing stock is simply not marketable.

Against these trends, we present also some general characteristics of the composition of the private rental sector. It generally accommodates four categories of tenants. The first broadly comprises wealthy households living in large and costly residences. It may be argued that a large proportion of this category consists of transient expatriate families living in Hong Kong for a number of years. The remaining categories provide a more complex analytical problem, because they are principally defined by standards developed to determine access to public housing. The second category is colloquially referred to as the "sandwich class", i.e. households that are able to afford to rent privately, but have incomes that exceed the cutoff limit for access to publicly assisted home ownership.³ The third category comprises households that are also able to afford to rent privately but are eligible and often queuing for publicly assisted home ownership. The final category would generally comprise low income households living in very poor quality private rental

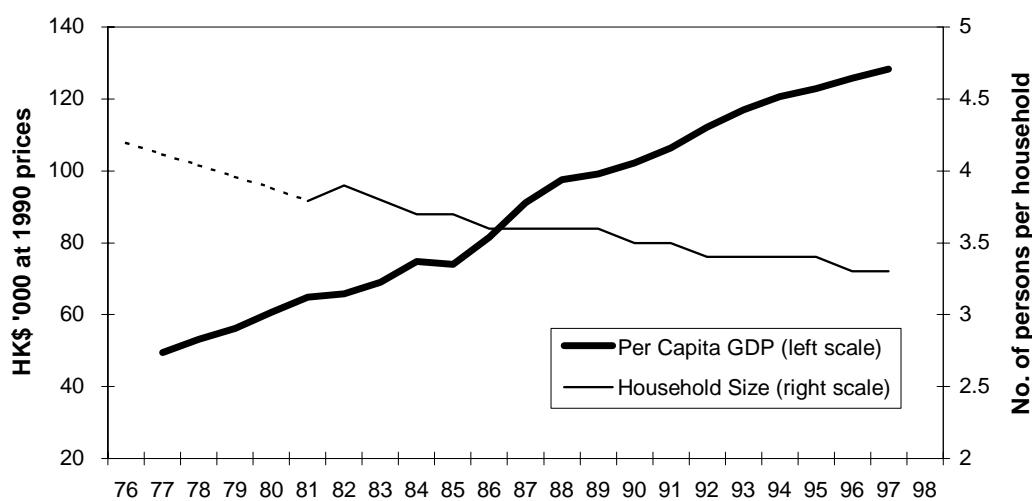
³ It is instructive to indicate the absolute level of household income below which households qualify to become assisted home owners in Hong Kong: in 1998, households earning less than US\$4,200 per month qualified for assistance. This benchmark is difficult to interpret in an internationally comparative sense but some perspective of scale is provided by an estimated household income of around US\$5-7000 per month to afford a typical 70% mortgage on a typical modern home in the private sector with no assistance, in early 1997. Households falling between these categories are the "sandwich class" - too wealthy to qualify for public rental accommodation or for publicly assisted home ownership, yet not wealthy enough to become private sector home owners. Although in 1998 the "sandwich class" was defined as private tenant households with incomes between US\$4,200 and US\$8,500 per month, the Asian Financial Crisis and a sharp decline in residential property prices (around 40%) has reduced substantially the impact of the income constraint to private sector home ownership.

Figure 2: Growth in Population and Rate of Household Formation



Source : Hong Kong Annual Digest of Statistics; General Household Survey, Census and Statistics Department.

Figure 3: Growth in GDP and Rate of Household Formation



Source : Estimates of Gross Domestic Product; General Household Survey, Census and Statistics Department.

housing often while queuing for public rental housing, or households that are not eligible for public rental housing because they do not meet the minimum residence requirements (regulations applicable particularly to new immigrants from China).⁴

The specific economic characteristics of the last three categories of private rental tenants is that the majority of their constituents would almost certainly be better off in public housing - either as publicly assisted home owners, probably accompanied by an

⁴ There have been a number of (changing) eligibility criteria for public rental housing, of which the main ones are household income, length of residence in Hong Kong (at least seven years) and household size.

improvement in net disposable household income as a consequence of public assistance; or as public tenants, with either improved quality rental accommodation for comparable rental payments, or comparable quality rental accommodation at lower cost as a consequence of access to public rental accommodation. Either way, it may be argued that public housing would dominate these private tenants' utility preferences and consequently that they are private tenants by circumstance rather than choice.⁵ It may thus be concluded that the outcome of Hong Kong's huge and highly successful public housing programme may thus be a decrease in supply of private rental housing based on lower expected future demand, simply because households incentives are clearly skewed towards public housing; with the private sector thus marginalised as a major proportion of households queue for public housing. The economic effects of a rental market segmented into a free private sector and a price-controlled sector (the public rental sector in Hong Kong) are well known: the general outcome of this dynamic is higher equilibrium rental prices in the uncontrolled sector (see Fallis and Smith, 1984; Hubert, 1991).

Table 1 shows that in 1996 private tenants were roughly equally divided between the income quartiles. As expected, the crowding out of the private sector by the public sector is reflected in the decline in the number of poorer private tenants and a rise in the number of wealthier tenants between 1986 and 1996. This also demonstrates the effectiveness of the government policy of providing lower income private tenants with access to public rental housing.

It may thus be argued that large-scale access to good quality public rental housing at low rents and with security of tenure acted to crowd out private sector supply of rental housing particularly at the lower-household income range over time, and by undermining the private rental sector has thus not been tenure neutral. By undermining the private rental sector, it is expected that it should have simultaneously affected the private home ownership market by reducing the range and efficiency of private rental price and user cost of home ownership trade-offs generally available in the private housing market. It is nevertheless not complex to understand the appeal of public rental housing to the majority of households in Hong Kong, as the neglected private sector alternative to households that are waitlisted for public rental housing is generally more expensive and/or substandard and often physically dangerous.

