Costs and Benefits of Residential Rent Control in Bangalore, India

by

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DISCUSSION PAPER

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Costs and Benefits of Residential Rent Control in Bangalore, India
ABSTRACT

Rent control is more common in developing countries than is commonly perceived. For example, in India rent controls have been in place in most major cities since the 1940s. However, the specific design of controls, their enforcement, and market conditions, vary considerably from place to place within India, and of course even more from country to country. This paper is a case study of the costs and benefits of rent controls in one city, Bangalore, India.

Major empirical findings from this paper include the following. Costs and benefits differ significantly between "strictly controlled" and "ordinary controlled" units. Normalizing the market price per unit of housing services at one, we estimate that the typical "ordinary controlled" household would consume 133 units (1974 Rupees) of housing services in the absence of controls and other market imperfections. In fact we observe households consuming 65 units, but spending only 60 (i.e. the price per unit of housing services is 60/65 = 0.92 of the market price). We estimate they would like to consume around 150 units of housing services at controlled prices. But they are constrained by a shortage of appropriate units at the lower price, and they end up consuming less, i.e. 65 units for 60. They benefit from the lower rent but they also lose from consuming less housing than they would consume in the absence of controls. According to our estimates, the loss is greater than the gain from lower rent, and the tenant is worse off than he or she would be in equilibrium at market prices. The loss is greater the lower the price elasticity in absolute value.

For the typical strictly controlled household, we estimate that 97 units of housing services would be demanded in the absence of controls and other market imperfections. The typical household actually consumes 107 units, actually a little more than demand at market prices, but spends only 45 (i.e. the price per unit of housing services is about 0.42 of the market price). Strictly controlled households are (compared to "ordinary" controlled) receiving a bigger transfer from a lower price and are closer to their demand curve. These favored households are better off under controls, because they receive a bigger transfer and they also value the transfer at close to its cost to landlords.

The bottom line is that rent control reduces the rents households pay, but for the typical "ordinary" controlled household the benefit of this rent reduction is small and is more than offset by the welfare loss from underconsumption of housing. Households under "strict" controls benefit substantially at the expense of landlords. However, gains and losses to "average" households mask large differences in the outcomes to individual tenants in either group.

Ordinary controlled renters are higher income than uncontrolled renters, and strictly controlled renters are lower income; but there is a great deal of overlap in their distributions. There is no discernible relationship between income and benefits within the controlled samples. Landlords have higher incomes than tenants who are not landlords, on average; median incomes for the landlord groups are some 70 percent higher than nonlandlord tenants. But there was significant overlap in the distributions.
Median fair rents are about 42 percent of median estimated market rents. If Bangalore's market had been in equilibrium at our estimate of long run market prices, (i) property tax collections would have been about 2.4 times their actual collection, assuming no change in mill rates or improvements in collection procedures, and (ii) the incidence of the tax would be more equitable, if we adopt the standard that ability to pay is related to characteristics of the unit and/or income of the household.

Profitability of rental investment was analyzed. For one representative case the internal rate of return for a controlled unit was estimated at -10 percent. Without controls, such rental housing units could compete for capital with investments yielding real returns of up to 3 or 4 percent. Tenure security depressed returns as much or more than controls themselves.

Alternatives for reform exist. Blanket lifting, permanent decontrol of new construction, decontrol for units that do not meet certain standards, either now or after upgrading, vacancy decontrol, vacancy rate decontrol, rent level or market segment decontrol, contracting out, and floating up and out are among the options discussed. While there is certainly room for discussion of other alternatives, results presented above suggest decontrolling new construction, indexing rents for existing units to general prices, and letting real rents for existing units rise. Any reform package should also include measures to improve the markets for key inputs (land and finance), and regulatory reforms in other areas (e.g. revision of the Urban Land Ceiling Act, building codes, and other regulations).
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COSTS AND BENEFITS OF RESIDENTIAL RENT CONTROL
IN BANGALORE, INDIA

I. INTRODUCTION

1.1 Rent control is more common in developing countries than is commonly perceived. For example, in India rent controls have been in place in most major cities since the 1940s. In Bombay, rent control acts were enacted as early as 1918. However, the specific design of controls, their enforcement, and market conditions vary considerably from place to place within India; and of course they vary even more from country to country. This paper is a case study which presents empirical estimates of the costs and benefits of rent controls in one city, Bangalore, India. While there is a growing literature on Indian housing markets and rent control in particular, which we draw on freely below, so far to our knowledge no study has estimated the effects of controls with the rigor which we attempt here.

1.2 The paper is of particular interest to those concerned with the effects of rent controls in India, but it is also part of a larger comparative research project on "Rent Controls in Developing Countries" (RPO 674-01) which will compare the effects of different rent control regimes under different market conditions from a number of countries. That research has already demonstrated that rent controls differ markedly in their effects depending on specific provisions and enforcement provisions, and market conditions. Even within India, these vary from market to market, as will be described below.

A. Objectives of the Study

1.3 The objectives of the paper are to describe rent control laws and related regulations, in the various states but in Bangalore in some detail; to describe market conditions, and constraints on the market, again generally and in detail for Bangalore; to analyze the costs and benefits of controls; and to analyze options for relaxation or decontrol. No less important is to highlight where additional research would shed light on these issues; in particular, we hope the present paper will motivate additional data collection and analysis from a number of Indian markets.

1.4 While this paper is a study of one market, it will indicate which findings are likely to be robust and generalizable across markets, and which findings are likely to be peculiar to the type of regime studied. In addition to presenting result for a large market at a particular time and attempting to indicate which results are generalizable to other times and
places and which are not, this paper aims to serve as a model for future empirical research on controls in India. Forthcoming papers about other countries from the research project will synthesize results from a number of case studies, providing other comparative information.

**Key Questions**

1.5 More specifically, after describing the market and controls in India and in Bangalore we seek to illuminate the following questions:

(a) What are controls like in urban India? What variation exists in laws, enforcement, and effects, among the various states and among cities? What related regulations exist?

(b) What are the static costs and benefits of controls from the point of view of tenants and landlords? How do changes in rents and housing consumption affect the welfare of typical individuals?

(c) What are the distributional implications of controls?

(d) What are the dynamic costs? Are there measurable losses to tenants from reduced mobility and to landlords from inability to convert units to their highest and best use? What are the losses to society from foregone investment and inefficient use of the existing stock?

(e) What are the effects of controls on government revenue, including property and income taxes?

(f) What are the effects of rent control on the profitability of rental housing? What are the implications for housing supply?

(g) How, on balance, do landlords and tenants adjust to controls?

(h) Many alternatives for change present themselves. What can we infer about the effects of different changes on profitability and supply? On affordability and on the distribution of income and welfare? What other constraints must be addressed for the housing market to respond to changes with increased output rather than increased prices?

(i) The comparative static cost benefit analysis carried out for this study use data from 1974. Can we make some conjectures about what the cost-benefit results might look like today, at least qualitatively?

(j) What additional work is required to analyze controls?

1.6 The body of the paper consists of a blend of review of existing literature, new empirical work, theoretical analysis and simulation which will
answer these and other questions pari passu. For those who can't wait, we summarize some of the results here.

B. Executive Summary

Rent Controls in India

1.7 Details of rent controls, their enforcement, and related regulations are largely in the purview of the states. A number of states have adopted exemptions for new construction for a period of 5 or 10 years (Andra Pradesh, Goa, Haryana, Karnataka, Madyha Pradesh, Orissa, Tamil Nadu and Uttar Pradesh), and there is some variation in how fair rents are set and other details of regulation. Perhaps the most important regulation related directly to rental housing is tenure security. Other important regulations include the Urban Land (Ceiling and Registration) Act and the Town Planning Act. Initial empirical analysis of statewise differences in rent control provisions could not uncover any correlation between housing market outcomes and the limited statewise variation in Indian rental regulations.

1.8 An important feature of controls is that Bangalore (and other large cities) have different classes of controls depending inter alia on characteristics of the unit and the household. In Bangalore, units which are newly constructed or below a ceiling are "uncontrolled." Units which have been allotted by the Rent Controller to government servants or other priority households, or which have otherwise had "fair rents" formally set are "strictly controlled." Other rental units are "ordinary controlled."

Data and Method

1.9 The paper aims to blend theory and empirical work to describe outcomes qualitatively and, where possible, quantitatively. Key data sources include a large household survey of 1745 Bangalore households carried out in 1974; a resurvey of some 211 of those households; and more recent semistructured interviews from 40 non-randomly selected households. These are complemented by aggregate data from official sources, including the Census of India, National Building Organization, and India's national income accounts; and interviews with Rent Controllers and others knowledgeable about the market. We also make free use of results from a number of Indian scholars who have previously studied controls and Indian housing markets.

1.10 Simple theoretical models are used to analyze controls, including the familiar analysis of rent control as a tax on housing capital, and some extensions; and models which analyze deterioration, duration of tenancy, and pricing with restricted entry. We analyze statewise differences in controls and housing market outcomes using simple analysis of variance techniques. We use the 1974 data and its extensions to carry out a straightforward static cost benefit of controls. Finally, we build a present value model, augmented with a demand side, which can be used to study the effects of controls on landlord profitability and tenant affordability more dynamically.
Bangalore's Housing Market

1.11 Bangalore's housing market is primarily a rental market. Sixty three percent of the households from the 1974 sample rented their dwelling unit.

1.12 The breakdown of controlled units into strictly controlled and other controlled is based on a 1984 resurvey of part of the original sample. While a resurvey sample frame was chosen to be representative, respondents are not necessarily representative of the original sample and original population. They appear to have slightly higher incomes, and are more likely to be renters than the total 1974 population.

Rent Control In Bangalore

1.13 Provisions regarding allotment of buildings and fixation of fair rent do not apply to buildings constructed after August 1, 1957 for a period of five years from the date of construction of such buildings. Units which rent for 15 Rupees or less are also exempted from these provisions.

1.14 According to the Act, whenever a house which is more than five years old becomes vacant, the landlord must inform the Rent Controller of the vacancy within 15 days. The Controller then starts the process of allotting the house to the tenant, according to the Rent Control Rules. In general, to be considered for allotment an applicant must be a resident of Bangalore, and cannot own another house within the city. The latter provision only came into force in 1976, however, and is not necessarily enforced. Strict guidelines exist for determining priority in the queue for allotment (see Table 5). Priority is determined mainly by employment. Elected officials and government servants generally have the highest priority for allotment.

