Modelling Rental Housing Market: A Conceptual Framework, 1989

Research Study 36

National Institute of Urban Affairs
New Delhi

PREFACE

At the instance of the Planning Commission, the National Institute of Urban Affairs undertook in September 1987 a pioneering research project on **Rental Housing in Urban Areas.** The primary reason for undertaking this project was the virtual lack of information on the organisation and functioning of the rental housing markets in the country. No systematic studies were available on the factors that determined the supply of and demand for rental housing; even less was known about the forces that led to the segmentation of the rental housing market into submarkets. In the view of the Institute the gap in information was substantial particularly in light of the evidence that approximately 47 per cent of the households in urban areas lived in rented houses, and this proportion was much higher in metropolitan and other large cities. Also, there were few, if any, references to rental housing issues in the plan documents which too, considering that such a high proportion of households lived in them, appeared to be a serious omission in the urban housing policies.

It was against this background that this research project was taken up. It laid down three broad objectives to guide the investigations and field work :

i.   To assess the need and demand for rental housing in urban areas;

ii.   to examine the existing supply system of rental housing and identify the major shortcomings of the system; and

iii. to suggest a policy framework to satisfy the need for rental housing of diverse groups of the population in urban areas.

Three Research Studies have been prepared as a part of this project. **Rental Housing in India : An Overview** (No 31) provides an overview of rental housing in urban areas. It serves as a background to the entire project and gives data derived from the National Sample Survey Organisation and the Censuses of India, on the supply for rental housing in cities of different sizes.

In research study No 36, **Modelling Rental Housing Market : A Conceptual Framework**, an attempt has been made to construct a model that defines the demand for and supply of rental housing in urban areas. **Rental Housing in a Metropolitan City** (No 37) is a case study of Delhi which reviews the size, organisation and functioning of the different sets and subsets of the rental housing market. Data for the Delhi case study have been obtained from the Municipal Corporation of Delhi, the courts regarding the court cases, from property dealers, and through limited surveys of the various colonies.

This research project has been co-ordinated and carried out by Kiran Wadhva, until recently, an Associate Professor at the Institute. Kiran Wadhva conceptualised and designed the study, and carried out the field work with a team of four researchers, S.P. Tyagi, Rajan Pal, Harparminder Jit Singh and Navin Mathur. The project involved an intensive search for and collection of data from sources that are not known to respond to such studies and investigations. The data were processed in the Institute's computer unit headed by R.K. Dahiya and his team consisting of

Sangeeta Vijh, Indu Senan, Tek Chand Sharma and Aradhana Singhal. I would like to compliment all of them for the hard work that they have put into this project.

This research project is one of the first of its kind which has attempted to bring out the importance of rental housing in the country. What it has underlined is that even though ownership housing may take precedence in terms of social status, rental housing accounts for and will continue to account for a substantial proportion of urban households. Also, a proportion of households will invariably prefer rental housing in view of the zero initial investment involved and the flexibility in movement that rental housing provides. Furthermore, ownership housing will remain outside the financial means of a very significant number of urban households at least in the foreseeable future.

Rental housing as a subsector of urban housing will thus need a policy aimed at its expansion to levels that should reduce housing shortages in the urban areas. The study has indicated that there may be conflicts between the goals of municipal bodies and those responsible for expansion of the supply of rental housing. The provision of the rent control acts may also work against rental housing. It will be necessary to remove such conflicts and irritants in order that rental housing can expand to meet the gap between the demand for and supply of housing.

I would like to thank the Planning Commission for entrusting this pioneering study to us. We hope that it will help the Planning Commission to at least initiate a process by which rental housing can be given a place in the future planning frameworks.

March 1989

Om Prakash Mathur
Director

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ABSTRACT

Rental housing is a more prominent feature of large metropolitan areas. These areas are characterised by a larger proportion of migrants, young and transient population. These groups create varying types of demand for rental housing in the urban areas. Corresponding to the different kinds of demand, rental housing is offered in different packages. In this paper an attempt has been made to understand the forces operating on demand and supply as they affect the rental housing market.

The demand for rental housing is viewed as a question of choice of tenure. The question of choice of tenure is decided at the household level and is influenced by various economic and non-economic considerations. In this study the major variable considered is the relative cost of two types of tenures. The influence of other variables such as subsidies, taxation, inflation and uncertainty is seen through their impact on cost of housing. The impact of income/wealth of the household and the rent control act on the choice of tenure has also been taken into account. The supply of rental housing in a metropolitan area will consist of supply from both public and private sectors. The determinants of supply of each of these sectors are analysed. The impact of the rent control act and inflationary expectations on the supply of rental housing has been discussed.

The rental housing market is segmented into various submarkets according to location, housing type, type of supplier and government policies. The analysis of determination of rents in various submarkets is carried out in a segmented framework.

MODELLING RENTAL HOUSING MARKET : A CONCEPTUAL FRAMEWORK

Rental housing is a more prominent feature of large metropolitan areas. These areas are characterised by a larger proportion of migrants, young and transient population. The transient population include not only the groups which come to the city for jobs but also groups which come to avail of superior facilities of education, research, health and recreation. These are the type of households which normally prefer to go for rental rather than ownership housing. These groups define the base level of demand for rental housing in any area (Lemer: 1987). In addition, the high price of ownership housing in these cities excludes a large proportion of households from the ownership housing market. These groups create demand for varying types of rental housing in the urban areas.

Corresponding to the different kinds of demand, rental housing is offered in different packages. These 'packages' include even 'boarding' and various other facilities. Units are made available for varying durations ranging from one day to indefinate time period in response to demand. The scope of rental housing extends beyond the more conventional type to include even hostels, lodging houses, guest houses, and various types of hotels. This type of renting – at this stage of development – does not probably make for a significant part of total renting in our metropolitan areas. In this study, we have confined ourselves to mainstream rental housing only.

Under normal circumstances, greater demand for rental housing would induce increased supply of such housing. In the short period the increased supply would emnate from existing houses through conversions of part or whole of the house for rental purposes or conversion from some other unproductive or less productive uses like garages, store houses, warehouses etc. to rental housing. In the long run the supply would increase due to the increase in the number of housing units specifically built for rental purposes.

The process of wealth generation in a metropolitan economy generates surpluses which are looking for avenues for productive investment. In any economy with underdeveloped capital markets investment in property may be the only or one of the very few alternatives open for investment. Rental housing, in such an environment starts emerging as a 'lucrative' investment opportunity competing with other investments.