⁵ Between 1988 and 1998, a period for which statistics are available, about a third of all private tenant households met the income eligibility requirements for public rental housing and between 25 to 30 percent met the income eligibility requirements for assisted home ownership.

Table 1: Household Income by Type of Tenure (1986-1996)

Quartile	Public Tenants		Assisted Home Owners		Private Home Owners		Private Tenants		Other	
	1986	1996	1986	1996	1986	1996	1986	1996	1986	1996
1st	23	33	8	14	22	19	35	27	31	24
2nd	32	31	18	25	19	20	25	24	16	17
3rd	29	24	38	34	24	25	20	22	19	22
4th	17	11	36	26	36	37	19	27	34	37
Total	100	100	100	100	100	100	100	100	100	100

Note: In 1997 there were about 275,000 private tenant households in Hong Kong.

Source: Hong Kong Population By-Census, 1986 and 1996. Median household income in 1996 was about US\$1,230 per month.

Affordability of Rental Housing

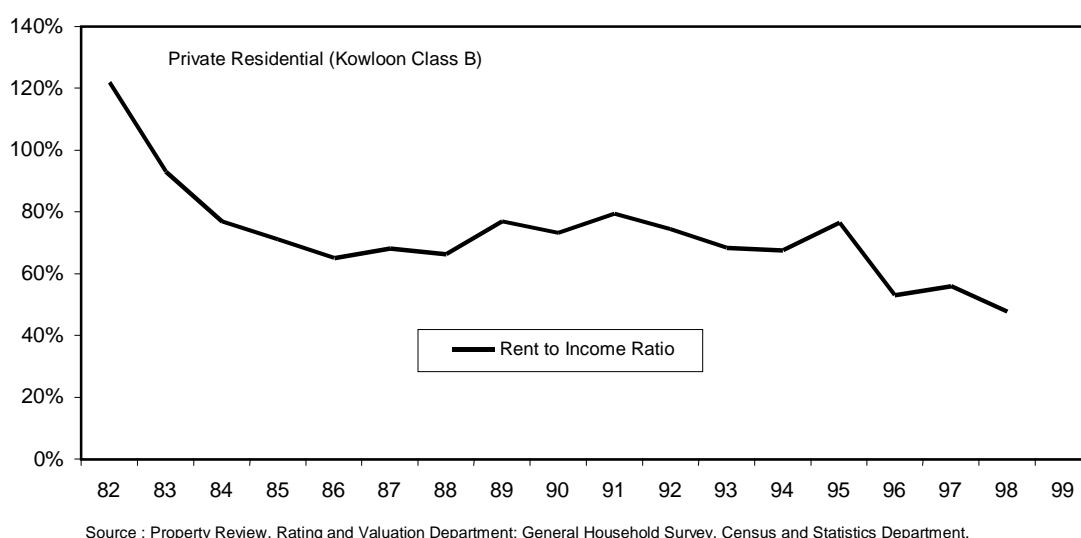
Hong Kong is generally regarded as having some of the highest real estate prices in the world. In absolute terms, with typical private sector rentals ranging from around US\$1,000 to US\$2,500 per month in 1997 for a small unit of between 40-70m² (in the urban areas), it certainly seems that the cost of private rental accommodation in Hong Kong remains high by world standards.⁶ However, high absolute rents alone are an insufficient indicator of rental affordability. A popular heuristic suggests that rent-to-income ratios of around 25-40 percent are seen to reflect a well-functioning private rental market, and against this heuristic suggests that private residential rentals in Hong Kong are indeed high by international standards.⁷ In spite of this heuristic and popular perceptions of substantially increased rentals in the private sector over the last fifteen years, rent to income ratios in the private sector have actually remained relatively stable between 1984 and 1997 at around 50-60 percent (see Figure 4). Nominal rent increases have reflected changes in Hong Kong's per capita GDP over this period, rather than a deterioration in the functioning of the rental market as may be expected following the shrinking proportion of rental housing (Renaud et al, 1997). Although high, observed RIRs also do not indicate a deterioration in the affordability of private housing services,

⁶ The same properties trade at around US\$200,000 to US\$350,000, with well-located properties in sought-after developments typically selling at about US\$400,000. These prices represent around 60 percent of ruling prices prior to the onset of the Asian financial crisis in 1997.

⁷ We follow in spirit the definition of Rent-To-Income Ratio (RIR) offered by the World Bank as a measure of rental housing affordability, namely RIR = median rent/median annual household income. However, whereas statistics on median household income is available, we have substituted *average* private residential rents in Kowloon, the largest concentration of residential land use in Hong Kong, for median rent. Statistics on private rents in Hong Kong are too fragmented to estimate a representative median rent, and generally such an estimate would be further complicated by the large public rental sector.

and by implication housing services consumption. This high absolute RIR provides some support for the theoretical claim made earlier that a perverse effect of Hong Kong public housing has been to distort private rents upwards. By comparison there has been substantial growth in private sector house prices over this period, particularly after 1991, even after considering price declines of some 40 percent after the onset of the Asian financial crisis in July 1997 - which we shall return to in the discussion of reasons for the demise of the rental sector.⁸