1.15 Rental housing under control of the act can, therefore, be considered as subdivided into (i) ordinary controlled housing, and (ii) housing which has its "fair rent" set by the rent Controller, and/or which is allotted to specific tenants by the Rent Controller. The latter is in most senses a stricter form of control. Rents for ordinary controlled housing are frozen in theory, and go up slowly if at all in practice. But if the unit has been allotted by the rent controller, as described below, rents may be rolled back below their current level. Also, an unallotted tenant may apply to the Rent Controller for fair rent fixation, which may again be below the current controlled rent. As detailed below, it appears that a significant proportion of renters choose not to apply for fair rent fixation, but that the possibility of tenants applying is an incentive for landlords not to raise rents illegally on "normal" controlled units. For the rest of this paper we will adopt the following convention. Controlled units are those whose rents are frozen, but those rents are not "fair rents" set by the rent controller. Strictly controlled units are those whose tenants have been allotted by the rent controller, and/or whose rents are set by the Rent Controller. (When the context is clear we will refer to both groups as controlled). Uncontrolled units are units which rent for less than 15 Rs. per month, or rental units which are less than five years old.
Costs and Benefits of Controls

1.16 Costs and benefits differ significantly between "strictly controlled" and "ordinary controlled" units. Normalizing the market price per unit of housing services at one, we estimate that the typical "ordinary controlled" household would consume 133 units of housing services in the absence of controls and other market imperfections. In fact we observe households consuming 65 units, but spending only 60 (i.e. the price per unit of housing services is 60/65 = 0.92 of the market price). Depending on assumptions about the price elasticity of demand curve we use, we estimate they would like to consume around 150 units of housing services at controlled prices. But they are constrained by a shortage of appropriate units at the lower price, and they end up consuming less, i.e. 65 units for 60. They benefit from the lower rent (a 5 Rs. per month subsidy from landlords) but they also lose from consuming less housing than they would consume in the absence of controls. According to our estimates, the loss is greater than the gain from lower rent, and the tenant is worse off than he or she would be in equilibrium at market prices. The loss is greater the lower the price elasticity in absolute value.

1.17 Strictly controlled renters are in a quite different situation, according to the "representative" calculations. For the typical strictly controlled household, we estimate that 97 units of housing services would be demanded in the absence of controls and other market imperfections. The typical household actually consumes 107 units, actually a little more than demand at market prices, but spends only 45 (i.e. the price per unit of housing services is about 0.42 of the market price). In other words, strictly controlled households are (compared to "ordinary" controlled) receiving a bigger transfer from a lower price and are closer to their demand curve. These favored households are better off under controls, because they receive a bigger transfer and they also value the transfer at close to its cost to landlords.

1.18 The bottom line is that rent control reduces the rents households pay, but for the typical "ordinary" controlled household the benefit of this rent reduction is small and is more than offset by the welfare loss from underconsumption of housing. Households under "strict" controls benefit substantially at the expense of landlords. However, gains and losses to "average" households can mask large differences in the outcomes to individual tenants in either group.

1.19 Rent controls which are not indexed to inflation (as Bangalore's is not indexed) become more binding over time. Consider an "ordinary controlled" household which in 1974 had the typical values of income, PcQc, PmQc, and PmQm for its category (Figure 4.3). Starting from a typical rent of about 60 Rs., such a unit would rent for about 160 Rs., had rents increased in line with general price changes. Had rental demand increased with changes in prices (abstracting for the moment from real income growth), demand for those typical "ordinary" controlled households would be about 320 Rs. So over time, with controlled rents largely fixed, the subsidy to these units has been increasing. This suggests that any period's static estimate is an underestimate of the stock value of controls to a sitting tenant. The annual subsidy rises over time from 31 to about 89, and presumably it is still rising.
1.20 For strictly controlled units, typical estimated market rents would rise from about 45 Rs. to about 260 Rs. Households would demand about 210 Rs. Again subsidies would approximate benefits.

1.21 These results are not surprising, but illustrate straightforwardly how controls become "more binding" over time, exacting higher costs of landlords, and conferring larger benefits on tenants. Note that for the "ordinary" controlled tenant, eventually the benefit of the subsidy outweighs the cost of disequilibrium in consumption, and in both cases costs and benefits increase monotonically with time.

**Distributional Effects**

1.22 There are three distributional considerations: (i) How do controlled renters compare to uncontrolled households? (ii) Within the group of controlled renters, who gets the largest benefits? (iii) How do renters compare as a class to landlords?

1.23 Ordinary controlled renters are higher income than uncontrolled renters, and strictly controlled renters are lower income; but there is a great deal of overlap in their distributions. Controlled renters are more or less like other renters and like the general population; they are not, as a class, greatly more or less disadvantaged. Rent control is not an efficient redistributive device on this account.

1.24 There is no discernible relationship between income and benefits within the controlled samples. We disaggregated by strict versus loose controls, and estimates simple multivariate models, with the same result: within the sample of controlled households, benefits are largely unrelated to income, household size, or length of tenure.

1.25 Finally, if landlords have higher incomes than tenants who are not landlords, on average; median incomes for the landlord groups are some 70 percent higher than non-landlord tenants. But the following results are also obtained:

(i) Almost one quarter of the landlords have incomes below the median (non-landlord) renter income; almost one quarter of the non-landlord renters have incomes greater than the median landlord income.

(ii) More than 10 percent of renters (110 out of 1045) are also landlords; and as a class, they are as rich as homeowning landlords.

(iii) Most landlords hold relatively few units; the ratio of occupied rental units to number of landlords is about 4.

1.26 Thus it does not appear that rent control does very much redistribution of income from rich to poor, and almost certainly does some redistribution in the wrong direction. Of course richer tenants own more units. Income distribution figures were roughly weighted by income from property, for comparison. About half of landlords own one or two units; examining the distribution of rental
income and using the rough rule of thumb of 50 Rs. per unit suggest that around two thirds own three or fewer. Less than 3 percent of landlords receive more than 1000 rupees per month from their property. When the data are so weighted, the income disparities between landlords and tenants who don’t own other property are accentuated, but there is still overlap and the fact that renters who themselves own property are actually the richer class remains unaltered.

**Effect on Tax Revenue**

1.27 Demand in the strictly controlled sector is related to household size, length of tenure and education, but is unrelated to income, the direct measure of ability to pay taxes, and to fair rent (the basis of taxes). In effect, we cannot reject the hypothesis that there is no systematic relationship between fair rents and income, and the point estimate is perverse: richer households would pay lower taxes. If the standard of comparison is income, taxation based on fair rents is essentially random.

1.28 Median fair rents are about 42 percent of median estimated market rents. If Bangalore’s market had been in equilibrium at our estimate of long run market prices, (i) property tax collections would have been about 2.4 times their actual collection, assuming no change in mill rates or improvements in collection procedures and (ii) the incidence of the tax would be more equitable, if we adopt the standard that ability to pay is related to characteristics of the unit and/or income of the household.

**Effects on Profitability and Supply**

1.29 Unfortunately, little data on supply and its components are available over time. Hardly any information is disaggregated by sector or tenure. Analysis of the growth in households, permits, and completions from the time of the household survey to the 1980s showed that in the mid 1970s there were roughly four new households for every new housing permit; at the end of the decade the ratio had deteriorated to about five.

1.30 Taking a longer view with census data presented a different picture. While population grew by about 3.3 percent per annum during the 1960s and 6 percent per annum during the 1970s, the number of census houses grew by 6.8 percent and 6.3 percent in each of the two decades. The ratio of persons per census house declined from 8.4 in 1960 to 6.3 in 1980. But comparing growth rates in the two decades it does appear that population growth has picked up while growth census houses tailed off.

1.31 Starts and completions data only count formally registered dwellings, and thus undercount actual changes in supply. Census house data include data for shops and certain structures which may be only partly used as dwellings or not currently used as dwellings at all. None of these data sources tell us much about the intensity with which the stock is used. The data are not disaggregated by tenure. And little insight is given into the supply of rental and other housing from the existing stock, which in any given year is the vast majority of supply.
1.32 Rent control creates an incentive for landlords to allow existing properties to deteriorate. Many renters live in housing which, structurally, has been allowed to fall into disrepair. Strictly controlled rents are often insufficient to cover maintenance costs. The hedonic models show that, while these units would rent for more than the controlled price in the open market, their price is still low and sometimes less than what tenants would be willing to pay for a better unit. Good data are lacking on maintenance behavior in Indian cities. However, anecdotal evidence indicates that at least some renters spend their own resources on maintaining and improving their rooms, probably encouraged by their perceived security of tenure.

1.33 Several representative investment cases were studied and a model built which will permit additional simulations in future work; but for one central case the internal rate of return for a controlled unit was estimated at -10 percent. In other words, landlords under controls lose about 10 percent per year, "on average." Without controls, such rental housing units could compete for capital with investments yielding real returns of up to 3 or 4 percent. Controls reduce the rate of profit by about 14 percent overall. Perhaps surprisingly, tenure security depressed returns as much or more than controls themselves.

1.34 Rates of return based on the 1974 prices and current rates of return are qualitatively similar. Other analysis showed that even deep land subsidies don't make such an investment profitable in the presence of rent control and tenure security regulation.

Reform Alternatives

1.35 Alternatives for reform exist. Blanket lifting, permanent decontrol of new construction, decontrol for units which do not meet certain standards, either now or after upgrading, vacancy decontrol, vacancy rate decontrol, rent level or market segment decontrol, contracting out, and floating up and out are among the options discussed. While there is certainly room for discussion of other alternatives, results presented above suggest decontrolling new construction, indexing rents for existing units to general prices, and letting real rents for existing units rise gradually.

1.36 The most effective method for encouraging new investment while protecting low income renters may involve a combination of indexation of increases with a "floating up and out" of controls. The latter involves the transition from controlled rents to market rents over a period of years. It is preferable to have an end date when controls are withdrawn completely in order to maintain landlord confidence in the reality of the end of the controls which have cost them so much. Indexation could provide a formula for determining the intermediate rent levels. For example, rents could be increased annually by, say, the Consumer Price Index plus a percentage of the previous year's rent until a set date when the final increase to market levels would be implemented. Any units reaching their market level before this date would, of course, remain there. This phasing would smooth the path of adjustment giving tenants who could not afford their current room at the market rent time to find suitable alternatives.
1.37 Since the ordinary controlled sector is already close to what it might be in the absence of controls (at least for the typical unit), phasing in makes less difference there than in the strictly controlled submarket.