Investment in supply of rental housing would thus depend upon the availability of alternative avenues of investment and the relative rates of return in these investments. As the economy develops, the greater demand for capital in various productive activities increases the rates of return in other investments. Unless the net returns from renting can keep pace with the increasing returns from other investments, the supply of rental housing will suffer. The relationship between relative rate of return and supply of rental housing may be weak under three sets of circumstances - (i) lack of awareness/ information

on the part of investor regarding other investment opportunities and rate of return therefrom; (ii) Investor's objective function excludes a higher rate of return as one of the desired goals and; (iii) the risk in high-return investments are high.

The demand and supply of rental housing would be affected by the above mentioned and many other factors. These would in turn have an impact on the level of rents in various rental housing submarkets. In this paper an attempt has been made to understand the forces on demand and supply side as they affect the rental housing market. The framework is designed with the Rental Housing Market (RHM) of a metropolitan city in India at the back of our mind.

Rental Housing Market

The RHM in a metropolitan city is a very heterogenous market. In the literature, heterogeniety in the housing market has been dealt with in two different ways. One is to partition the housing market into a commodity hierarchy (Sweeny 1974). For each set in partition all housing units are of the same quality. The heterogeniety problem is solved through treating all units of one quality level as separate goods with their own market demand and supply schedules. The second alternative is to use a bid rent approach (Braid 1981). The consumers bid for the available supply of housing - the higher income groups bidding away the superior housing and lower income groups having to opt for inferior housing. In both approaches, housing is viewed as a set of distinct, interrelated substitutable commodities. In our analysis, the former approach has been adopted.

The Rental Housing Market (RHM) can be looked at as a continuum of various gradations of market each differing from the other in various respects. On the supply side, one can identify two major criteria by which to classify RHM — (i) physical features of the housing unit and (ii) government policy variables. According to the first classification, the housing units may vary according to location, physical typology, size, amenities available, age and neighbourhood. Direct and indirect intervention by the Government further segments the market. The direct intervention could be provision of rental housing to general public or its own employees. Indirect policy intervention could relate to imposition of some kind of restrictions on rental housing market — the most popular being the Rent Controls (RC). The segmentation is effected through exemption of some parts of market from the purview of the RC whereas others continue to be controlled. On the demand side, the major factor segmenting the market is the affordability level of the households. In a multi-centred city, location of the workplace and the household's preference for certain locations may also segment the market.

In the following paragraphs, the factors determining demand and supply of rental housing have been analysed. To begin with the heterogeniety in the market and interdependence between various submarkets are not taken into account explicitly. These are introduced in the paper at a later stage.

Demand for Rental Housing: A Question of Choice of Tenure

The demand for rental housing, given the aggregate demand for housing, can be viewed as a question of choice of tenure. The question is decided at the household level and is influenced by various economic and non-economic considerations. Before proceeding further, we would clarify certain issues regarding choice of tenure which are important in the Indian context.

The foremost of these issues is the type of tenure, one is to take into account. Normally the choice is posed between Renting and Owning. In developing countries, there are a myriad of tenure types available. These tenure types could vary either according to (i) property rights involved or, according to (ii) payment arrangements.

According to property rights one could distinguish between two major types of tenures - the dejure and the de-facto tenure. The latter relates to housing in the informal market where owner or renter has no legal occupancy right. Legalisaition of these settlements bestows different kind of tenurial rights on various settlements. In contrast is the formal market where such rights are recognised. Within these formal markets one can identify different tenure forms. To name a few (i) Owning (ii) Renting, (iii) a hybrid tenure where land is leased whereas shelter is owned and vice versa; (iv) joint ownership by a group of people as in the case of cooperative housing; (v) individual ownership of shelter structure and joint ownership of common areas as in the case of apartment buildings and (vi) government subsidised

units where the government may restrict the property rights of beneficiaries short of complete ownership.

Within each of these forms further distinctions can be made according to the payment arrangements involved in each. Within ownership housing these arrangements may range from full payment at the time of purchase to payment on hire-purchase basis to availability of credit on varying terms and option of making payment for the house over a long period of time.

The payment arrangments may exhibit even greater diversity in case of Renting. The simplest form will be that of regular monthly payments. In many areas these will be supplemented by a lump sum payment (key money or pagdi) or partially substituted by a deposit equivalent to x months of rent at the initiation of tenancy.

In our analysis whereas we recognise the diversity in property rights and associated differences in utility the household derives from it, we categorise most of these tenures broadly either as Ownership or Renting. The diversity is taken care of in terms of different cash flows related to the different types. The differing payment arrangements are not recognised as different tenures but variants within the same tenure having different cost implications for the households.

The second issue relates to the physical typology of rental housing. In some areas the issue of the choice of tenure is closely linked with the type of housing or location at which this kind of housing is available. In many Western countries rental

housing is associated with apartment houses and ownership housing with single family detached housing. Furthermore, rental housing may be available in central locations whereas single family detached housing is primarily to be found in suburbs making it a preferred alternative for families with children. In India, there are no such associations. The consumer, however, may not be able to exercise the option to buy or rent a particular house. The house may be available either for sale or for rental purposes.

This situation has posed some tricky problems in analysis of the choice of tenure in literature. The question of the choice of tenure in literature has been dealt in ralation to the same house. Consideration of different houses will involve not only different cost streams but also different levels of utility — some components of which may not be quantifiable. The question whether Buying or Renting is a preferred alternative can be answered unequaivocally if the cost of buying and renting can be considered for the same house.[1]

In effect the consumer's decision regarding the choice of tenure is not taken in reference to one house but extends to a variety of houses in different submarkets. These houes may not be exactly alike but, from consumer's point of view are to be considered as substitutes. The consumer will compare the relative cost of each of the houses. Compare the cost

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1. Even in this case one cannot assume that the level of utility is the same whether the household owns or rents it.

differential with differentials in levels of satisfaction and opt for the one one which gives him the maximum satisfaction.

In the first stage of our analysis the question of the choice of tenure is discussed in relation to one house. This would help in clearly bringing out the factors involved in decision making. At a later stage, the analysis is extended to cover more than one house in different submarkets.

The third issue relates to the simultaniety of decisions regarding the choice of tenure, of location and of the quantity of housing being consumed. These decisions are taken simultaneously by the consumer. For simplification, however, we assume that the consumer takes decisions regarding these issues in two stages. In the first stage, he decides about the tenure and in the second the quantity and location of housing are decided.

In most of the societies ownership housing enjoys a status superior to that of rental housing. [2] Non economic considerations like pride of ownership and social status attached to this tenure play a very important role in determining the choice of tenure of a household. It is, however, very difficult to quantify the non-economic considerations. We therefore confine our analysis to considerations of economic variables alone.