Figure 4: Rent-to-Income Ratio in Hong Kong

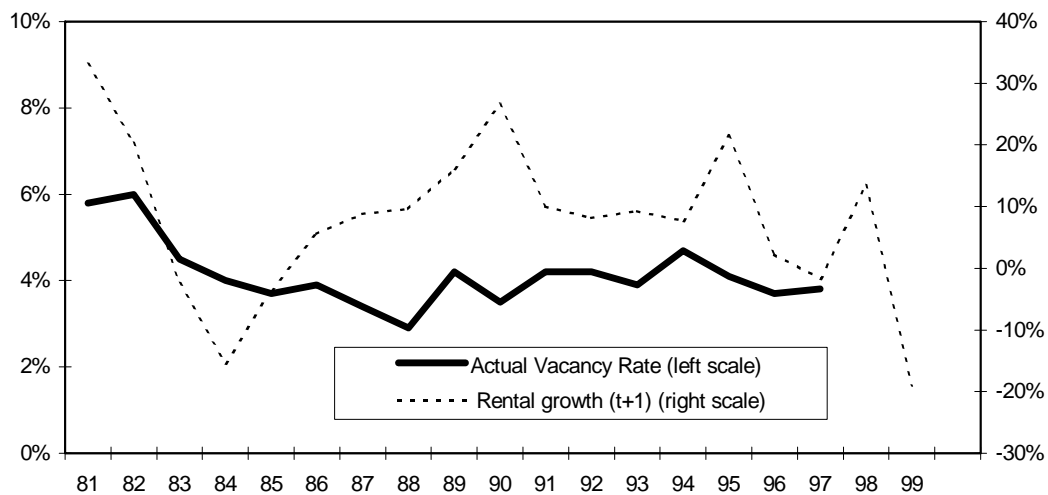


Efficiency in the Private Rental Sector Adjustment Mechanism

In order to provide further insight into the economic performance of the private rental sector, we review how private rentals have behaved in Hong Kong in response to changes in demand over the last fifteen years, using the familiar concept of “natural vacancy rate” (Rosen and Smith, 1983). The natural vacancy rate theory holds that rents will adjust to

⁸ It is important to point out also that comparative RIRs between countries do not provide a complete context for assessment of comparative affordability. For example, low personal taxation rates in an economy would suggest that after-tax disposable household income is a better numerator to measure RIR than before-tax household income. Ideally the measure should be after-tax, which of course introduces the complication that in many economies it is complex to generalise unique tax positions that many households have for comparative purposes. With respect to household incomes in Hong Kong, it has to be pointed out that a maximum total personal income tax rate of 15 percent (with some 60 percent of households exempt from income tax altogether) renders Hong Kong households in a substantially better off position when after tax disposable income is considered the appropriate measure of household purchasing power. Comparatively, a Hong Kong household is not much worse off than a household elsewhere that pays a 40 percent personal income tax rate and with an RIR of around 35 percent.

changing market conditions according to the deviation of the observed vacancy rate from the underlying natural vacancy rate that is estimable but not directly observable⁹. It turns out that rents in Hong Kong are very responsive to changing market conditions and to the deviation of observed vacancy rates from the underlying “natural” vacancy rate, and the aggregate vacancy rate model gives a good account of the year-to-year rates of rent changes. Figure 5 matches the actual year to year increases in aggregate market rent (rent in year t) with the deviation of the actual vacancy rate from the underlying natural rate the preceding year (vacancy rate in year $t-1$). The evidence shows that the Hong Kong housing rental market clears very quickly and that rents are very flexible upwards as well



Source : Property Review, Rating and Valuation Department.

Figure 5: Observed Vacancy Rate, Natural Vacancy Rate and Rent Response

as downwards, but is also subject to substantial short-term volatility. Following Renaud et al (1997) such rent volatility could be attributed to two factors: firstly, the overall GDP volatility; and secondly, crowding out of private housing by the public housing sector and the relative decline of the private rental sector (commented on above). From an institutional point of view, we also view an important contributing factor to rapid

⁹ According to the natural vacancy rate theory, the rate of change of rents is expected to be proportional to the gap between the natural and the observed vacancy rate during the previous pricing period (i.e. during $t-1$). It can be described simply by the following equation: $dR/R = \alpha (V_n - V_{t-1})$. dR/R represents the change in rents (R), α represents a constant estimated from market data, and V represents the vacancy rate in different periods. Tse (1994) tested various formulations of this basic rent adjustment model for Hong Kong, and estimated the overall market natural vacancy rate to be 4.2 percent and α to be 7.2. The adjustment factor $\alpha = 7.2$ indicates that rents will rise by a factor of seven when the gap between the *observed* vacancy rate and the *underlying natural* vacancy rate

adjustment in rental in Hong Kong the custom of relatively short residential lease contracts, a response to legislation that increases tenants' rights if leases are longer than three years.

In sum, the private rental sector in Hong Kong seems to function reasonably well, despite its declining size and being crowded out by the public sector. Rental levels, although high, have not been deteriorating, and the sector appears to adjust efficiently to changes in demand. However, the declining share of private rental housing in the overall composition of housing stock, and the negative influence it appears to have overall, continues to feature prominently in analyses. It is therefore informative to put forward a brief review of the principal causes for the decline of the private rental sector.

3. SPECULATION ON CAUSES FOR THE DECLINE OF THE RENTAL SECTOR

In the introduction we illustrated graphically the systematic decline of Hong Kong's private rental sector since 1971. Following the above general review of the rental sector's performance, and although there are undoubtedly several plausible reasons to explain this phenomenon, in this section we propose to explore only two phenomena that may help to explain the systematic decline of the private rental sector. Firstly, the impact of government policy which functions directly to undermine the rental sector is considered; and secondly, the impressive returns to home ownership in the private sector over the last fifteen years is presented as a causal factor in the overall demand for private sector home ownership, as opposed to renting as an alternative tenure choice.

Impact of Public Housing Policy

Public policy has had a major impact on the private rental sector in several respects. Part of this impact is historically the attitude of government to the private sector generally, but the vast scale on which government has provided rental housing and assisted home ownership has siphoned people away from the private rental sector specifically has contributed much to the decline of the rental sector. The organizing principles of the government's privatization strategy and ideology of home ownership also has contributed substantially to neglect of the private rental sector as a viable substitute to home ownership (private or assisted).

deteriorates by one percent.