1.38 Once again, it cannot be overemphasized that whatever option is chosen, actions must be taken to ensure elasticity of housing supply so that increases in rents are accompanied by an increase in production. This requires that rent control is seen as one part of a housing strategy which also aims to release resources on the supply side (land, infrastructure, materials, and finance) so that supply and demand can reach equilibrium through increases in both the scale and the variety of the housing stock rather than through greatly increased prices.

1.39 Rental housing suffers from the same problems as the market overall--problems in the key input markets of land, finance, infrastructure and materials, and problems in the regulatory framework. Many such problems, when addressed, are not tenure specific but will aid rental as well as owner occupied housing--for example, changes in the Urban Land Ceiling Act, and improvements in land titling, or in infrastructure provision. But other problems affect rental disproportionately. Building codes and land use regulations which discourage compound houses particularly affect rental housing. Rent controls and other rental regulation obviously discriminate against this form of housing supply. Less obviously, solutions to market wide problems--such as land and finance--need to be designed with both rental and owner occupied housing in mind. Relaxation/reform must be accompanied by measures to ensure a rapid supply response to the demand for rental housing, or else rapidly rising rents could squeeze existing tenants and jeopardize reform. Political consensus is, after all, required for successful change.

1.40 Of the major constraints on private rental housing, many--land, finance, infrastructure, materials, building codes and standards--were discussed briefly in Chapter 2. While detailed discussion of each is beyond the scope of this report, the following points should be noted. Rental markets suffer from the same constraints as housing markets generally, but there are also some which affect rental particularly (in addition to the obvious problem of rent controls). Among other collateral actions, it will be necessary to review regulations affecting the supply of urban land, including the Urban Land Ceiling and Registration Act, to pay particular attention to building codes, land use standards, and other regulations which discriminate against low-cost housing.

1.41 Rental should not be discriminated against. Do not require owner occupancy for access to land in any program designed to improve land availability (including sites and services). Finance for rental housing also needs to be considered. Ensure that rules for lending don't discriminate (intentionally or unintentionally) against rental housing. These and other actions need to be taken as complements to any reform program.
Suggestions for Future Work

1.42 This paper examines the costs and benefits of rent control for an important market in India. The paper is, to our knowledge, the first rigorous empirical study of its kind in any Indian market. As will be explained later in the paper, additional work on controls in other cities and on collateral issues such as land and finance will be very useful in analyzing specific policies and reforms. Also, some of the survey data we use is from a decade and a half ago. There are no shortcomings with such an approach if the paper is viewed as a research study of rent control in a particular time and place. But we would like to generalize where possible about other Indian cities and the current environment. We will therefore indicate which specific results would probably change if estimated with today's data, and how we think they would change. Improved data collection, including well designed housing surveys in several markets, can make all these tasks easier.

1.43 In addition to more up to date static cost-benefit analysis, there could be much more work on the dynamics of supply in general. More detailed analysis of other constraints on land and housing markets, and comparisons to rental regulation could be carried out. Models which predict the time path of rents, rather than merely explore the qualitative implications of assumed time paths, would be difficult to calibrate precisely but could be constructed.

1.44 Finally, we hope the shortcomings of the paper motivate researchers and policy analysts to take on more such empirical work. Improving the coverage and bifurcation of aggregate data can improve analysis of supply side issues, and carrying out and analyzing new household surveys can have large payoffs in understanding Indian housing markets.
II. HOUSING MARKETS AND RENT CONTROL, IN DEVELOPING COUNTRIES AND IN INDIA

A. Prologue: Housing Markets in Developing Countries

2.1 Housing investment is the largest single form of fixed capital investment in most economies, developing or developed. In developing countries, the shelter sector usually ranges from 10 to 30 percent of household expenditure, or 6 to 20 percent of GNP. Housing investment typically comprises from 10 to 50 percent of gross fixed capital formation. Further, housing investment's share of GDP rises as economies develop. Other than human capital, housing and land are the commodities with the widest ownership. For example, historical research into Britain's industrial revolution has pointed out that investment in housing and its associated infrastructure was much larger than investment in plant and equipment.

A Framework for Analysis: How Housing Markets Work

2.2 Clearly some housing problems stem directly from poverty. Improving housing conditions which are bad solely because incomes are low must be accomplished by improving the productivity and incomes of the poor. But many countries which are succeeding in the task of general development find housing conditions lagging. Many countries at all levels of development find housing conditions worse than they need be because their housing markets are not functioning efficiently.

2.3 Figure 2.1 shows a schematic diagram of how the housing market works. Inputs such as land, labor, finance, materials, and infrastructure are combined by supply-side agents such as landlords and developers to produce housing services. Homeowners, and to a lesser extent, renters, are also producers, if they maintain and upgrade their houses. Relative prices inform producers of housing services about whether to provide more or less housing.

2.4 The market for housing services per se can be well approximated as a competitive market. For the activities in the middle box, there are few barriers to entry or large economies of scale in most countries. This does not mean, of course, that anybody in a poor country can become a landlord or developer. But there are seldom so few landlords or developers that they exert significant market power, unless they also control inputs that are not competitive, or their numbers are limited—intentionally or not—by regulation.
2.5 The market for many inputs is not competitive, however: (i) their ownership may be so concentrated that owners can fix prices, as in some land markets; (ii) large economies of scale may make the production of some inputs a natural monopoly, as with some types of infrastructure; and (iii) government regulations may restrict the competitive allocation of inputs, notably finance and serviced land.

2.6 The implications of this analysis are clear. Problems in housing markets are often caused by problems in the input markets. Government actions that attack these problems directly are the right ones. Rather than adopt this approach, however, many governments intervene in production (the middle box). Governments that try to fix prices—for example, by rent controls—distort the signals being sent to the market and may exacerbate the original problem. Rent controls attack the symptom, not the problem.

2.7 In line with the conceptual framework above, the evidence we present below supports this notion that rent controls, and other price controls, attack symptoms rather than problems in housing markets. Those problems are, first, the low incomes of many Indian citizens, because their productivity is impaired; and problems in many of the key input markets. Then rent controls can be seen as interfering with signals and, paradoxically, postponing dealing with the real problems in housing markets.

2.8 Regarding the first, and perhaps preeminent problem—improving the productivity and incomes of the poor—is too large a topic to treat here. While there are interrelationships between housing and productivity, we do not discuss those either. We focus more narrowly on the performance of the housing market, taking incomes as given. Few observers of the Indian scene would quarrel with the notion that housing conditions are even worse than they need be given low incomes. First we will set the stage with a brief comment on the scale of urbanization in India. Then in the next few pages we will briefly discuss demand, supply, the regulatory framework, and each of the key input markets in turn.

B. Overview of India’s Urban Housing Markets

Recent Trends

2.9 The Government of India’s (1988) recent Report of the National Commission on Urbanization put the link between urbanization and the housing market quite starkly:

Because of the magnitude [of urbanization] our attitude to these urban centers has been confused and equivocal. On the one hand we see them as heroic engines of growth, not only creating skills and wealth for the nation, but also generating employment for migrants from rural areas. . . . On the other hand, these urban centres have also generated the most brutal and inhuman living conditions, with large sections of the citizens (almost half in Bombay and Delhi) living in squatter settlements. (Vol.1, p.1)

1/ See, among other references, Kahnert (1987).
2.10 Despite recent increases in the share of GNP devoted to housing investment, many problems remain; housing and, especially, land prices are shooting up in Indian cities; the number of squatters continue to increase; and the fact is that generally housing conditions are getting worse instead of better, for a large proportion of the urban population.

![Figure 2.2: Urbanization and GNP Per Capita](image)

![Figure 2.3: India's Rural and Urban Population](image)

Urbanization in India

2.11 The growth of cities has accompanied urban development for the last 5000 years. This does not, however, imply a simple causal relationship. Rates of change in urbanization and of income over the past 20 years are at best weakly correlated, for example. But it is still true that in the long run developing economies urbanize. And the urbanization which inevitably accompanies development requires heavy investment in housing, infrastructure, and related social overhead capital.\(^2\)

2.12 Figure 2.2 presents the familiar correlation between level of urbanization and GNP per capita (log scale). While India's ratio of urban to total population is still low (27 percent) the absolute numbers of urban population are quite impressive, as is the rate of increase. The latter is to be expected, since India starts out from a low level. Figure 2.2 shows that, even given India's low GNP per capita, her current level of urbanization is quite modest. Figure 2.3 presents United Nations (1986) data on recent and projected future population growth over the next several decades. According to the U.N. projections, India's urban population will more than double over the next three decades, reaching a level of 600 million, about the same as rural population, around the year 2020.\(^3\)

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\(^2\)/ See Williamson (1987).

\(^3\)/ Among other studies of Indian urbanization see Mohan (1982a), Mills and Becker (1986) and Prakasa Rao (1983).
2.13 Urbanization on such a scale requires large investments in housing and related infrastructure. But demand depends on income and prices as well as demography. What do we know about these other determinants?

Incomes, Prices, and Housing Demand

2.14 Previous research on India and a number of other markets has shown that the structure of demand in developing countries can be roughly but fairly represented as follows.\(^4\) Within particular markets, demand is income inelastic: most estimates using household housing consumption and incomes from cross section data range between .4 to .6 or so. Across markets demand is elastic: Malpezzi and Mayo estimate that, using city averages of housing consumption and incomes as the unit of observation, the very long run elasticity across markets ranges somewhere above 1 but less than 1.6.\(^5\) Figure 2.4 presents a graphical representation of the above.

2.15 Other conclusions from these studies include the following. Owner and renter elasticities are surprisingly similar, but the level of owner consumption is higher; and the difference increases with income.

2.16 Less is known about price elasticities, partly because decomposing consumption into price and quantity is more difficult technically. Our own estimates, of around -1, are among the highest, and our particular technique subject to bias towards 1 (Malpezzi and Mayo 1987a). Estimates from aggregate data over time also suggest a high elasticity (Ingram, 1983). Other estimates from cross sectional data suggest -.4 as a reasonable lower bound (Mayo 1981). Clearly more research is needed here, but we will see below that many qualitative conclusions about markets can be reached using even these fairly wide bounds.