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2. Government policies tend to accentuate these attitudes. Most of the government follow a housing policy baised in favour of ownership. In the survey of literature, we came across instances of only two countries where ownership housing did not enjoy as exalted a status compared to rental housing. These are Germany and Sweden. See Lemer (1987) and Kemey (1977).

In the literature, the question of the choice of tenure has normally been posed in terms of determinants of ownership. Most of the studies have depended on household surveys and use of OLS (Ordinary Least Squares) method to explain the pattern of ownership in urban areas. The important variables have been found to be: income of the household, availability of credit and terms of credit, size of the household, stage in life cycle of a family, number of children below a certain age, relative price of owner-occupied vs. rental housing, subsidies available to ownership or rental housing and government taxation policies relating to the two types of housing.

At a conceptual level, these seem to be important variables even in the case of Indian cities. The non-availability of data for many of these variables, however, restricts us from varifying their emprirical validity. Our method of analysis of the choice of tenure is therefore based on very few variables, the most important being the ralative costs of the two types of tenure. The influence of other variables like subsidies, taxation and other government policies, on the decision process is seen through their impact on relative cost of housing in the two types of tenure. The demographic variables (size of household, stage in life cycle etc.) have been completely ignored. Other factors like income of the household and availability (or otherwise) of credit have been introduced at a later stage. So have been the inflationary expectations. Account is taken of the different cost implications of variants of the two main types of tenure.

It is well recognised that housing costs are not incurred only at a point of time but continue to be incurred throughout the period of residence of a household in the house. Further the cost occur irregularly over a period of time. The technique of capital budgeting has been used to bring these figures — spread irregularly over the length of future periods — to a common denominator. Comparision of costs of various options is made in terms of the present value of the stream of the cost of housing under different tenures.

Assuming that the consumer makes the decision to own or rent a house purely on the basis of financial considerations, he would opt for a tenure with lower cost. Since the option of renting or buying is to be exercised in relation to same or similar house, one can assume that the flow of services/benefits will be the same in the two cases. Further, since we are ignoring the utility the consumer obtains from the mere fact of ownership, the decision is made on the basis of cost considerations alone. The consumer decides to own if

$$C_R > C_O$$

and vice-versa where C_R is the present value of the stream of cost of renting and C_O that of owning. In case $C_R = C_O$ the consumer would be indifferent between the two options.

Cost of Owning vs. Renting

The major difference between the cost of renting and owning is the time stream of payments to be made for each tenure. Expenditure for owning a house is to be incurred in lump sum at

the beginning of the residence. The cost in later years of residence are much smaller. The cost of houses being high in almost all the societies preclude a large segment of population from the prospect of owning a house. The 'invention' of mortgage finance which made it possible to make payments for ownership housing in instalments opened the option of ownership to a larger number of households. The payment stream still cannot be equated with that for rental housing. Even if mortgage credit is available the consumer is expected to make a heavy downpayment in the initial stage itself.[3] In contrast the cash flow for a tenant involves, apart from the initial cost of searching a house and cost of moving, regular monthly payments.

The comparison of cost of Owning verses Renting is thus not only in terms of the total cost of each option but of total cost spread over the period of residence of the consumer households. We calculate the present value of the stream of cost over a finite time horizon. In case of ownership we assume that the consumer sells off the house at the end of the period. The costs included are the ones actually incurred by the consumer over the duration of his residence. Capital gains (or loss) are not taken into account till actually realised at the time of sale of the house. In case an infinite time horizon is taken the capital

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3. In India, mortgage credit is heavily rationed and is available to a very small percentage of population.

gains (or loss) remain notional and are not taken into account in calculations of the present value (PV) of cost of ownership.

Cost of Ownership

Cost of owning a house include besides the cost of the house, and cost of closing the deal other recurring costs. These recurring costs include property taxes, income tax on imputed income from the property, cost of repair and maintenance. If household has borrowed for financing the house, the recurring cost would include interest cost as well as regular instalments. As the household goes on repaying the loan, his equity in house continues to increase and loan amount to decline.[4]

$$C_O = P_O + CL_O + \sum_{i=1}^{n} \sum_{j=1}^{m} \frac{C_{ij}}{(1+r)^i} - S_n$$

Where

P_O
  Purchase price of the house in case credit is not available and amount of downpayment where credit is available.

CL_O =
  Cost of closing the deal including the stamp duty, cost of registeration, brokerage fee etc.

C_{ij} =
  Recurring cost incurred over the time period 1 to n and over the cost items 1 to m. The cost include interest cost and instalments if the consumer has borrowed for financing the house.

S_n =
  Net sale price which the consumer receives taking into account the cost of selling the house, and amount paid on account of capital gains tax.

r =
  The rate of discount which takes into account the opportunity cost of capital.

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4. The repayment schedule would vary depending upon the mortgage scheme followed. In most of the cases in India the repayment is divided into equal instalments of n periods.

Cost of Renting

As noted above the cost of renting would include apart from search cost and cost of moving, only the regular rental payments.

$$C_R = S_R + M_R + \sum_{i=1}^{n} Ri/(1+r)^i$$

Where

S_R = cost of search

M_R = cost of moving

R_i = rent of the house in different periods

Under competitive conditions, the rent of the house will equal the cost to the landlord. The cost would include not only the actual cost incurred by the landlord but also the opportunity cost of capital. In calculating the cost to the landlord it is important to note his planning horizon which might be very different from that of the tenant who rents his house.[5] Even though the tenant might be planning to stay in the house for a short period, the landlord does not sell off the house after the tenant leaves. We assume that the landlord rents out the house to another tenant. The landlord will like his total cost to be covered over the period of his holding the house. Thus,

In case he holds the house over an infinite period S_n =o. P_o and CL_o will be the same as for the owner occupant. The recurring cost will be higher. The extra cost would include higher charges on repair and maintenance a higher rate of property tax, and income tax on rental income from the house.

From this, we can deduce the value of R_i under two different assumptions.

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5. It may so happen that at times the planning horizon of the two concides with each others.

i. R_i remains constant over the planning horizon of the landlord.

ii. R_i increases over this period.[6]

    Substituting for R_i in equation 2 would give us C_R. Comparing this with C_o the consumer would decide to buy or rent the house. In case $C_R = C_O$ the consumer should be indifferent between renting and owning. A situation of scarcity will push up the rents much beyond the competition solution. As the value of houses rise the rents may move in relation to these values rather than to the cost of the house.