Historically the private sector was exclusively responsible for housing Hong Kong's population, but events after World War II brought about various circumstances which changed the state of affairs. Hong Kong's population grew rapidly after World War II as a consequence of migration from China, and a serious housing shortage soon emerged. The main focus of the public housing program in the early decades was on clearing squatter settlements and moving their populations to resettlement estates, which provided extremely rudimentary but affordable housing, and could be erected at great speed. Between 1954 and 1969 more than a million squatters were resettled in these resettlement estates. From the 1960s the government also began to provide public rental housing for lower-middle income families living in overcrowded and sub-standard conditions in the private sector. Public rental housing was only available to means-tested private tenants who met the eligibility criteria for re-housing – with minor exceptions home owners have never been eligible for public housing.¹⁰

In the mid-1970s the Housing Authority also began to provide build-for-sale units to means-tested families renting in the private sector, and better-off public rental tenants. A large proportion of private tenants have progressively become eligible for either public rental housing or assisted home ownership - between the late 1980s and late 1990s about a third of private tenant households met the income eligibility requirements for public rental housing, and about a quarter met the income eligibility requirements for publicly assisted home ownership (La Grange, 1997).¹¹ Thus the waiting list for public housing expanded over the last decade, primarily a consequence of an expansion of the number of eligible families. Between 1987 and 1997 the income eligibility limits for public rental housing and assisted home ownership expanded significantly faster than the Consumer Price Index (CPI), and faster than the Wages Index (La Grange, 1998).¹² Further, the relatively good quality of public housing, government commitment to the construction programme, heavily subsidized rents/prices and security of tenure of sitting public tenants has meant that eligible families have sought to transfer from private to public renting, and also from private renting to assisted home ownership when the opportunity has presented itself.

¹⁰ In principle home owners are not eligible for public housing, irrespective of the income of owner occupiers or the quality of their housing.

¹¹ Not all but a vast majority of these households would have been eligible for public housing – a reminder is offered that income is only one of several eligibility requirements for public housing.

¹² Private sector rents and prices expanded faster than the CPI and Wages Index, and explains the level at which the income eligibility limits were set. The point here is to highlight that more and more private tenants have become eligible for either public rental housing or assisted home ownership over

This policy of providing large scale public rental housing and assisted home ownership, in particular the latter, has shown little signs of changing with Hong Kong's political integration with China in 1997. The incoming Government confirmed its commitment to continuing to produce public rental housing and massively expanding access to assisted home ownership. Indeed, one of the three housing targets of the new government is to reduce the queuing period for public rental housing to two years.¹³¹⁴ In all, the public housing program has built up formidable inertia, not least because of its scale and the number of affected households – in addition to creating social conditions which may have lead to behaviour accepting public housing benefits as a right or entitlement. This continues to bode ill for the private rental sector, as the large subsidised public rental sector continues to undermine the sector.

Returns to Ownership of Private Housing and Influence of the Hong Kong Currency Board Arrangement¹⁵

As stated earlier, despite the Government's vigorous promotion of home ownership as the preferred tenure in Hong Kong, it did not implement any large-scale direct active tenure-biased policy initiatives to induce households into home ownership in the private sector. Yet, as if acting out the Government's encouragement to become home owners, and as is evident from Appendix A and Figure 1, rates of home ownership in the private sector have risen rapidly from a relatively high base of 57 percent in 1983 to 72 percent in 1997. This occurred simultaneously with increasing affordability constraints, as Price to Income Ratios (PIRs) for private residential housing in Hong Kong increased from around five to approximately fifteen between 1984 and 1997 (see Figure 7), against a common heuristic that a PIR of 4-6 indicates a reasonably well-functioning market for home ownership. Hong Kong would also appear to be contrary to many cases where families have bought homes in order to improve the quality of their housing. Instead the price that most families have paid for home ownership is very high density living, and extraordinarily small flats. Considering the consumption/ investment duality of home ownership, in Hong Kong housing consumption has arguably not been the first priority, while investment motives may well have been.

the period.

¹³ Moreover, a 1998 White Paper confirmed that over the next decade the majority of Hong Kong's new housing stock would be provided by the public sector – between 1997/98 and 2006/07 57 percent (45,700 per annum) would be provided by the public sector and 43 percent (34,300 per annum) by the private sector.

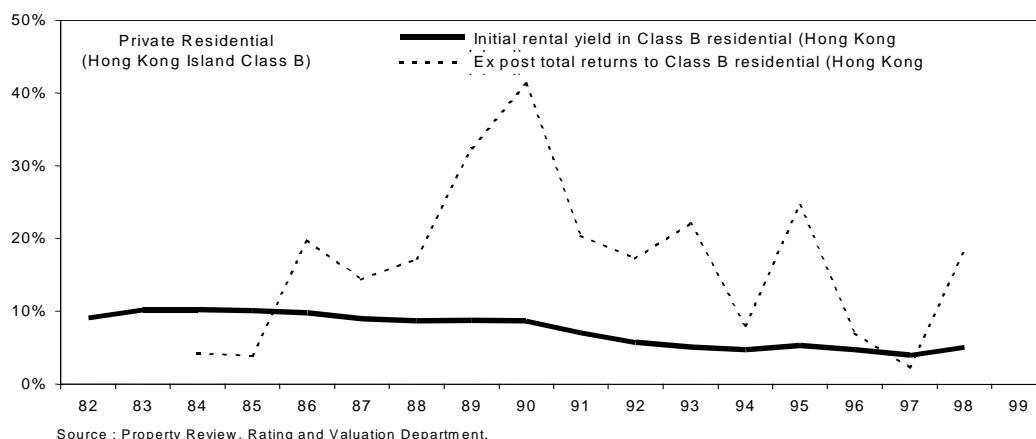
¹⁴ The policy papers do not specify what proportion of public sector output would be rental housing and what proportion assisted home ownership.

¹⁵ This section draws on Renaud, Pretorius and Pasadilla, 1997.