2.17 Based on these cross country comparisons (which we describe in more detail in Chapter 6 below), we expect typical renter households in India to spend on the order of 9 percent of their income on housing.\(^6\) Note that this expectation is the estimate from a model calibrated with uncontrolled markets; when the model is calibrated using controlled markets, we predict typical Indian

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\(^4\) Malpezzi and Mayo (1987a, b); Mehta and Mehta (1989).

\(^5\) Malpezzi and Mayo (1987a, b); Malpezzi \textit{et al.} (1988).

\(^6\) Note the difference between such a figure and oft-used "rules of thumb" that households will spend about a quarter of their income on housing. Note that households will spend higher fractions for owner-occupied housing, because of investment motives; and could well spend higher fractions for subsidized housing.
households would spend about 6 percent of their income on housing. In both cases, on average lower income households would spend higher fractions of their income on housing, and the converse. Around these averages, the variance would be greater for lower income households, as Figure 2.5 illustrates using data from Cairo, Egypt.

2.18 How do these expectations square with actual data from India? We will present our own data below, but regarding previous studies the only household level econometric study we are aware of is that of Mehta and Mehta (1989). Their wide ranging study, based on a sample of 900 Ahmedabad households and collateral data, included estimation of demand functions similar to those of Malpezzi and Mayo. They found median rent to income ratios of about 8 percent for renters (average 15 percent). This is not too different from the rough estimate of uncontrolled average rent from the cross country model noted above, a point we will return to later. Mehta and Mehta also note that owners pay considerably higher fractions of their income for housing, which we will again return to later.

2.19 The only empirical study of housing demand across Indian markets that we are aware of is by Dholakia (1982). Using national and statewise data over time, Dholakia regresses aggregate rentals at constant prices (D, his measure of the quantity demanded) against real gross state product (Y, his measure of income) and a rental price index (P). A priori we would expect that even aggregate data from an annual series would reveal "less long run" behavior than the Malpezzi and Mayo model, hence the elasticities would be lower. In fact such is the case; using pooled data his estimated income elasticities for urban areas are about 0.6. However, when Dholakia disaggregates by state his estimates vary from 0 to 2.7, with a median of about 0.5 and first and third quartiles of about 0.3 and 0.9, respectively. All estimates except that for Assam are less than one. Dhokalia notes the variability of the estimates, and

7/ The sample of controlled markets includes several with widely varying rent control regimes, a point we discuss more in Chapter x.

8/ The large difference between median and average implies a large "tail" of the distribution, i.e. a number of high rents are pulling the average up. The median is a better indicator of central tendency in such distributions.

9/ Where the city is the unit of observation, and the implicit time frame is the number of years it takes cities to reach different levels of development observed in the sample, i.e. the M&M model is very long run in a market which is very slow to adjust.

10/ From his "full model" with both income and price on the right hand side.
the fact that they are generally of the right sign. As in Malpezzi and Mayo, estimates of the price elasticity are less precise.11/

2.20 This brief review demonstrates that incomes and prices as well as demographic pressures are important components of demand. What has been the supply response of housing and related markets to this demand?

Housing Investment

2.21 If supply is elastic in the very long run, housing supply should mirror the demand patterns discussed above. Figure 2.6 shows the plot of housing investment as a share of GDP (called SHTO in the literature since Burns and Grebler) and the quadratic regression line. The data, from the mid seventies, are taken from Buckley and Mayo (1988). Data from that paper, not shown here, illustrate a similar pattern of housing investment as a share of gross fixed capital formation.

In both it is clear that housing investment first rises as a share of national product, then falls; the turning point is roughly at the level of income of Venezuela, Spain, or Ireland. Buckley and Mayo also present evidence that housing investment's share fell between the mid 1970s and early 1980s, perhaps because of falling real incomes and the difficulties of structural adjustment.

11/ His estimated income elasticities are robust with respect to inclusion of the price variable.
2.22 Figures 2.7 and 2.8 present the data on housing investment over time for India.\textsuperscript{12}

Figure 2.8 shows that housing's share of capital formation, and for that matter capital formation as a share of output, have been remarkably stable in India over the past 25 years.

2.23 These aggregate investment data are mainly additions to the stock of housing. An underresearched component of supply is housing from the existing stock, which provides the great bulk of housing services in any given year.\textsuperscript{13} How the existing stock is utilized is particularly important for rental, as many units originally built for sale to owner occupiers are later rented or parts sublet.

Figure 2.9: India's Urban Housing Stock, 1961 and 1985

Figure 2.10: Urban Tenure, Recent Census Years

\textsuperscript{12} National income accounts data show a substantial difference between real and nominal figures for housing investment as a share of GDP. Specifically, the real share SHTO appears flat while the nominal data are rising. We have not presented the data because recent changes in the GDP component deflators make it difficult to ensure that we have a consistent series from our sources. If this data is correct, it suggests that housing prices are rising substantially faster than other prices over time. That is, the nominal share of housing investment can rise faster than the real share if the GDP price deflator for housing is rising faster than the general GDP price deflator. A back of the envelope calculation using these data suggest that real housing prices have been rising by about 5 percent per annum over the last decade.

\textsuperscript{13} Other than the few studies surveyed in Ferchiou (1982) and Johnson (1986), very little has been done on filtering, i.e. on the conversion of units from one income group's use to another's. More has been done on other changes in utilization of the existing stock. There is a useful literature on upgrading, for example (Jimenez 1982).
2.24 Whatever the components of supply, Figure 2.9 is the outcome: India's urban housing stock, in 1961 and 1985. The size of the pies is proportional to the size of the stock. Note that quality has improved, according to this data. But the urban housing stock has grown less rapidly than urban population. There were 7.4 urban persons per urban unit in 1985, compared to only 5.7 in 1961.

2.25 None of this aggregate investment data is readily available by tenure. However, Figure 2.10 presents the percent rental in urban areas for recent years.

2.26 The share of households that rent has fallen only slightly, so we can infer that some investment in rental housing has taken place during this period, although less than in owner occupied, and substantially less than urban population growth.

2.27 To conclude this brief discussion of supply, note that housing investment is a derived demand, subject to various supply side constraints and the regulatory framework in place in each country. We discuss each of these constraints briefly in turn.

Land

The Report of the National Commission on Urbanization stated that:

The land market, perhaps more than any other, gives evidence of grave distortion in urban India. (Vol.2, P. 118)

2.28 Land prices have been increasing faster than the rate of overall inflation in Indian cities for some time. For example, Lall (1983, pp. 90 ff.) reports that in Surat between 1975 and 1981 land prices increased at an annual rate of between 7 and 25 percent per annum in most locations. One location (near the Umra/Athwa Lines complex) had an annual increase of over 90 percent. In Villapuram, land prices have been increasing at an annual rate

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1 Data are from Census and National Buildings Organization, as reported in Lall (1982).

15 Pucca house: where walls and roof at least are made of burnt bricks, stone, cement concrete, tiles, timber, galvanized iron or asbestos cement sheets. Kucha house: were walls and roof are made of unburnt brickes, bamboo, mud, grass, leaves, reeds or thatch.

16 Comparisons must be made with some caution; some locations were omitted from the 1981 Census data, notably Assam.

17 A fast growing city of about 600,000 in the Bombay-Ahmedabad corridor.

of between 40 and over 300 percent per annum, depending on location. In Bangalore urban land prices have increased at about 16 percent per annum in period 1976-85.

2.29 Partly in response to the perception of large increases, a number of regulatory responses attempt to control the land market. The most notable is the Urban Land (Ceiling and Regulation) Act\textsuperscript{[19]} which dates from 1976. In response to perceived increases in land prices, the Act\textsuperscript{[20]}, inter alia,

(a) prescribes a ceiling on both ownership and possession of vacant land in urban areas; the ceiling (500 sq. mtrs. to 2000 sq. mtrs.) varies with the size of the urban area

(b) grants the state governments the right to acquire "excess" vacant land and rights to dispose it of for the common good;

(c) provides for an amount as laid down in section 11 of the Act to be paid in cash and bonds;

(d) exempts certain categories of vacant lands (belonging to Central Government, State Government, Local Authorities, Banks, Charitable Trusts, etc.);

(e) empowers the State Government to grant exemption to persons, if necessary to do so, in the "public interest" or if it causes undue hardship to such persons;

(f) restricts the plinth area for future residential buildings.

2.30 The Act has, in the opinion of many informed observers, had many unfortunate unintended consequences. The number of transactions has fallen, and many of those which do take place are unreported. As the market for urban land has "thinned," the price of the few parcels which are traded has been bid up.

2.31 The National Commission on Urbanization notes, for example, (Vol. 2, p. 122) that of all major cities studied, Ahmedabad's relatively low rate of land price appreciation (compared to other cities of comparable size) "may have been helped by the fact that 62 percent of all land exempt from the operation of the Urban Land (Ceiling and Regulation) Act is located in this state [Gujarat]."

2.32 Another set of land policies which deserves attention are land use planning and zoning. As well located and serviced urban land becomes even more scarce relative to population, it becomes more important than ever to economize on its use. Unfortunately present development standards often work in the other direction. For example, a study of Uttar Pradesh found that 87 percent of urban households there could not afford a minimum sized plot developed according to the

\textsuperscript{[19]} Hereafter the Urban Land Ceiling Act.

\textsuperscript{[20]} Government of India (1985).
regulations (Bertaud, Bertaud, and Wright, 1988). Here again, the National Commission on Urbanization report is quite clear: planning and zoning must in the future be used as tools to improve the efficiency of cities (see p 121 ff.).

2.33 Along with regulation and location, the other major determinant of relative land prices is infrastructure.

Infrastructure

2.34 The provision of infrastructure and related services--transport, water, sanitation, and so forth--is a traditional public sector activity, and one of particular importance to low-income groups. Directly, households benefit from several types of infrastructure through saving time and money (for example, publicly supplied water rates versus user charges) and through improved living conditions. Often infrastructure investments encourage new construction and upgrading of existing housing, including the provision of more houses to rent. As Williamson (1987) and Aschauer (1989) show, investments in infrastructure are closely linked to productivity and development.

2.35 Most infrastructure is locally supplied and maintained. Financing infrastructure, especially its maintenance, is a key responsibility of local governments (Mohan 1982b). In India, as in many other countries, local government finance has not kept up with demand for local services. The main direct sources are property taxes and octroi. Octroi is a tax on the movement of goods, collected on main roadways. Octroi are more buoyant but raise the cost of intercity commerce. However, in the State of Karnataka, since the abolition of octroi with effect from April 1, 1979, the most important source for revenue for urban local bodies is the property tax.