Inflationary Expectations

    The choice of tenure will be influenced to a great extent by inflationary expectations of the household regarding price of housing. Expectations of a higher price of housing will affect the timing of his purchase if he plans to buy a house anyway. In terms of Rent or Buy decision the future price of housing enters the picture through capital gains or through expected level of rents. In terms of our model set above, expected capital gains 'reduce' the cost of housing to the owner (or increase the return from owning a house). The gain is however only notional till he sells the house. In purely theoretical terms, if rent is taken as equivalent to the cost of housing to the landlord and capital gains imply a negative cost, the increase in value of the old house should lead to a reduction in rent of the house, other

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6. We are not including the case where rentals decline over time. In Indian metropolitan cities the chances of rents declining are extremely low. Theoretically, however, this can be incorporated in the framework.

things remaining the same [Lineman: 1985][7]. In effect however increases in rents keep pace with the increase in value of houses[8].

The increase in rent with increase in value of the house can be explained if we take an alternative view of rent determination. If rents are determined at a level equal to rate of return on equity (which in turn is determined by the rates of return in alternative investments) and recurring cost, they (rents) can increase under two conditions - if the return on alternative investments increase or if recurring cost increase. Rent, however, also increase due to the increase in the value of house over time. The landlord calculates the rate of return not on his equity but on the new higher value of the house. Further, most of the recurring cost are a function of the value of the house[9] and increase with increasing value of the house. These also add on to the rent.

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7. This would happen only if the landowner plans to sell the house at some future period. The major gain is then to come from a higher sale price rather than from rental income.

8. Even though the rents may not increase in the same proportion as the increase in the value of the hous the PV of the stream of rents over the life period of the house is far higher than the total cost of renting out to the landlord.

9. The costs which are related to market value are property tax, income tax on imputed income from property, cost of maintenance and repair. The cost related to mortgage of the house (interest and instalment) remain the same.

The introduction of inflationary expectations will change the values of C_R and C_o. Since these expectations reduce the cost of owning and increase that of renting, the balance will tilt in favour of owning a house.

Rent vs. Buy : The Role of Uncertainty

Another factor which could influence the decision of the household to buy or rent is the uncertainty related to future value of rents. In India, this uncertainty normally relates not to the direction of a change - but to the degree of this change.[10] The owner occupant does not face this kind of uncertainty. Once he enters into a contract to buy the house, the value is determined and whether he buys the house outright or 'pays in instalments' he is certain about the future cash flow. The calculations of PV of cost of ownershiip housing will be affected by uncertainty only marginally through their impact on the likely quantum of capital gains or change in recurring costs.

Another kind of uncertainty relates to the duration of residence. Whereas as an owner occupant the duration will be influenced by considerations pertinent to their household and at the time of decision making the household would use this variable as a datum. As a tenant the decision may be imposed by the landlord and the tenant may have to incur search and moving cost quite frequently. In a tight rental housing market these costs

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10. Rents and value of houses have almost always moved in an upward direction - so the consumer does not expect them to decline.

can be quite high. If we conceive of the probability that the tenant, in his duration of 'n' years of residence in the city may have to shift thrice the PV of cost of renting could be

$$C_R = \sum_{k=I}^{III} S_{R_k} + \sum_{k=I}^{III} M_{R_k} + \sum_{k=I}^{III} \sum_{i=1}^{n} \frac{R_{ik}}{(1+r)^i}.$$

where

- S_{R_k} = search cost for the kth house where k takes values of I,II,III

- M_{R_k} = moving cost for the kth house

- R_{i_k} = rental in house k over the duration of residence.

- $n = n_I + n_{II} + n_{III}$ where n_I, n_{II}, n_{III} denote = duration of residence in each house.

The existence of uncertanity is likely to increase the present value of C_R vis-a-vis C_o. Preference for ownership would increase.

Consideration of Affordability

Untill now we have ignored the question of affordability. It had been implicitly assumed that either the consumer had enough income to afford the house out of his own funds or credit at market rates is available to the household so that it can arrange to pay for ownership housing. We now bring the question of affordability explicitly into the analysis.

The question of affordability is important whether credit is available or not. In the former case affordabilty is to be interpreted in relation to the requisite downpayment and

subsequent instalments to be paid whereas in the latter it is the relationship between income or wealth of the household and total price of the house which has to be paid in one go. Thus, if income is the prime variable in determining the choice of tenure, the probability of a household owning would be $=p_i q_i$ and its not owning (i.e. renting) $= 1-p_i q_i$

Where p_i is the probability that income of the household is above the affordability limits[11] and q_i is the probability (in case of credit rationing) that credit is available to the household. In terms of our model, non-availability of credit implies a very high (infinite) cost of borrowing, making the ownership option more expensive than the rental one.

The introduction of the variable of affordability brings into focus the importance of 'payment arrangements' and periodicity of payments. In the absence of credit, rental housing, which does not involve any lumpy payments may almost always be the preferred choice. The exceptions would be where housing is being financed out of past wealth — inherited or otherwise.

In the above, it has been assumed that the only payment arrangements in case of Rental housing are the monthly rentals. In practice one visualises varying payment schedules. Most of

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11. The affordability limit is to be defined in relation to the cost of the house. If credit is not available the house may have to be purchased out of wealth accumlated in past. It would imply purchasing a house at a late age.

these have originated in the wake of the imposition of Rent Control Act. We discuss them within the framework of Rent Control Act.

Rent Control Act and the Choice of Tenure

Rent Control Act (RCA) can affect the decision of a household regarding the choice of tenure in two ways. (i) by affecting the level of rents and (ii) by affecting the periodicity of payments.

The rents fixed under the RCA are generally much lower than the prevailing market rents and if RCA is effective it will make rental housing a more cost effective option in the controlled market. The Act does not have any such impact on the value of the house.[12]

If the controlled rents are lower than the market rents the landlord may expect the monthly rents to be supplemented by a lump sum payment which is to be made by the tenant at the beginning of the tenancy. Even in cases where the controlled rents are not charged, the uncertainity associated with eviction of tenants may lead the landlord to charge security or deposit equal to 'x months rent' at the beginning of the tenancy. The deposit is returned after the tenant leaves the house. In such cases the cash out flows faced by the tenant household are akin to

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12. The value of the houses with 'sitting tenants' however is lowered in a controlled market. In our framework, however, the individual is not considering to buy or rent a house with sitting tenants but a house which is vacant and is available both for renting or outright purchase.

the ones faced by the households in case of ownership housing. The decision to own or rent will be affected by the these factors.