It is proposed that two factors help to explain these high rates of home ownership, both financial: high returns to residential ownership, as an investment characteristic (demand factors); and low (and often negative) User Cost of Housing Capital (UCHC) over extended periods for most of the last decade, as a financing characteristic. We further speculate that low UCHC may in fact have been a central causal factor of the high demand for owner-occupation, as it presented the opportunity to benefit from expected capital appreciation caused by it - thus, it appears conditions resembling a positive feedback loop existed. Moreover, the structural conditions exist for this to be a recurrent problem.

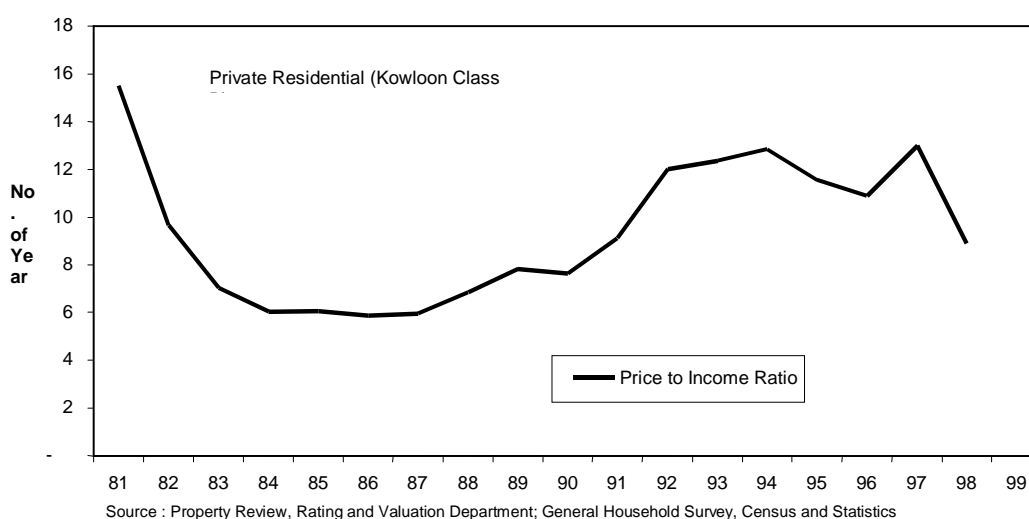
A high demand for home ownership is an entirely predictable phenomenon, given the performance of returns to home ownership in Hong Kong since the early 1980s. When viewed as an investment good, total returns to investment in residential real estate averaged about 20% annually for most of the period 1980 to 1997 in Hong Kong (with brief discontinuities, including price declines following the Asian Financial Crisis in 1997) (see Figure 6). These are total one-year returns from owning residential real estate as an investment good without debt; consequently leveraged returns would have been

Figure 6: Total Ex-post Returns to Home Ownership 1982-1998



substantially higher. From these figures it is clear that owning residential real estate either as owner-occupier or investor yielded excellent returns over this period, and this could certainly contribute substantially to an explanation for the preference for private home ownership.¹⁶

Figure 7: House Price to Income Ratio – Private Sector



Exogenous factors contributed to reinforcing high demand for home ownership, and may indeed be viewed as an independent causal factor of high demand. When we focus analysis on user cost of housing capital (UCHC), a standard financial measure used in attempts to explain tenure choice (see Pozdena, 1988, Miles 1994), a preference for home ownership financed with the maximum possible debt appears an entirely rational response to environmental factors in Hong Kong. As will be elaborated upon hereunder, UCHC is directly dependent on the level of interest rates in an economy at any time; and in order to understand the behavior of interest rates and its effect on the user cost of housing capital and thus real estate prices in Hong Kong, it is essential to understand Hong Kong's exchange rate regime, the Currency Board Arrangement (CBA).

The Currency Board Arrangement is the anchor of Hong Kong's open economy and its single most important macroeconomic instrument (see Renaud, et al, 1997).¹⁷ This monetary

¹⁶ Other social influences are relevant also, of course. Lee (1994) has put forward the additional view that the strong preference for home ownership, in spite of major affordability constraints, is also closely related to many households retirement strategy - in effect home ownership is a favoured vehicle for retirement saving, and, with such attractive returns, high home ownership rates are entirely understandable.

¹⁷ Jao (1993) stressed at the time of the creation of the Hong Kong Monetary Authority in April 1993 that in modern monetary policy there are three main tools for monetary stability: exchange rate stability, domestic interest rate policy, and the control of monetary aggregates. Only one of these

mechanism influences every aspect of economic life including real estate and other non-traded goods. Its continuation is central to the continuation of Hong Kong's economic system and its success. The HK\$ is fixed officially at around HK\$7.8 to the US\$, and through free currency trading and convertibility, interest and currency arbitrage between the Hong Kong and the US currencies the CBA functions to maintain the fixed exchange rate. Since October 1983 the CBA has provided Hong Kong with exchange rate stability (see Figure 4.6). The practical implication of the CBA is that as benchmark Hong Kong imports United States interest rate levels which are not necessarily appropriate to its domestic inflationary environment. Between 1988 and 1994 inflation in Hong Kong remained consistently below the banks' Best Lending Rate (prime rate), implying large negative real deposit rates.

In order to identify the mechanism whereby the CBA and interest rates contribute to the decline of the private rental sector, it is necessary to review briefly the modern economic view of household tenure decisions. The general assumption underlying the ontology debate sketched above is that the market for housing services is segmented into two distinct groups, namely into a group that considers home ownership qualitatively different from renting (this is presented by Pozdena (1988:101) historically as the "conventional" view) and those that consider tenures to be substitutes under various circumstances that include household preferences. This suggests that renting and ownership are not substitutes in the acquisition of housing services, and consequently that rental prices and owner-occupant user costs can differ at a time. This view is generally discredited, and the modern paradigm does not distinguish qualitatively between tenures; but assumes that there is no intrinsic preference for a mode of tenure, given that housing unit can produce the same bundle of housing services to either a owner-occupant or a tenant in the absence of institutional inhibitions. Users of housing services thus have a tenure choice: owner-occupation or renting. In essence, this is the origin of the view that the decision to owner-occupy therefore combines both investment and consumption decisions. As could be expected, the tenure choice is dependent on the comparative cost of the options to consumers, assuming no other obstacles to market entry such as wealth or other constraints, and the user cost principle allows direct comparison of the cost to the household of renting versus buying. With all else equal, equilibrium in the housing market requires that the user cost of owner-occupation and the cost of renting be