Finance

2.36 Housing finance is a non-negligible share of total finance in many countries. Housing finance needs to be considered in light of its importance as finance as much as its importance for housing. Housing is the largest asset owned by most households. Housing is always financed, in the sense that virtually all owners of housing capital must pay for their units over several periods. Even households which own their units "free and clear" finance the unit in the sense that holding such a large asset has a financial opportunity cost. But in most countries only a small share of this potential finance, roughly equal to the value of the underlying assets, is in the form of mortgages or other formal sector finance.

2.38 Because housing is such a large item in household spending and wealth, access to mortgage finance can provide a strong incentive for people to save and

21/ Octroi is a tax on the movement of goods, collected on main roadways.

22/ See Malpezzi (1989) and, especially, Renaud (1989).

23/ Goldsmith (1985) presents data from a number of developed countries and a few developing countries, including India.
invest. Savings in housing finance institutions, while generally used to provide mortgages, can become a large part of a country's total savings that are available for financing infrastructure and other non-housing projects. The housing finance system can also help to ensure that housing projects are repeated, as repaid loans provide money for new mortgages.

Figure 2.11: Formal and Informal Housing Finance, Selected Years

Figure 2.12: Formal Housing Finance by Institution, Selected Years

2.39 India's housing finance system is evolving from one where deeply subsidized credit is rationed to a few to a system where more households are permitted to bid for credit at competitive rates. Since virtually all housing is financed, given data on formal finance and housing investment Lall (1983) has estimated informal finance by subtraction.\footnote{This is only an approximation since in any given year some existing housing will be refinanced. However most formal finance is for new units in India.} Figure 2.12 shows that over the past few decades, formal housing finance has been growing in real terms, but informal finance has been growing faster.

2.40 How does this affect the so called "real side" of the market? Below we will present international comparisons which suggest that smaller amounts of formal housing finance are associated with higher house price to income ratios.

2.41 Figure 2.13 presents the breakdown of formal housing finance in more detail. Major government finance programs include the housing building advances provided to employees of the central and state governments, public sector corporations and other institutions, and the various housing schemes for the low and middle income groups.

2.42 In recent years on the order of 60 percent of this government finance is from state and local governments.

2.43 The Life Insurance Corporation of India (LIC) and the General Insurance Corporation (GIC) also play a wholesale role, although LIC's role in housing related finance is much larger (on the order of 10-15 times in recent years).
However LIC invests a smaller share of its portfolio in housing (around 11 percent according to Lall) while GIC is required to put 35 percent of its funds into housing. The role of Provident Funds is increasing at a rapid rate, although housing loans are still a small share of their total assets for housing. Commercial banks lend relatively little for housing.

2.44 Cooperative societies are important in the middle and upper income market. There are two tiers of cooperatives; state level apex societies under which there are a number of primary societies. These in turn originate most of their financing from LIC.

2.45 Specialized housing finance institutions include HUDCO, Cooperative Societies, and HDFC. In the budget for the year 1988-89, the Government of India announced the decision to set up a National Housing Bank (NHB). Accordingly, the NHB was established in 1988 as a wholly owned subsidiary of the Reserve Bank of India, with the following objectives:

(a) to mobilize resources for the housing sector;
(b) to promote housing finance institutions both at regional and local levels;
(c) to provide financial, technical and administrative assistance;
(d) to regulate the working of housing finance institutions at all levels;
(e) to provide advisory services in operational policies;
(f) to identify the legal, fiscal, institutional and other constraints to the development of the housing finance system, and
(g) to support production of construction materials used for housing.

2.46 The Housing and Urban Development Corporation (HUDCO) is a state corporation which directs credit from national banks and life insurance companies into housing. Created in 1970, HUDCO lends on the order of 4500 Rs. million per annum. Typically HUDCO finances higher income mortgages at close to market rates, and cross subsidizes mortgages for lower income households. Hence their terms vary from 5 to 14 percent. Arrears are a serious problem. In recent years HUDCO has been attempting to focus more strongly on EWS and LIG housing5 and to do more on land development.

2.47 One of the major housing policy thrusts under the Seventh Plan is the expansion of market oriented housing finance. The Housing Development Finance Corporation (HDFC) is a market oriented housing finance corporation26 which mobilizes household and corporate savings directly. It has grown rapidly in recent years, but is only one institution and remains a small share of the total market. Defaults are rare; given the difficulty of foreclosing, HDFC limits its credit risk exposure by requiring high downpayments and third party guarantees. These alternatives to foreclosure have their costs; households with insufficient

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25/ EWS (Economically Weaker Section) are households with monthly incomes at or below 350 Rs. LIG (Lower Income Group) range between 351 and 600, MIG (Middle Income Group) between 601 and 1500, and HIG (High Income Group) above 1500.

26/ The Government of India controls the board of HDFC but it also has private shareholders and pursues a market based strategy.
downpayments or access to cosigners with formal employment who are willing to guarantee are rationed out.

2.48 Full discussion of financial issues is beyond the scope of this paper, but a good overall indicator of current policies can be gleaned by reference to Figure 2.13. HUDCO interest rates have a wide range depending on income levels of the beneficiary; those which are targeted to EWS are negative in real terms. HDFC has a narrower spread which is positive under the rough maintained hypothesis of 10 percent inflation over the life of the loan.

2.49 Generally, expansion of market based housing finance requires more than just changes in interest rates. Improvements in the regulatory framework, including improvements in foreclosure, and adoption of new instruments on both the asset and liability side are some of the other requirements. As India's financial system is heavily directed at the present time, reforms in housing finance will need to be put in the context of overall financial reform.22/

The Regulatory Framework for Housing and Related Markets

2.50 In each of the input markets discussed above, the regulatory framework played a key role. Other regulations are described briefly here. Rent regulation, of course, is described in great detail later.

2.51 Generally, urban land and property issues are the responsibility of the states. In order to regulate the use of urban land and to promote its development, the state governments have enacted a number of pieces of legislation concerning urban land and property within the framework set by the central government. While some of the legislation such as Town and Country Planning Act, Municipal Corporation Act, Urban Land Ceiling and Regulation Act, Land Revenue Act, Industrial Licensing Act, Public Presises Act and Rent Control Act are of regulatory nature, the others, viz. Land Acquisition Act, Slum Improvement Act, Metropolitan Development Authority Act and Industrial Area Development Board Act

27/ Such reform is currently underway in a number of developed as well as developing countries. See Renaud (1989). The U.S. housing finance system provides a good illustration of the costs of inappropriate regulatory policies. See Downs (1985) and Kane (1989). On financial reform more generally, see the World Bank's 1989 World Development Report.
are development-oriented. As the Acts cover matters relating to land acquisition, tenure, taxation, land ceiling, and land development, they all affect the housing market in one way or the other.

Do Regulations Matter?

2.52 The above discussions on land, infrastructure, and finance have provided examples of regulations that adversely affect the housing market. This focus on regulation is in sharp contrast to a more common focus of some analysts on the amount of resources allocated to housing. Our maintained hypothesis is that if you get regulatory policies right, and free up constraints in the input markets, resources will find their way to the sector. This section documents the general proposition that regulatory policies have powerful effects on the macroeconomy as well as on the housing market.

2.53 Figure 2.14 presents some rough and ready evidence on the relationship between policies and income growth in the aggregate. Agarwala (1983) has constructed indices of price distortion, which are one convenient summary measure of the policy environment. Agarwala used quantitative indicators of distortions in: (i) exchange rates, (ii) interest rates, (iii) agricultural prices, (iv) wages, (v) protection for manufacturing, (vi) distortions in the overall price level, and (vii) distortions in infrastructure pricing for 31 developing countries. He ranked each indicator in each country on a scale of 1 (least distortion) to 3 (most distorted). We sum these, so the minimum score is 7 and the maximum score is 21.

2.54 The negative relationship between growth rates and distortions is obvious in Figure 2.14. Using the regression line through all points, the least distorted economies (score of 8 to 12) averaged growth rates of 3 to 4 percent, while the most distorted averaged 0 to 1 percent.\(^{28}\)

\(^{28}\) Of course GNP per capita is only one aspect of development. Education, political development, and physical well being are examples of other indicators that may be only weakly correlated with GNP. Malpezzi (1989) examines the relationship between Agarwala’s indexes and the distribution of income. Countries with low levels of price distortions tend to have better income distributions. The average for low distortion countries (around 8-10 on the Agarwala scale) is for around 6-8 percent of income to go to the lowest 20 percent; for countries with Agarwala indexes around 18 the share drops to around 4 percent. It is ironic that these price distortions are often justified by an appeal to distributional concerns. A counterargument
Table 2.1: Urban Legislations and Housing Market

<table>
<thead>
<tr>
<th>Act</th>
<th>Main Provisions that Affect the Housing Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town and Country Planning Act</td>
<td>regulation of planned growth of urban land use; prevention of land speculation</td>
</tr>
<tr>
<td>Municipal Corporation Act</td>
<td>powers of municipal corporations in matters relating to urban land and property; regulations of construction of buildings</td>
</tr>
<tr>
<td>Urban Land Ceiling and Regulation Act</td>
<td>prevention of concentration of urban land in the hands of a few persons; ceiling limit on urban land holdings</td>
</tr>
<tr>
<td>Land Revenue Act</td>
<td>regulation of conversion of agricultural land for non-agricultural purposes, prevention of unauthorized occupation of land</td>
</tr>
<tr>
<td>Industrial Licensing Act</td>
<td>regulation of growth and location of industrial units</td>
</tr>
<tr>
<td>Public Premises Act</td>
<td>eviction of unauthorized occupants from public premises</td>
</tr>
<tr>
<td>Rent Control Act</td>
<td>allotment of accommodation; fixation of fair rent; protection of tenants against eviction</td>
</tr>
<tr>
<td>Land Acquisition Act</td>
<td>acquisition of land for public purposes; determination of compensation</td>
</tr>
<tr>
<td>Development Authority Act</td>
<td>promotion of the development of area under its jurisdiction; formation of residential layouts and shopping complexes</td>
</tr>
<tr>
<td>Slum Improvement Act</td>
<td>improvement of slum areas; slum clearance and redevelopment; protection of tenants in slum areas</td>
</tr>
<tr>
<td>Industrial Area Development Act</td>
<td>acquisition of land for industrial use; orderly growth of industries.</td>
</tr>
</tbody>
</table>

that could be made, however, is that these policies are a response to existing income distributions rather than a cause. These simple plots cannot by themselves resolve such an argument. Malpezzi (1989) also shows *inter alia* that there are no simple bivariate correlations between growth and endowments; or between so-called "urban bias" and urban population growth.
2.55 What about the effect of regulations and policies on the housing market? Consider the average house price to income ratio as a rough and ready indicator of the performance of the housing sector. In countries with less elastic supply for whatever reason, asset prices will be bid up. Let us assert, for the moment, that we observe a wide range of such ratios across countries, much wider than can be explained by underlying differences in housing demand (Malpezzi and Mayo 1987b; Buckley 1989). In particular, they depend partly on the state of capital markets.