The payment arrangements will be still different in case of housing subsidised or offered by the government. In the case of ownership housing liberal credit terms may be provided. For rental housing, the rentals asked for may be much lower than the market rents. The government however will not offer the option of buying or renting to the consumers. Some government schemes may relate to ownership housing and others to rental housing. The question of choice of tenure by the consumer (for the same house) in such cases does not arise.

At this point we drop the simplifying assumption that the household is considering the same house. The household may have various options open in different submarkets[13] (in different locations, of different types of houses with varying payment arrangements). He will list these in order of preference, compare the cost of each and within his constraint opt for the one which gives the maximum satisfaction[14]. The comparison now will be made not only between renting and owning but also between renting in one location vs renting in another vs owning in

13. The submarkets include the staff housing provided by the employer (public sector or private sector) to its own employees.

14. Even though it is not explicitly stated here, the demand for rental housing in a given submarket would be influenced by the rents prevailing in other submarkets.

various locations. The calculations will take account of the
availability of credit and different payment arrangements. The
process of choice of tenure is now visulised in terms of the
following steps:

1st   list out houses in order of preference in different
      submarkets without reference to their prices.

2nd   work out the cost streams.

3rd   check the units which fall within the affordability range of
      the household and eliminate the others.

4th   calculate the PV of cost streams of the feasible options.

5th   pick out the 'option' which gives maximum satisfaction.

The determination of an equilibrium solution can be
explained diagrammatically as follows:
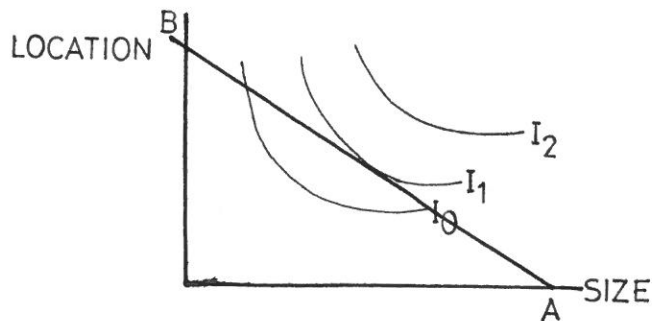
The indiffernce curves show the preferences of the consumer
for different types of housing. Each point on the indiffernce
curve defines a housing unit (or units in a housing submarket) in
a particular location and of a given size. Whereas locations and
size are shown explicitly in the diagram the third dimension of
tenure is implicit. We assume that his preference includes only
two variables --- location and size. The price line AB defines
his affordability. The point of tangency between the price line

and the highest indiffernce curve gives the equilibrium choice of the consumer.

The decision of the consumer is taken as a 0-1 decision. Under the given cost and income conditions, the consumer plans to buy the housing services in a particular submarket. A change in these conditions will make him reconsider his decision and he may shift to some other submarket. It is possible to define the total demand for housing units in each submarket as an aggregation of individual demands. Varying preferences of the households and differing levels of income will give a continuous demand curve for each submarket. As rents increase in a particular submarket, some marginal households may shift out of the submarket leading to a decline in number of units demanded and vice-versa. An increase in income will 'induce' households to shift to a 'superior' submarket and so on.

Supply of Rental Housing

Housing is a durable commodity; - once constructed it lasts for a long time. To quite some extent its use is determined at the time of construction. Conversion from one use to another would involve incurring of some costs. At a point of time , the new additions to the supply of housing will constitute a very small part of the total supply of housing in an urban area. The supply of rental housing in this context would depend upon the total supply of housing and the forces in the past which determined the use of this housing for rental or ownership purposes. To the extent that there is flexibility in converting housing from one use to another (Rental to ownership and vice-

versa) current factors too will have a significant impact on the supply of rental housing from the existing stock. The additions to this supply will be influenced not only by current market forces but also by the expectations regarding the various factors which affect rental housing.

As in case of demand, the supply of rental housing too is not determined by economic factors alone. The non-economic factors, however, play a less significant role on the supply side than they do on the demand side.

The market segment in which the non-economic considerations play a significant role in the supply of rental housing is the public sector. Supply of staff housing for own employees too is governed by non-economic considerations.[15] At the household level too non-economic considerations like the need for company or increased sense of security can induce an old or working couple to rent out part of their house and add to the supply of rental housing. Considerations of privacy, fear of losing control over the rented premises at some future data can work against renting out. While recognising the non-conomic considerations — especially in case of public sector and staff housing — analysis in this part will focus on economic factors.

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15. The economic considerations in these cases would relate to the budget constraint of the organisation providing such housing. Returns from providing housing will not be the major consideration.

Supply of Rental Housing: Components
Organised Sector as Employer

The supply of rental housing in a metropolitan area would consist of supply both from public and private sectors. At the outset, the role of the two sectors in the supply of rental housing as employers and as corporate entities supplying rental housing to public at large should be distinguished.[16] In India, most of the rental housing from public sector is staff housing central/State/local governments provide housing to their own employees under the social housing scheme. Such housing is also provided by universities, colleges, institutes and various other organisations. Public and private sector corporations too provide staff housing. This is done in two ways. (i) The organisation 'produces' the housing itself or purchases it from the market and allocates it to its staff and (ii) the employer leases the houses from the market and allots them to its employees. In the later, the employer is the tenant who further sublets the leased houses to its employees. The employer is in a sense an intermediary and the actual supplier might be the private sector.[17]

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16. In many countries, government is a major supplier of rental housing to its population. Britain is one of the prime examples where 'council housing' (the name for public sector rental housing in U.K.) has emerged as the most dominant form of rental housing.

17. The employer may not be able to provide housing to all its employees. In lieu of that, a rent allowance is normally provide to rent such housing in the private sector.

As noted above the supply of such housing is not governed by commercial considerations of direct returns from, or profitablity of such housing. The supply is governed by the policy of the organisation regarding the supply of rental housing to its own employees, the need for such housing (which is a function of number of employees) and the budget constraint of the organisation. A shift in policy can increase or decrease the supply of such housing.[18]

Supply of Rental Housing by Public Sector

Apart from its role as employer, the public sector might provide rental housing to public at large. Depending upon the ideological leanings of the government and resources available, the provision might be governed by commercial or by welfare considerations. In the latter the prime motive of the government might be to fulfill a need which the private sector has not been able to.

In the supply of rental housing, private sector especially the corporate private sector would always be motivated by considerations of profitablity.

Supply of Rental Housing by Private Sector

The private sector supplying rental housing could be the corporate private sector which supplies housing on a large scale or the household sector which privides rental housing on a small

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18. A case in point is the supply of rental housing to industrial workers. A change in the policy of the Central Government has led to conversion of this housing to ownership housing.

scale. The prime motive for providing rental housing in both the cases would be economic. Both would privide housing if it is 'profitable' for them to do so.