alternative tools can be used at a time. As a small, open economy dependent on trade and international services Hong Kong decided that there is no alternative to an exclusive focus on external price stability, even at the cost of some demand driven domestic inflation in the non-traded good sectors such as real estate. Under this arrangement control over local money aggregates, interest rates and inflation rates is sacrificed for stability in exchange rates. The Hong Kong CBA is a modern adaptation of the currency board system in use during the colonial era in many countries, also exhibiting elements of a specie standard – which explains in large measure the deflationary pressures

equal (see Pozdena, 1988) which means that the periodized rental price and cost of purchase of the same housing unit should converge. In practice, of course, there is continuous adjustment in relative prices between the two options towards this equilibrium, and that institutional realities (such as differential tax rates) generally explains tenure distribution. It is also suggested that in many (if not most) markets high transaction costs also inhibit more active substitution of tenures at the margin (La Grange & Pretorius, 1999).

The housing user cost of capital, **UHC**, is therefore an important and most useful concept in explaining the effect of tenure choice on prices in housing markets, and, as is demonstrated below, provides crucial insights into housing price movements in Hong Kong particularly over the period of rapid price increases from 1990-1994. It proceeds from the premise that the demand for home ownership by a given household is a function of several factors: the UHC, the income of the households, its wealth and expected risk adjusted returns on other assets. UHC itself can be expressed analytically with various degrees of complexity because it is an adjusted interest rate experienced by a specific owner of a specific housing asset depending on his/her expectations, tax position and financing arrangements. Generally following Miles (1994), but writing the expression in nominal terms and allowing for differentially taxed capital gains and a proportional interest tax shield; an expanded expression for present -period user cost, UHC_t , is defined as

$$UHC_t = (P_t)[b_i i_{mt} \{ \alpha_t (1 - t_{yt}) + (1 - \alpha_t) \} + (1 - b_t) r_{it} + \tau_{pt} + \delta + \mu_t - h_t (1 - t_{ct})], \quad (1)$$

where

- UHC_t = User cost of housing at time t;
- P_t = The nominal price of houses;
- b_t = The proportion of the asset financed with mortgage debt;
- i_{mt} = The nominal rate of interest on mortgage debt;
- α_t = The proportion of mortgage interest deductible against income tax;
- t_{yt} = The rate of income tax;
- r_{it} = The nominal, post-tax return on alternative investments, i.e. the opportunity cost;
- τ_{pt} = The rate of property tax;
- μ_t = Maintenance and repair cost as a proportion of the value of the asset;
- h_t = The expected rate of increase in nominal house price;
- δ = The rate of physical depreciation of housing;
- t_{ct} = The rate of capital gains tax.

Assuming debt proportions, opportunity cost and other variables are constant over tenures; and crucially ignoring taxation for present purposes (facilitated by the extremely simple

in Hong Kong over the last two years.

taxation regime in Hong Kong which taxes only individual's income from salaries, exempts capital gains and also does not allow deduction of mortgage interest), it can be shown that the critical indicator of UCHC can simply be represented by $(i_{mt} - h_t)$. For present purposes, and following Renaud, et al. (1997), a simple reformulation of Equation 1 can be shown to be:

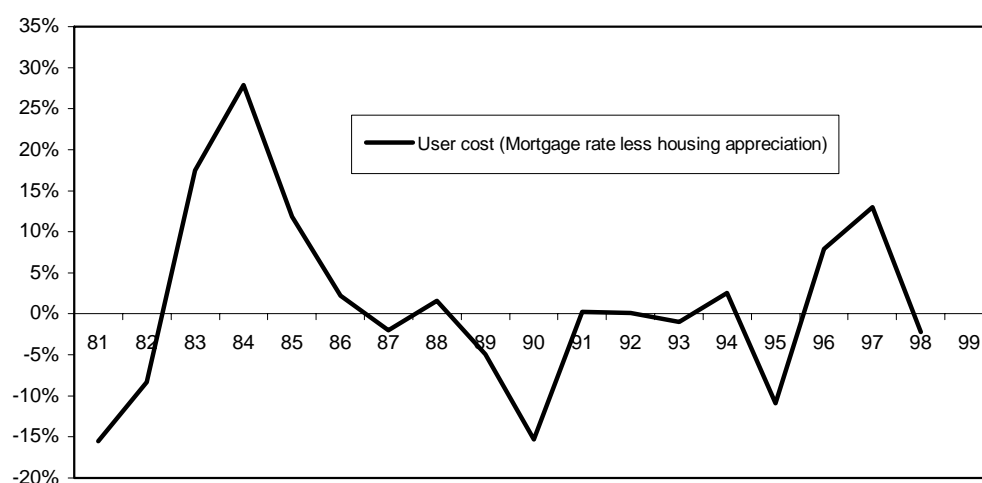
$$UCHC_t = P_t (i_{mt} - h_t) \quad (2)$$

where the user cost **UCHC** at time **t** is related to the cost of borrowing i_{mt} and the expected rate of housing appreciation h_t . For a given net user cost that is affordable to the household, the smaller the adjusted interest rate $(i_{mt} - h_t)$ the higher the price the household will be willing to pay for housing assets.