2.56 Buckley (1989) has assembled data on typical house price to income ratios for a number of countries, including India. Figure 2.15 shows that the better the housing finance system performs, the lower housing prices are relative to incomes. Certainly we do not argue that housing finance is the sole or even the most important determinant of such differentials, based on such simple bivariate correlations. The mechanism by which this result is obtained is open to discussion. But the pattern is clear.

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29/ For example, given a fixed stock of housing, increases in housing finance would bid up prices (the opposite of the result here). Our maintained hypothesis is that the stock is not fixed and that the ceteris paribus assumption does not hold. Constructing a model which rigorously explains the result from this figure is an important area for future research.
2.57 Figures 2.16 and 2.17 suggest that there is a correlation between interest rate distortions and house prices, and even the aggregate Agarwala index and house prices. Once again, we regard this kind of simple correlative evidence as consistent with, though not proving, our contention that the regulatory framework is an important determinant of aggregate performance of the housing market and indeed of the economy overall. Clearly this is a fruitful area for future research. But now let us turn from general regulatory issues to the specific regulation under study.

C. Rent Control in Developing Countries, and in India

2.58 A recent U.N. study estimates that about 42 percent of the world's urban dwellers are renters. It is not yet known with any precision how many of those roughly 150 million households live under rent control regimes, but preliminary research suggests the proportion is quite high; 30 percent is probably a conservative estimate.\(^{30}\)

2.59 Rent control does not affect every urban household, but it affects a great many of them. In all countries rent control and other elements of the regulatory framework certainly affect far more households than explicit housing programs. Further, its effects are little understood, either by policy makers and academics who study the issue, or by landlords, tenants, and others directly affected by the presence of controls. In fact, its effects can spill over into nominally uncontrolled housing markets, and some effects are a consequence of potential controls, so that rent control can affect many households and housing producers indirectly.

2.60 In India, responsibility for rent control legislation is devolved to the states. Enforcement is a local matter. Hence there is extreme diversity in rent control provisions and their enforcement, as well as market conditions. Anecdotal evidence suggests that rent controls are more stringently enforced in larger cities and in cities with some governmental function (although no systematic study of enforcement has ever been done). But India has some 120 million in cities over 100,000 population; the population of the six largest cities alone is over 40 million. Nationwide, about half the population rents; but in the larger cities up to 70 percent of households rent (Gupta 1985, p. 48). By any reckoning rent controls must affect a minimum of 40 or 50 million households directly.

2.61 Rent controls are frequently cited as a key housing market issue by government officials, market participants, and other observers. For example, the Interim Report of GOI's National Commission on Urbanization noted:

\(^{30}\) The research project is collecting new information on the scope of controls of various types. See also United Nations (1979).
In actual operation, the Rent Control Acts have exhibited certain inherent defects...[including]...the almost universal deterioration in the condition of old buildings...[and]... a very substantial reduction in residential construction for rent (p. 26).

2.62 Recognizing the problem, the government of India as well as many state governments have appointed a number of committees to go into the various aspects of rent acts and suggest suitable modifications. The Economic Administration Reforms Commission of the government of India prepared a report, in September 1982, on Rent Control and suggested several major changes in the Acts (Government of India, 1982). More recently, the National Commission on Urbanization appointed by the government of India, in 1986, also examined the effects of rent control on housing and suggested reforms in the act (Government of India, 1987).

D. A Brief Review of Indian Rent Control

2.63 Rent control in India assumed some measure of permanence with the introduction of the Bombay Rents, Hotel and Lodging House Rates Control Act 1947. As housing had been treated as a state subject in the Indian Constitution, different state governments framed their own rent control laws - all of them broadly similar in their general thrust and tenor, except for some minor and specific variations. Rent control came into effective operation in most of the states in the country by 1975. Table 1 presents a summary of key rent control provisions in the various states.

2.64 The rent control acts usually apply to all residential and non-residential premises in urban areas, except those belonging to the national government, state government and local authorities. The acts typically contain the following provisions:

(a) control on letting and leasing of vacant buildings to assist tenants in their search for desirable rented accommodation;

31/ The government of Karnataka in 1984 constituted a committee consisting of some of the members of the Karnataka legislature to examine the various aspects of the Karnataka Rent Control Act and to suggest amendments to the Act. Based on the report submitted by the committee, the government of Karnataka prepared a bill to amend the Act. Similar steps are being taken by several other state governments in the country. Significant amendments have already been incorporated in the Delhi Rent Control Act.

32/ Sources for Table 1 are Kochatta (1984) and various published state acts.
Table 2.2: SELECTED FEATURES OF RENT CONTROL ACTS BY STATE/UNION TERRITORY

<table>
<thead>
<tr>
<th>State/Union Territory</th>
<th>Largest City</th>
<th>Year of Enactment, Present Act</th>
<th>Exemption of New Construction</th>
<th>Other Exemptions</th>
<th>Basis of Fair/Standard Rent (Summary)</th>
<th>Rent Adjustments Over Time</th>
<th>Period for Reporting Vacancy, If Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>Hyderabad</td>
<td>1960 1949</td>
<td>10 years</td>
<td>Rent&gt;Rs. 1000</td>
<td>Prevaling rents for similar units during 1944. 6X of construction costs</td>
<td>In some cases up to 75% over 1944 rents; if improvements made, up to 6X of cost per annum; 50% of property tax increases.</td>
<td>10 days</td>
</tr>
<tr>
<td>Assam</td>
<td>Guhati</td>
<td>1972 1946</td>
<td>None</td>
<td></td>
<td>72.5% of increase in capital value (with a ceiling of 50% increase in standard rent); 7.52% of improvement property tax increases.</td>
<td>N.A.</td>
<td></td>
</tr>
<tr>
<td>Bihar</td>
<td>Patna</td>
<td>1977 1942</td>
<td>None</td>
<td></td>
<td>Prevaling rents for similar units during 1941, with allowance for increases in maintenance (for existing units) and construction (for new units).</td>
<td>N.A.</td>
<td>10 days</td>
</tr>
<tr>
<td>Delhi</td>
<td>Delhi</td>
<td>1958 1949</td>
<td>None</td>
<td></td>
<td>June 1946 rents; 7.52% of capital cost for new units; 8.62% for units with Rent&gt;Rs. 100.</td>
<td>7.5% of improvement costs; can recover increases in water &amp; electricity charges but not taxes.</td>
<td>10 days</td>
</tr>
<tr>
<td>Goa/Daman/Diu</td>
<td>Panji</td>
<td>1968 1968</td>
<td>4 years</td>
<td></td>
<td>7.52% of 1965 market value or 7.52% of market value on date of completion, plus 502 of taxes; but not exceeding 1965 rent, if applicable.</td>
<td>7.52% of improvement 10 years</td>
<td></td>
</tr>
<tr>
<td>Gujarat</td>
<td>Ahmedabad</td>
<td>1947 1947</td>
<td>None</td>
<td></td>
<td>Similar to Similar to N.A.</td>
<td>Similar to N.A.</td>
<td></td>
</tr>
<tr>
<td>Haryana</td>
<td>Hisar</td>
<td>1973 1973</td>
<td>10 years</td>
<td></td>
<td>Prevaling rents for similar Units in WPI; Fair rents in 1962; but fair rent can also be fixed by consent of both parties.</td>
<td>Up to 25% of change N.A.</td>
<td></td>
</tr>
</tbody>
</table>