The landlord would like the rent to cover the total cost of renting out as well as give a minimal return on his equity. If the market rent is not high enough to cover the cost (including the opportunity cost of capital) the alternatives open to the supplier are: (i) keep the house vacant; if he expects the rents to continue to be low (ii) convert it into some other use or (iii) sell off the property. The alternatives (ii) or (iii) may not be feasible in the short run. In the short run the options open might be either to rent the house or keep it vacant. In the long run, the supplier would weigh the pros and cons of each of the options and opt for the one which maximises profit or minimises losses.

There are certain cost and revenue streams attached to each of the four options. In the case of house being rented, the revenue stream includes the periodical rental payments. Cost relate to the cost of managing the property, and other recurring costs referred to above. In case the house is not rented, the returns will be nil (except the notional ones accruing from appreciation in the value of property) whereas some cost will continue to be incurred. These include payment of taxes (property as well as income) interest on mortage and opportunity cost of capital. Cost incurred on repair maintenance and taxes are normally higher in the event of renting than in the case of

ownership. In the short run, the landlord would opt for renting
out the house if the revenue accruing from renting covers at
least the extra cost of renting out.[19]

In the long run, the landlord may think of converting the
property to some other use or selling it off. In calculating the
net returns from either of the alternatives, he will take account
of the cost of conversion and expected receipts from the new use
(in case of conversion) and of cost of selling the house/s, net
sale receipts after deducting capital gains tax as well as the
expected returns from investment of the sale receipts (in case of
sale).

Under these circumstances, the current low rate of return
and/or expected low rentals in future may or may not reduce/the
supply of rental housing from the existing stock of housing. The
supply of rental housing at a point of time would depend upon
various other factors too. If however the expected returns from
rented housing are too low to cover the total cost of renting out
the addition to stock of rental housing will be affected. A high
rate of return will induce larger supplies.

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19. Assuming a planning horizon of 'n' years, if are the
extra costs and Ri the stream of rents, the landlord will be
indifferent if

$$\sum_{i=1}^{n} \frac{R_i}{(1+r)^i} = \sum_{i=1}^{n} \frac{\Delta C_i}{(1+r)^i}$$

he would rent out if

$$\sum R_i > \sum_{i=1}^{n} \frac{\Delta C_i}{(1+r)^i}$$

and would keep the house vacant if

$$\sum R_i < \sum_{i=1}^{n} \frac{\Delta C_i}{(1+r)^i}$$

Supply of Housing and the Rent Controls

If the above holds true the RCA by freezing the level of present and future rents at some given level will have an adverse impact on the total supply of housing.[20] The current supplies from the existing stock of housing may not be affected much since the Act not only restricts the level of rent but also the freedom of the landlord to evict the tenant, convert the unit to some other use or sell it off.[21]

Under the existing circumstances the landlord does not have many options. If he does net sell, he can as far as possible, try to increase his not returns from renting out - if not by increasing rents then by reducing cost of repair/maintenance. These are the only variable cost over which he has some control.[22]

In practice, what the RCA does is not to freeze the level of rent at the legislated level of fair rent but at the level at which house was rented out to the existing tenant. If the landlored were to relet the house, it is possible to get a higher

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20. Especially when the cost of renting continues to increase. These costs include not only higher repair cost but also higher opportunity cost of capital.

21. Under some Rent control, if the landlord wants to sell the house, the first option under the Act is to be given to the tenant. The price of the house is fixed at x times the level of annual fair rent. Selling off under these conditions may not be a superior alternative.

22. It is interesting to note that even when the market value of house declines due to lack of repair and maintenance, the rateable value which is based on fair rent of the building, does not decline. Consequently cost incurred on head of property tax continue to remain the same.

rent. He, however, cannot do so unless he evicts the existing tenant and regains possession of his house. Eviction of tenant is an extremely difficult process. The tenant sure of his secure position under RCA refuses to increase the rents even when the cost of renting increase.

In such case the options available to the landlord are: (i) to go to court for eviction of tenant (ii) to continue to let the house at the current low rents or (iii) sell it off or (iv) pay some amount of money to the tenant to vacate the house.

If the value of property is expected to increase and the expected future rentals are high enough to offset the cost of paying off the existing tenant, the landlord may opt for (iv). He will however carefully weigh the four options and choose the one giving maximum net benefit over his planning horizon.

After the landlord gets the house vacated (either through court order or through payment of reverse pagri) he may either decide to use the house himself, sell it off or relet it. If the RCA is still operative the incentive to relet will not be very strong. The landlord however could find ways and means to circumvent it. He could give the house on lease[23] for a limited period at the prevailing market rent. At the expiry of the lease, the house could be relet to a new tenant at the higher market rent. The lease could be renewed for the existing tenant also at higher level of rent.

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23. Leasing in not covered under the RCA in many states of India.

If leasing falls under the purview of RCA, the landlord may charge pagri (keeping the rent at the level of 'fair' rent) or security/deposit from the prospective tenant[24]. Whereas pagri is non-returnable, deposit is returned at the time the tenant vacates the house. The amount of pagri would be detemined by the difference between the 'fair rent and the expected level of market rent over the period of tenancy. The cost of rental housing under such conditions will be equal to

$$\sum_{i-1}^{n} \frac{Ri}{(1+r)^i} + L_1$$

Where 'L' is the lump sum payment made by the tenant to the landlord, the 'n' is the number of years of residence of the tenant. In case a security or deposit is accepted, the rent equals.

monthly payment + interest on deposit

The kinds of informal arrangements mentioned above make the RCA partially ineffective. In the meantime the supply of rental housing does not decline as it would if RCA were effective. In fact the high and rising level of rents would induce an increased supply. This supply would however emnate either from the small scale or the household sector where it is possible to avoid the RCA.[25] The impact of RCA on total supply of rental housing in

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24.& Leasing is not covered under the RCA in many States of India.

24a. It is a moot point whether the rents thus charged would be higher/lower than or equal to the rents which would have prevailed in the absence of RCA. We discuss this issue later in the Note.

25. This is not to suggest that all household suppliers of rental housing would be able to or would avoid (wholly or partially) the impact of RCA. Avoidnace is much more feasible at a household level than can be the case if housing was being supplied on a large scale. Another part of market which may succeed in avoiding the impact of RCA is informal sector or in very low-income housing where people are unaware of the provision of the Act.

the city would therefore depend upon the composition of this supply. In fact, RCA would affect this composition significantly.