Following this approach, we constructed a simplified UCHC measure may be used to indicate actual user cost of home ownership over the period and what its impact on housing tenure preferences might have been. We estimated ex-post UCHC for Hong Kong based on actual (ex post) price increases and mortgage interest rates.¹⁸ Although the ex-post UCHC measure is therefore used as a retrospective view of UCHC in Hong Kong over the period of analysis. In order to provide an indication of what *actual* rather than *expected* UCHC over the last fifteen years were, Figure 8 illustrates how dramatically it has paid households over this period to own rather than to rent. For much of the decade ex post UCHC is negative, also as a consequence of negative real interest rates over much of the period, whereas renting is expected to have *actual* (multi-period) household expenditure implications.

¹⁸ Because UCHC principles are essentially derived from the familiar Gordon Shapiro Constant Growth Dividend Discount Model (see Sharpe, et al, 1995), and there is a mathematical requirement that $i > h$; it is necessary to draw attention to the fact that negative *ex ante* UCHC presents complex theoretical problems which may render the UCHC model theoretically not appropriate.

Figure 8: Simple Measure of Ex-post User Cost of Housing Capital , 1981-1995



Source : Property Review, Rating and Valuation Department.

These statistics illustrate the very attractive rewards for overcoming the constraints to affording home ownership over parts of the study period. Households have thus continued to find the necessary capital to buy, despite wealth constraints. If there indeed was competition between the demand for housing as a formal investment good for the purposes of generating rental income, on the one hand, and demand for owner occupation on the other, the resultant bidding apparently favoured owner-occupiers as the proportion of housing stock in the rental sector continued to decrease over this period.

Policy Implications

We have followed a rather tortuous route to arrive at the central issue of this paper. It may be argued that housing policy-makers in Hong Kong are faced with a number of critical choices. Some of these choices have been made, particularly *in principle* decisions that appear to suggest a privatised, marketised former public housing sector eventually leading to an integrated market is encouraged, but a program for implementation remains uncertain. The scale of public housing in Hong Kong is such that a normalised "market" where public housing aims to fulfil the role of social housing, is optimistically probably a decade away. It may be argued that policy preferences for a particular tenure form does not pose a problem, if it is assumed that the market for home ownership functions well, transaction costs are low, and people may be geographically mobile within the market for home ownership. Under such market circumstances owner-occupiers are expected to offer units for rent when UCHC/rental price tradeoff comparisons at the margin favour such decisions, and normal rates of vacancy occur to facilitate allocation according to preferences (location and otherwise). This proceeds

from the premise that there will always be a demand for rental housing as an essential component of an efficiently functioning housing system based on choice, competition and market principles, although the nature of the distribution of private rental tenants in Hong Kong appears to be structurally poorly diversified as a consequence of years of decline. Nevertheless, the government foresees eventual integration of the public and private housing sectors essentially through home ownership, but with no explicit role for the rental sector.

This leads to consideration of the Hong Kong CBA and its continued influence in the housing market. The policy dilemma that we consider is this: the nature of the Hong Kong financial system is intimately integrated with the CBA, with the consequent inability of monetary policy to influence monetary aggregates, interest rates and thus also inflation rates. This analysis suggests that low (and often negative) real UCHC may be a structural feature of the market for owner-occupation in Hong Kong as long as the CBA dominates monetary policy. While low (or negative) UCHC prevails, it generates demand for owner- occupation purposes and places upward pressure on prices, bounded only by wealth constraints and the capacity of the financial system. Technically, while UCHC is negative and expected to stay so, there is no theoretical upper bound if purchasers manage to secure 100% mortgages, as it pays to purchase at any cost (clearly an absurd situation). It may thus be considered a positive loop: as long as UCHC is low/negative, it pays to own; and as long as it does not cost to own it will sustain high demand. Thus with low/negative UCHC, prices are expected to continue to appreciate – price appreciation is rationally expected to be positive. As long as overall returns to home ownership exceed the opportunity cost, this circumstance will prevail. Such conditions are expected to continue to contribute to the decline of the private rental sector in all respects – an interesting, if economically inefficient prospect.

4. CONCLUSION

This paper offers two main reasons for the decline of the private rental sector. The first is the impact of government policy which functions directly to undermine the rental sector. On the simplest level, the government has provided massive public rental housing since the mid-1950's and relatively large scale assisted home ownership opportunities since the mid-1970's, which has siphoned people away from the private rental sector specifically. Moreover, the government's ideology of home ownership – namely its belief that home owners have a greater sense of social belonging and commitment to Hong Kong, and its view that rates of home ownership should rise with the city's growing affluence, has

fuelled the transfer of lower middle income families into the publicly-assisted owner occupied sector.

The second reason for the decline of the private rental sector is the impressive returns to home ownership over the last fifteen years. In spite of major affordability constraints, rates of private sector home ownership have expanded rapidly, and it is proposed that two factors help to explain this, both financial: high returns to residential ownership (demand factors) and low (and often negative) User Cost of Housing Capital over extended periods of time for most of the last decade, as a financing characteristic. Families have thus been willing to make quite extraordinary sacrifices to buy property, often involving a decline in housing consumption. Hong Kong contributes two principal insights to an understanding of private rental housing from a comparative perspective. The first is an obvious similarity – Hong Kong’s private rental sector, like many others, is declining, and is indeed arguably marginalized. The second similarity is that a major reason for this decline may be attributed to government policy, although the Hong Kong government has not been as overtly hostile to this sector as have governments been elsewhere. Nevertheless, no real role for the private rental sector seems to be envisaged in a housing delivery system moulded by policy preference for home ownership, rather than fostering of viable economic competition by facilitating also an efficient private rental sector.