Note: 1. Some of the above provisions might have undergone some changes in recent years.  
3. Except where noted, rents, and monthly figures; rates of return are annual.  
4. Construction costs normally include costs of building and land at the time of construction.
<table>
<thead>
<tr>
<th>State/Union Territory</th>
<th>Largest City</th>
<th>Year of Enactment, Present Act</th>
<th>Exemption of New Construction</th>
<th>Other Exemptions</th>
<th>Basis of Fair/ Reporting Standard Rent (Summary)</th>
<th>Period for Reporting Vacancy, If Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Himachal Pradesh</td>
<td>Simla</td>
<td>1971</td>
<td>None</td>
<td>Tenant's Income &gt; Rs. 20,000</td>
<td>Similar to Gujarat</td>
<td>Similar to Gujarat</td>
</tr>
<tr>
<td>(4.281) (7.6)</td>
<td>(71)</td>
<td>1971</td>
<td></td>
<td></td>
<td></td>
<td>N.A.</td>
</tr>
<tr>
<td>Jammu and Kashmir</td>
<td>Srinagar</td>
<td>1966</td>
<td>None</td>
<td>-</td>
<td>4 - 6 X of construction costs; prevailing rents</td>
<td></td>
</tr>
<tr>
<td>(5,987) (21.1)</td>
<td>(595)</td>
<td>1952</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karnataka</td>
<td>Bangalore</td>
<td>1961</td>
<td>5 years</td>
<td>Rent &lt; Rs. 15</td>
<td>Prevailing rent for similar units during 1947; tax assessments in 1947; 61 of construction cost.</td>
<td></td>
</tr>
<tr>
<td>(37,136) (28.9)</td>
<td>(2910)</td>
<td>1941</td>
<td></td>
<td></td>
<td>Up to 50% increase over 1947; 61 of improvement cost; taxes.</td>
<td></td>
</tr>
<tr>
<td>Kerala</td>
<td>Cochin</td>
<td>1965</td>
<td>None</td>
<td>-</td>
<td>Property tax assessments, or prevailing rents, for two years. Proceeding application for fair rent determination.</td>
<td></td>
</tr>
<tr>
<td>(25,454) (18.8)</td>
<td>(552)</td>
<td>1950</td>
<td></td>
<td></td>
<td>Improvements; and 15 days taxes (up to 5% of original fair rent).</td>
<td></td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>Indore</td>
<td>1961</td>
<td>5 years</td>
<td>-</td>
<td>Registered as of 1948; for new construction, rent agreed between landlord and tenant, or 6.75% of construction cost whichever is less.</td>
<td></td>
</tr>
<tr>
<td>(52,179) (20.3)</td>
<td>(829)</td>
<td>1946</td>
<td></td>
<td></td>
<td>Up to 70%. As per orders above 1948 rents.</td>
<td></td>
</tr>
<tr>
<td>Maharashtra</td>
<td>Bombay</td>
<td>1951</td>
<td>None</td>
<td>-</td>
<td>Rents as of September 1940; Up to 10% above N.A. 1940 rents.</td>
<td></td>
</tr>
<tr>
<td>(62,784) (35.0)</td>
<td>(8243)</td>
<td>1918</td>
<td></td>
<td></td>
<td>for new units, the first rent. for residential N.A. units; increases for improvement, with prior consent of tenant; certain increased property taxes.</td>
<td></td>
</tr>
<tr>
<td>Meghalaya</td>
<td>Shillong</td>
<td>1972</td>
<td>None</td>
<td>-</td>
<td>Similar to Assam</td>
<td>Similar to Assam</td>
</tr>
<tr>
<td>(1,336) (10.1)</td>
<td>(175)</td>
<td>1972</td>
<td></td>
<td></td>
<td></td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Notes: 1. Some of the above provisions might have undergone some changes in recent years.
3. Except where noted, rents, and monthly figures: rates of return are annual.
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<th>Period for Reporting Vacancy, If Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odisha</td>
<td>Cuttack</td>
<td>1976</td>
<td>5 years</td>
<td>Controller's discretion</td>
<td></td>
<td>N.A.</td>
</tr>
<tr>
<td>(26,370) (11.8)</td>
<td>(295)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pondicherry</td>
<td>Pondicherry</td>
<td>1969</td>
<td>None</td>
<td>6% of construction costs.</td>
<td>7.5% of improvement</td>
<td>7 days</td>
</tr>
<tr>
<td>(604) (52.3)</td>
<td>(251)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Punjab</td>
<td>Ludhiana</td>
<td>1974</td>
<td>None</td>
<td>Prevailing rents for similar units</td>
<td></td>
<td>N.A.</td>
</tr>
<tr>
<td>(14.789) (27.7)</td>
<td>(607)</td>
<td></td>
<td></td>
<td>during 1939; 1939 tax assessment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rajasthan</td>
<td>Jaipur</td>
<td>1950</td>
<td>None</td>
<td>Rents prevailing in 1962.</td>
<td></td>
<td>N.A.</td>
</tr>
<tr>
<td>(34.262) (21.1)</td>
<td>(977)</td>
<td></td>
<td></td>
<td>Prevaling rents of similar units.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>Madras</td>
<td>1960</td>
<td>5 years</td>
<td>9% of construction costs.</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>(48,408) (33.0)</td>
<td>(4280)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tripura</td>
<td>Agartala</td>
<td>1975</td>
<td>None</td>
<td>Similar to Assam</td>
<td></td>
<td>15 days</td>
</tr>
<tr>
<td>(2,055) (11.0)</td>
<td>(132)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>Kanpur</td>
<td>1972</td>
<td>20 years</td>
<td>Rents prevailing at date of act, or</td>
<td>1 2% of 7 days</td>
<td></td>
</tr>
<tr>
<td>(110,862) (18.0)</td>
<td>(1690)</td>
<td></td>
<td></td>
<td>date of construction; 10% of</td>
<td>property taxes;</td>
<td></td>
</tr>
<tr>
<td>West Bengal</td>
<td>Calcutta</td>
<td>1956</td>
<td>None</td>
<td>Rents fixed under earlier acts (1942</td>
<td>1 0% of N.A. improvements;</td>
<td></td>
</tr>
<tr>
<td>(54,581) (26.5)</td>
<td>(9,170)</td>
<td></td>
<td></td>
<td>thru 1950); 6.75% of construction</td>
<td>taxes; but at most</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>costs plus 50% of taxes.</td>
<td>even 5 years.</td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1. Some of the above provisions might have undergone some changes in recent years.
3. Except where noted, rents, and monthly figures; rates of return are annual.
4. Construction costs normally include costs of building and land at the time of construction.
(b) fixation of 'fair' or 'standard' rent;

(c) protection to tenants against indiscriminate eviction by unscrupulous landlords;

(d) obligations and duties of landlords vis-a-vis maintenance and upkeep of their rented properties;

(e) rights to landlords against tenants who default in paying rent or misuse the premises; and

(f) rights to landlords for the recovery of premises in specific cases.

Coverage

2.65 Rent control legislations in some of the states in the country have provisions for a rent control holiday (exemption from main provisions of the Act) for a limited number of initial years, varying from four years to twenty years, for all new buildings (constructed after a specified date). In the Andhra Pradesh Act, all buildings constructed on or after August 26, 1957, were exempted from all the provisions of the Act until 1983 when the Supreme Court declared this provision as violative of Article 14 of the Constitution of India. With effect from 26th October 1983, the Andhra Pradesh Act provides exemption from the operation of the provisions of the act (i) to all buildings for a period of ten years from the date on which their construction is completed and (ii) to such buildings the monthly rent of which exceeds 1,000 Rs. for an indefinite period. In Jammu and Kashmir, rented premises occupied by tenants with a yearly net income of more than 20,000 Rs. do not come under the purview of the Rent Control Act. In Tamil Nadu, premises of monthly rent of more than 400 Rs. were exempted from the provisions of the Act until recently. Some Acts (in about 10 states/union territories) also require reporting of vacancy of premises by the landlords to enable the state to allot such vacant buildings.

Fair Rents

2.66 Fixation of "fair" or "standard" rent is taken up by the competent authority (Rent Controller/Civil Court) on application by the landlord or the tenant. The fair rent, usually, is fixed in relation to the cost of construction of the premises and market price of land at the time of commencement or completion of construction of the building (ensuring an annual rate of return varying from 6 to 12 percent of the cost) and remains frozen at the original level. In Tamil Nadu, the Rent Act was amended in 1973 to provide for determination of fair rent on the basis of cost of construction plus market value of the site, as at the time of application for fair rent fixation.
2.67 In some of the acts, taxes on the property and cost of repair and maintenance are also taken into account while determining fair rent. In the rent acts of Rajasthan, Haryana and Madhya Pradesh, the rent first agreed upon between the landlord and the tenant becomes the fair rent. The acts in some states have incorporated provisions to increase fair rents periodically, from the frozen base/year level, for example, in Assam, West Bengal, and Haryana.

2.68 Some acts, for example, in the States of Karnataka, Madhya Pradesh, and Tamil Nadu, prescribe a priority list for allotment of rent controlled units favoring members of the state legislature, members of Parliament, employees of state and central Government, etc.

Implementation of Rent Control Acts

2.69 The responsibility for implementing and enforcing the various provisions of rent control legislation is vested in the competent authority designated as rent controller, the civil court, and the prescribed authority. There are variations in the division of responsibility among the Rent Controller, the civil court and the prescribed authority in different state acts. For example, in the Karnataka Rent Control Act, lease of buildings, fixation of fair rent, increasing the rent, eviction, giving possession, and conversion of residential buildings to non-residential buildings are the functions entrusted to the rent controllers who are the executive officers of state government and enjoy quasi-judicial powers. Adjudication of disputes between tenants and landlords relating to payment of rents, recovery of possession, and provisions of services are within the jurisdiction of civil courts. In the Bombay Rents, Hotel and Lodging House Rates Control Act, the civil court is responsible for fixing the fair rent.

2.70 Generally, the enforcement of the different provisions of the Rent Control Act is not very effective except when

(a) landlords and tenants are able to circumvent the provisions of the Act;

(b) there are complications in the fixation of standard rents;

(c) there are many problems associated with recovery of possession and eviction; and

(d) the enforcement staff is inadequate and ill-trained.

Effects of Rent Control

2.71 Even though the enforcement of the Rent Control Act is not very effective and ignorance and evasion of the provisions of the act are widespread, the Act affects the market by its very presence.
Rent control was introduced in India about 45 years ago, yet very little empirical research has been done to examine the economic effects of rent control on the housing market in the country. A survey of the limited literature reveals a lack of analytical in-depth studies on the subject. The literature may be broadly classified into two kinds: those that are mostly critical evaluations of the various rent control provisions (Dutta 1972, Khatkhate 1975) and a relative minority that deal with empirical examination of the several hypothesized effects of rent control (NBO 1965, 1966).

A near-unanimous opinion expressed in studies on the effects of rent control on the housing market, conducted in India and other parts of the world, is that the positive social effects envisaged for rent control are far from realized. On the other hand, a number of adverse economic effects of rent control intervention are found to be present in varying degrees in almost all rent controlled markets. The most commonly cited ill-effects are:

(a) reduced investment in rental buildings as periodic return on investment is much below the expected reasonable return level;

(b) accelerated deterioration in the controlled housing stock, as landlords have no incentive to spend money on the upkeep of their units;

(c) decrease in municipal and other revenues as rateable values or properties are related to standard rent;

(d) withdrawal of vacant premises from the rental market by the landlords due to the fear of losing the property;

(e) distortions of price signals on scarce resources—urban land and property—leading to inefficient and suboptimal land-use;

(f) reduction in mobility of households and labor;

(g) reduction in liquidity of housing assets in the market due to excessive tenant protection from eviction; and

(h) activation of the parallel economy through 'key money,' etc.

Just as rent control laws vary by state, so too do its effects. Table 2 presents some indicators of housing supply in the nine states containing India's twelve largest cities. Note that Andhra Pradesh, which had exempted new units from controls during this time, had by far the greatest increase in rental supply (53 percent) and the second best occupancy rate (2.4 persons per room).
The four states with some new construction exemption (Andhra Pradesh, Karnataka, Tamil Nadu, and Uttar Pradesh) had an average increase of 33 percent versus 25 percent for the other states.  