Different rents prevail in different submarkets and supply of rental housing in the market will be different if the housing is to be supplied from the existing stock or if new housing is to be constructed for supply. In the latter case, the expected rate of return will have to cover the total cost of providing housing whereas in the former, in the short run at least, if variable cost can be covered, housing will be supplied.[26] In the long run, the rate of return will have to be higher than what can accrue from other available alternatives.

Inflationary Expectations and supply of Rental Housing

Inflationary expectations regarding the level of rents may not influence the current supply of rental housing much if the current rents are quite low. The current supply of rental housing may however, be influenced indirectly by the inflationary expectations regarding the cost of houses. This factor would lead to preponement of purchase of houses by the buyers. The house may be purchased for ultimate self-use. Meanwhile till the household requires the house for self use, the housing may be

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26. This is on the assumption that decision to supply rental housing is taken on the basis of purely economic considerations. It should also be noted that the total cost of providing old housing for rent will be different from that of providing new housing.

supplied in the market for rental. We call this supply the transitional supply. The duration of supply is related to the lifecycle of the household. As the requirements of the household increase the supply is withdrawn from the market.

The construction of more units or a larger house than required currently by the household is motivated by speculative or investment reasons either for resale or for future personal use. In either case the supply of extra built up area/rental space will be determined by the PV of expected future cost of building compared to the current cost of the house.[27]

If the motive for building is either resale or future use, the supply of rental space will not be determined by the condition that rate of return should cover total cost. So long as rents can over the extra costs related to renting the household would agree to rent.[28]

The rate of return from rental housing would thus determine the supply of rental housing only for a few suppliers of rental housing. The sectors which are not affected by the rate of return are the public sector, the organised sector (private as well as public) which provides rental housing to its employees

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27. The cost would include the holding cost of the house for the duration of the period till it is resold or used.

28. Since it is holding it for future use, the 'profit' is to come from future use rather than from renting out. The consideration of extra income from renting would probably not make part of the criterion for deciding to invest in a house later than required currently. The cost of renting will also include the probabilities, of RCA is operative, of losing possession of the house altogether.

and the household sector which rents out of non-economic considerations. The rate of return will wield insignificant influence in cases where rental housing is being supplied only transitionally. Whereas in the first two cases, rental housing may be provided even if the net rate of return is negative in the latter the minimum acceptable net rate of return has to be positive.

It would seem that the relationship between aggregate supply of renal housing and the rate of return would depend upon the compostion of housing supply. Within each submarket the supply would depend upon the relative rate of return obtainable from renting out. Since this 'relative' rate of return may vary between different suppliers even within the same submarket (due to different opportunities available and different motivations for renting out), the minimum supply price at which a landlord will decide to supply his unit for renting, will be different for different landlords. An increase in market rent will induce more suppliers to enter the market. Given a large number of suppliers the supply curve will be a continuous upward sloping curve.

RHM and Determination of Rents

At a point of time, there would be a wide range of rents prevailing in an urban area. The rents reflect the heterogeniety in the rental housing market. The various submarkets have been identified earlier in the paper. Rent in each of the submarkets except in two, are determined by the intraction of demand and supply. The two submarkets where rent determination process is

free of market forces are (i) rental housing provided by government to its staff and others and (ii) the controlled (private) market. In the public sector staff housing, rentals paid by the employees are determined by the government either in relation to the income of the employee or the size of the houses. This would be true for staff housing provided by the private sector also. The employees pay a rent equivalent to some proportion of his salary. The differential between market cost of renting and actual rent may be borne by the employer. In the non-staff public sector housing, rents may be fixed by the government in relation to the estimated affordability of the beneficiaries/tenants or to the cost of the houses. In the controlled private rental submarket, the rents are the fair rents which are deemed as a function of the historical cost of construction. In all these cases, the rents will be much lower than the market rents.

In effect, rents for most of the controlled units may lie somewhere between the fair and the market rent. The jurisdiction of RCA normally extends to all housing $>= n$ years of age. In India, however, despite RCA, charging a rent higher than the 'fair rent' is not an offence as such. In most of the cities, the rent can be fixed at the level of fair rent by the Rent Controller at the request of the tenant. In the absence of such a 'request' the house is rented out at the prevailing market rent. To avoid the risk of fixation of rent at some future date, the capitalised value of the difference between the market rent and the fair rent is charged as a lump sum amount as

'pugree'. The impact of RCA is felt in freezing of rents at the levels fixed for old tenancies than for fixation of rents of all controlled housing units at some fair rent. Once a rent is fixed, it is difficult for the landlord to increase it for the period of the existing tenancy. Older the tenancy, nearer will be the market rent to the fair-rents and vice-versa. The actual rents will reflect the market situation of the time when house was last rented. Thus, at a point of time, similar house of same vintage may show large divergence between their rents due to this peculiar operational aspect of RCA. Thus, the free market in rental housing at a point of time, is extented to cover even the 'controlled' units which have just fallen vacant and are offered for renting by their owners. The rent for these houses will be fixed, like in the free market, by interaction of forces of supply and demand. It may however be charged partly as a lump sum payment and partly in terms of monthly disbursement.

Determination of Rent in the Free Market

If RCA is strictly applied, the only free private rental market would consist of housing exempted from the purview of the Act. In most of the cases, this is either new construction or newly rented housing.[29] Since housing is a durable commodity and its supply quite sluggish, the new housing, at a point of time, may compose of a very insignificant part of total housing. The

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29. In Delhi, it is the latter whereas in most of the other cities, houses for the first 5-10 years of their construction are exempted from the purview of the RCA.

size of free market in total RHM would thus be very small. A
small addition to this free market may emerge in the form of
subletting of staff housing provided by the public sector.

The free RHM is not a homogeneous entity. The housing
units and various other variables in the market would vary from
each other and define different submarkets. Each submarket will
have its own demand and supply and rents will be determined by
the interaction of these forces. The different submarkets will
be interlinked through demand and supply factors.[30]

In the short period the supply of rental housing is more or
less fixed and demand plays a predominant role in determination
of rent in various submarkets. In the long period the supply
would also play an active role. On the demand side, the level of
income will define the rents which the different income groups
can pay.[31] The income distribution of the potential tenants,
other things remaining the same, would thus determine the demand

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30. Rent prevailing in other submarkets is a very important
    variable determining demand for rental housing in a given
    submarket. Similarly, the landlord may shift his unit (not
    geographycally) to a submarket where the expected rents are
    higher through conversion/renovation etc. The relationship
    on the supply side however is weaker compared to that on the
    demand side.