REFERENCES

- Castells, M, Goh, L and Kwok, R Y W (1990) *The Shek Kip Mei Syndrome - Economic Development and Public Housing in Hong Kong and Singapore*, Pion, London.
- Fallis, George and Lawrence B. Smith (1984). "Uncontrolled Prices in a Controlled Market: The Case of Rent Controls", *American Economic Review*, march, pp. 193-200.
- Forrest, R & Murie, A, 1990, A Dissatisfied State? Consumer Preferences and Council Housing in Britain, *Urban Studies*, 27 (5), pp. 617-635.
- Hays, R, 1994, Housing Privatisation, Social Goals and Policy Strategies, *Journal of Urban Affairs*, 16 (4), pp. 295-317.
- Hong Kong Housing Authority Annual Report 1996/97.
- Housing Branch, (1997) *Homes for Hong Kong People: the Way Forward, Long Term Housing Strategy Review Document*, Government Printer, Hong Kong.
- Housing Branch, (1987), *Long Term Housing Strategy – A Policy Statement*, Government Printer, Hong Kong.
- Keung, J. 1985. Government Intervention and Housing Policy in Hong Kong, *Third World Planning Review*, Vol 1.
- La Grange, A (1998) Privatizing Public Housing in Hong Kong: Its Impact on Equity, *Housing Studies*, Vol 13, No 4.
- La Grange, A & Pretorius, F, 1999, An Innate Desire for Home Ownership or Markets at Work: A Case Study of Hong Kong. *Occasional Paper Series in Public Policy*, Department of Public and Social Administration, City University of Hong Kong.
- Lee, J. (1994) Affordability, Home Ownership and the Middle Class Housing Crisis in Hong Kong, *Policy and Politics*, 22.3.
- Malpezzi, S & Mayo, S, 1997, Housing and Urban Development Indicators: A Good Idea whose Time has Retirned, *Real Estate Economics*, 25 (1), pp. 1-11.
- Miles, D, 1994, *Housing, Financial Markets and the Wider Economy*, Wiley & Sons, London.
- Pozdena, R. J., 1988, *The Modern Economics of Housing*, Quorum Books.
- Renaud, B, Pretorius, F and Pasadilla, B (1997) *Markets at Work: Dynamics of the Residential Real Estate Market in Hong Kong*, Hong Kong University Press, Hong Kong.
- Rosen, Kenneth T. and Lawrence B. Smith (1983). "The Price Adjustment Process for Rental Housing and the Natural Vacancy Rate", *American Economic Review*, September.

Ruonavaara, H., 1993, Types and Forms of Housing Tenure: Towards Solving the Comparison/Translation Problem, *Scandinavian Housing and Planning Research*, Vol. 10, pp. 3-20.

Saunders, Peter. 1990. A Nation of Home Owners. London: Unwin Hyman Ltd.

Sharpe, W & Alexander, B, 1995, *Investments (5th)*, Englewood Cliffs, New Jersey.

Smart, A. (1992) *Making Room: Squatter Clearance in Hong Kong*, Centre of Asian Studies, The University of Hong Kong, Hong Kong.

Tse, Yin-Ching Raymond (1994). *Real estate Economics: Theory and Policy With Reference to Hong Kong, Singapore and Taiwan*. Hong Kong: EIA Publishing Ltd.

Wong, Y-C R, 1998, *On Privatising Public Housing*, The Hong Kong Economic Policy Studies Series, City University of Hong Kong Press.

APPENDIX A: Housing in Hong Kong at a Glance

Rented and Owner Occupied Units in the Public and Private Sector

Year	Public Sector				Private Sector				Public and Private Sector					
	Total (No)	Rental (No)	Ownership (No)	Rate of Ownership (%)	Total (No)	Rental (No)	Ownership (No)	Rate of Ownership (%)	Total (No)	Rental (No)	Ownership (No)	Public Ownership (%)	Private Ownership (%)	Over all Own ershi p (%)
Actual:														
1982/3	516,000	491,000	25,000	5.0	626,000	271,000	355,000	56.7	1,142,000	762,000	380,000.0	2.2	31.1	33.3
1983/4	550,000	515,000	35,000	6.4	656,000	274,000	382,000	58.2	1,206,000	789,000	417,000.0	2.9	31.7	34.6
1984/5	575,000	528,000	47,000	8.2	683,000	270,000	413,000	60.5	1,258,000	798,000	460,000.0	3.7	32.8	36.6
1985/6	605,000	539,000	66,000	10.9	712,000	273,000	439,000	61.6	1,317,000	812,000	505,000.0	5.0	33.3	38.3
1986/7	635,000	556,000	79,000	12.4	740,000	245,000	495,000	66.9	1,375,000	801,000	574,000.0	5.7	36.0	41.7
1987/8	650,000	566,000	84,000	12.9	777,000	234,000	543,000	69.9	1,427,000	800,000	627,000.0	5.9	38.1	43.9
1988/9	682,000	586,000	96,000	14.1	803,000	223,000	580,000	72.2	1,485,000	809,000	676,000.0	6.5	39.1	45.5
1989/0	719,000	603,000	116,000	16.1	828,000	226,000	601,000	72.6	1,547,000	829,000	717,000.0	7.5	38.8	46.3
1990/1	746,000	615,000	131,000	17.6	853,000	223,000	630,000	73.9	1,599,000	838,000	761,000.0	8.2	39.4	47.6
1991/2	777,000	631,000	146,000	18.8	880,000	211,000	669,000	76.0	1,657,000	842,000	815,000.0	8.8	40.4	49.2
1992/3	800,000	638,000	162,000	20.3	907,000	234,000	673,000	74.2	1,707,000	872,000	835,000.0	9.5	39.4	48.9
1993/4	826,000	639,000	187,000	22.6	924,000	235,000	689,000	74.6	1,750,000	874,000	876,000.0	10.7	39.4	50.1
1994/5	849,000	658,000	191,000	22.5	956,000	245,000	711,000	74.4	1,805,000	903,000	902,000.0	10.6	39.4	50.0
1995/6	878,000	668,000	210,000	23.9	987,000	273,000	714,000	72.3	1,865,000	941,000	924,000.0	11.3	38.3	49.5
1996/7	883,000	660,000	223,000	25.3	1015,000	287,000	728,000	71.7	1,898,000	947,000	951,000.0	11.7	38.4	50.1

Source: Housing Authority Administrative Records.