31. The proportion of income which different households would
    want to pay for renting may differ from consumer to
    consumer. In some cases, preference for certain locations
    may be very strong and the household may be willing to pay
    as much as 50 per cent of their income to live in a certain
    area. The level of income and characterstics relating to
    household are also important considerations in determining
    the proportion of income which a household would pay.

for rental housing in different submarkets. The supply price is determined by the cost of supplying the houses.[32] If there is excess demand in certain submarkets rents will increase and some marginal renters may have to shift to a different submarket.[33] The different submarket may be older housing, housing far from workplace, a smaller sized housing or housing inferior in some other respect.[34] A situation of excess supply will induce the landlord to reduce the rents in the short term. If this level of rent does not cover the cost of renting the house and/or provide sufficient rate of return, the landlord will move (his house) to a different submarket -- through conversion subdivision or improvement. The expected rate of return from the converted house however would have to be high enough to offset the cost of coversion.

The different submarkets thus are interrelated. Differing elasticities of supply and demand in various submarkets however may obstruct the equalisation of rents per unit of housing

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32. This aspect has been discussed earlier in the paper.

33. Implicit in the adjustment process is a bidding process.

34. Since housing supply is made available in units of houses of different sizes etc. a shift in demand of the household for housing results in the household opting for a different house rather than less of the same house.

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services even in the long run. The housing market will be segmented. Some landlords in some submarkets may earn abnormal profits while in others the situation maybe entirely different.

At the macro level, the community's income sets up the ceiling on rents. If the income does not keep pace with the cost of production of housing, the result will be lower standard of housing all along. The marginal groups unable to find any accomodation in the formal market may shift to unauthorised markets. These illegal renting may be sought not only in squatter settlements but also in the form of subletting of staff housing.

Rent Determination in a Partially Controlled Market

In a market where part of the RHM is controlled the rent in the free market is not determined independently of the controlled market. In a regime of rent controls with exemptions, rents of exempted units, most probably be higher than would be the case in the absence of any controls (Needleman : 1965; Gould and Henry : 1967; Fallis and Smith : 1984). This conclusion is not inevitable and depends upon fulfillment of various conditions.

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35. The rate of return on investment in rental housing too will vary from submarket to submarket. This can be best illustrated with the help of rental submarkets for new and older housing. There is not much difference between the rents of new and older houses despite the fact that their cost of production (in an inflationary situation) vary. Same is the case with completely legal houses and houses built on unauthorised land. The two types of houses differ a lot in terms of their cost as well as value but may earn the same rent in the market. The explanation may lie in consumer's prception of different types of housing as close substitutes.

[Gould and Henry ; Fallis and Smith]. These conditions relate to the allocation mechanising and relative elasticities of demand and supply in controlled and uncontrolled markets. Fallis and Smith, however, argue that, under most conditions rents in free market will exceed the equilibrium price in the absence of controls. In the Indian context, one would expect a similar result. In most of the cities the housing exempted from controls is the new housing. At the time when control are imposed the households living in controlled units are allocated these houses. At the time of imposition all existing units come under the purview of the Act and the rent fixed is the rent prevailing at the time of imposition of the controls. If at the time of imposition, of controls, the RHM was in equilibrium, the status quo is maintained. Demand and supply continue to remain the same. If the controlled rent is lower than the rent prevailing in the market, and demand and supply curves continue to be the same even after imposition of RCA, there would be excess demand for housing in the controlled market. This excess demand would however exist only at the theoretical level.[36] Nor can the supply decline at that point of time. The market is frozen (for the time being). Over time, the situation would change. New housing will be constructed and join the supply stream in the uncontrolled market. Some of the housing supply in the

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36. This excess demand can be satisfied only if there is supply available in the controlled market - which it is not. Even if some supply becomes available, it will be in discrete units of housing and may not correspond with the increased demand for more space of existing households.

uncontrolled market, as they cross the age-bar, will shift to the controlled market. More intensive use of existing houses may also lead to higher supply. Thus, as demand increases over time there would be increased supply to meet this demand. It can, however, be safely hypothesised that in a controlled regime, the increase in supply would be less than would be the case in an uncontrolled regime. As the demand and rents increase, the units in the uncontrolled market may be utilised more intensely. The probability of greater utilisation in controlled market is quite low. Most of the consumers would not vacate the houses. Conversions for more intensive use can be made only if the houses are vacant. In fact, the landlord has the incentive to let the property deteriorate faster [Moorehouse]. Thus, in the long period, the supply of rental housing in the 'controlled' sector would decline faster (due to dilapidation) than would be the case in an uncontrolled regime. Another factor supplementing this outcome would be the depletion in supply of rental housing as the units shift from the uncontrolled to the controlled sector. Due to the low expected rents the landlords may find it profitable to convert the houses to owner occupancy or to some other use. In fact the low expected rents after a few years (once the units enter controlled market) may discourage investment in new housing for rental purposes even in the uncontrolled market. All these forces would lead to a lower supply of rental housing in a controlled regime.

Assuming that demand remains the same in a controlled region, the rents will icrease and be higher than would the case

otherwise. Two countervailing forces may prevail to curtail the rate of increase in rents -- one on the demand side and the other on supply. Over a long period, as the scracity in rental housing persists and rents continue to increase, the aggregate demand for rental housing may also be adversely affected. On the supply side the high rentals, despite the low expected rents after 'n' years, may induce a higher transitory supply in the market. The landlord may either withdraw this supply from the market once the house is to enter the 'controlled market or may rent out at the lower controlled rent. In the latter case, the landlord may like the rents in the first' 'n' years when the house is exempted from controls to be high enough to offset for the loss in the later years. The asking price will be high. So will be rents. A higher 'tranistory' supply therefore may not necessarily imply lower rents.

Concluding Remarks

Housing market, due to its peculiar features is not a perfect market. These imperfections are increased by the various policy interventions by the government thus segmenting the market into various submarkets. Some submarkets may be more closely interrelated with each other whereas some other may operate quite independently of other submarkets. The rents in each submarket are determined by interaction of demand and supply. The factors underlying the demand and supply forces would vary among different submarkets. At a point of time, there will be different rents prevailing in the market. Some of the differences could be explained in terms of physical features

of the house. The other part owes itself to the distortions created by the government. The rents of different housing units at times may bear no uniform relationship with the cost of production of house, value of the house, location or its physical features. The analysis of operation of RHM thus has to be carried out in a segmented framework taking into account the specific variables which go into the determination of demand supply and price of rental housing in different submarkets.

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