Table 2.3: Housing Situation in Selected States

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>76.7</td>
<td>17.7</td>
<td>5.6</td>
<td>2.39</td>
<td>45.8</td>
<td>53.3</td>
</tr>
<tr>
<td>Delhi</td>
<td>74.1</td>
<td>19.7</td>
<td>6.2</td>
<td>3.01</td>
<td>58.5</td>
<td>31.3</td>
</tr>
<tr>
<td>Gujarat</td>
<td>67.0</td>
<td>21.5</td>
<td>11.3</td>
<td>3.15</td>
<td>58.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Karnataka</td>
<td>70.0</td>
<td>23.5</td>
<td>6.5</td>
<td>2.63</td>
<td>55.2</td>
<td>32.4</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>74.2</td>
<td>18.8</td>
<td>7.0</td>
<td>3.37</td>
<td>68.4</td>
<td>30.6</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>68.8</td>
<td>22.6</td>
<td>8.6</td>
<td>2.31</td>
<td>41.1</td>
<td>33.3</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>74.7</td>
<td>19.8</td>
<td>5.5</td>
<td>2.84</td>
<td>53.1</td>
<td>30.6</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>67.9</td>
<td>26.6</td>
<td>5.5</td>
<td>2.66</td>
<td>46.0</td>
<td>15.7</td>
</tr>
<tr>
<td>West Bengal</td>
<td>78.7</td>
<td>18.4</td>
<td>2.9</td>
<td>3.63</td>
<td>57.9</td>
<td>7.7</td>
</tr>
</tbody>
</table>


More detailed analysis of statewide differences over time would be useful for future work.
III. THE HOUSING MARKET OF BANGALORE

3.1 A brief description of Bangalore and its housing market will set the stage for the detailed treatment of rent control's effects. The capital of the state of Karnataka, in south central India, Bangalore is the fifth largest city in India. Its current population is approximately 5 million. Moreover, Bangalore is one of the fastest growing large cities in India, with a compounded annual growth rate of 6 percent per year in 1971-81.

![Figure 3.1: Bangalore's Population, Selected Years](image)

A. Bangalore's Housing Market

3.2 General references on Bangalore's housing market include Prakasarao and Tewari (1979), Tewari and Kumar (1987), and Suresh (1987). Much of the data for this discussion is from the household survey carried out by Prakasarao and Tewari in 1974. That data, and the collateral data used, are described in more detail in Chapter 5.

Tenure

3.3 Bangalore's housing market is primarily a rental market. Table 3.2 illustrates that 63 percent of the households from the 1974 sample rented their dwelling unit.

---

34/ Bangalore's population grew by 76 percent between 1971 and 1981 censuses, implying a compounded growth rate of 5.8 percent.

35/ The original 1974 survey did not include sufficiently detailed questions on control status of the unit. Some analysis is based on a subsample of units which were reinterviewed in 1984. These reinterviews were 84 percent renters. See the section describing data collection for more details.
3.4 The nature of controls in Bangalore is discussed later in this chapter, and the data are discussed later as well. But in order to understand some basic facts about the market, we need some preliminaries about the types of controlled units and how we identify them in the data.

3.5 Bangalore's rental housing can be broken down into three categories:

(a) **ordinary controlled** housing whose rents are frozen, but those rents are not "fair rents" set by the rent controller;

(b) housing which has its "fair rent" set by the rent controller, and/or which is allotted to specific tenants by the rent controller, denoted **strictly controlled**; and

(c) "uncontrolled" units that rent for less than 15 Rs. per month or rental units that are less than five years old.36/ 

It is important to distinguish these categories from the start; we will discuss them in more detail below.

3.6 Two methods were used to identify controlled units. The first, which can be used on the entire sample of 1,745 households, is to identify units with rents below 15 Rs. or whose tenants were in the unit less than five years as uncontrolled, and the residual rental sector as controlled. Length of tenure was used as a proxy for age of structure because age was not collected in the original survey. There are two problems with this approach. First, there will be an unknown number of households who have recently moved into older units, so some units will be misidentified as uncontrolled that are in fact controlled. Second, this method doesn't distinguish units whose fair rents have been set by the controller and/or whose tenant has been allotted a unit by the controller (strictly controlled) from ordinary controlled units.

---

36/ As will be discussed below, "uncontrolled" rents may in fact be affected by the presence of controls.
3.7 The second method relies on a subsample of 211 units that were reinterviewed in 1984 and broken down into ordinary controlled, strictly controlled, and uncontrolled. The disadvantage of this subsample is its relatively small size and the potential that it is not representative, since only units that existed in both 1974 and 1984, and for which retrospective information could be obtained, are included. That is, while the resurvey sample frame was chosen to be representative, respondents were not necessarily representative of the original sample and original population. They appear to have had slightly higher incomes and were more likely to be renters than the total 1974 population.

3.8 We will discuss possible biases due to this sample selection problem in more detail in the chapter on data. For now we will present summary descriptive statistics, basing our description of renters versus owners on the total sample, and basing description of "ordinary," "strictly," and "un-" controlled units on the subsample of 211.

**Figure 3.4: Housing Consumption and Quality, Bangalore**

**Figure 3.5: Presence of Housing Services**

3.9 Of the 1,745 sample household dwelling, 47 percent were with a compound wall and the rest out-houses, 55 percent were separate, and the rest semi-detached.

3.10 The material used for the dwellings was classified by floor, walls, and roof. In 78 percent of the dwellings, cement was used for the construction of floors, mud was used in 15 percent dwellings, and stone in 4 percent. About 3 percent had mosaic flooring (Fig. 3.3). The most common material used for the

---

This section is taken from Prakasarao and Tewari (1979).
construction of walls was bricks (75 percent); mud was used in 13 percent of the dwellings. Cement and concrete were used for the construction of roofs in 48 percent of the dwellings, tiles in 36 percent, sheets in 12 percent, and thatched and other types in 4 percent.

3.11 Caste- and religion-wise distribution showed that a higher proportion of Hindu and Muslim households lived in owned houses than those of Christian, Jain, and Sikh households. Among Hindu households, caste-wise, Lingayat and Artisan households showed a lower proportion of owned occupancy than other caste households.

3.12 The proportion of one-room dwellings was 43 percent (Figure 3.4). This included dwellings that did not have a separate kitchen or a bathroom or both. Two-room dwellings were 25 percent and three-room dwellings were 15 percent. About 3 percent had more than 7 rooms. The average size of dwellings was more in the periphery than in the other two zones, though the differences in the three average sizes were quite small.

3.13 The number of rooms considered were exclusive of kitchen, bathroom, and toilet. Separate information was collected about the existence of such facilities. There was no separate kitchen in about 12 percent of the dwellings and no separate bathroom in 20 percent. The proportion of dwellings without a toilet was about 26 percent and an equal proportion did not have electricity; 40 percent did not have an independent water tap (Figure 3.5). Further, in the core, the proportion of households without these facilities was higher than in the intermediary and the periphery zones. For example, the proportions of dwellings without a toilet in the core and the periphery were 38 percent and 20 percent respectively. Of the dwellings with a bathroom, 71 percent had one, 8 percent had two and 1 percent had more than three bathrooms.

3.14 About ten percent of the city's population lived in slums at the time of the survey. Out of the 159 slums, 42 were on CITB, 36 on corporation, and 10 on government lands, while 57, the maximum in any single category of ownership, were on private lands. This poses problems to both the administrators and the slum dwellers in any program of relocation or rehabilitation. Based on population, the size of slums varied from 34 to about 9,000. The maximum number of 44 slums had a population range varying from 300 to 599, followed by 30 slums with a size range of 600-999. Thus, about 50 percent of the total number of slums had a population between 300 and 1,000. The average size of the slums was 832.

3.15 Some of the larger slums, with a population of more than 1,000, could be identified as former villages, or slums located on land adjoining such villages, which had become urbanized with the outward spread of the city. Such village slums should be distinguished from typical slums that are essentially immigrant and not in situ: Karisandra, railway-line slum, slaughterhouse slum, the slum near South End Circle. The distribution of slums within the city was uneven and was inversely related to population densities.
Rents, Incomes, and House Prices

3.16 Table 3.1 presents summary descriptive statistics, by tenure, for the market. We see that median homeowner incomes are only about 10 percent higher than median renter incomes. "Other" tenure households are low income (lower on average than either renters or owners) but have long tenure (about the same as owners, much greater on average than renters).

Table 3.1: Summary Descriptive Statistics, Bangalore, 1974

<table>
<thead>
<tr>
<th>Tenure (Percent)</th>
<th>Median Length of Stay</th>
<th>Median Income</th>
<th>Median Rent</th>
<th>Median Rent-to-Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. BASED ON THE TOTAL SAMPLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owners 37%</td>
<td>18</td>
<td>500</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>(7,32)</td>
<td>(320,908)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renters 63%</td>
<td>8</td>
<td>458</td>
<td>45</td>
<td>.10</td>
</tr>
<tr>
<td>(3,15)</td>
<td>(300,735)</td>
<td>(25,90)</td>
<td>(.06,.17)</td>
<td></td>
</tr>
<tr>
<td>Others 4%</td>
<td>17</td>
<td>335</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>---</td>
<td>(6,30)</td>
<td>(250,560)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BASED ON THE SUBSAMPLE OF 211 RESURVEYED RENTERS

211 Resampled Renters

| Of which 2/ |
| "Uncontrolled" 47% | 2 | 550 | 80 | .12 |
| (1,4) | (362,1017) | (43,150) | (.08,.18) |
| Ordinary Controlled 41% | 11 | 633 | 60 | .09 |
| (8,18) | (338,1117) | (40,109) | (.07,.15) |
| Strictly Controlled 12% | 7 | 410 | 45 | .10 |
| (4,12) | (245,762) | (25,90) | (.08,.17) |

Notes: 1. Numbers in parentheses under medians are the first and third quartiles of the distributions. Monetary amounts are in 1974 Rupees.

3.17 Note in particular that the subset of 211 resampled households is not random. 38/ Their median incomes are greater than the median of the overall sample, or that of any tenure group (about 22 percent greater than renters), with

38/ Randomization was not feasible because of resource constraints.
a somewhat greater variance (as measured by the difference between first and third quartiles). While typical rents are higher, rent-to-income ratios are not much higher than for the overall renter population. Length of tenure is a little shorter than the typical tenant.

3.18 Within the sample of 211, some 47 percent of households are "uncontrolled" (living in units that were recently built at the time of data collection, or with rents below 15 Rs. per month). Forty one percent are ordinary controlled, and 12 percent are strictly controlled. Ordinary controlled households typically have higher incomes than uncontrolled, but strictly controlled households have lower incomes. Rents are lower in the controlled sectors, as expected, as are rent to income ratios. Notice that while typical rents are lowest in the strictly controlled sector, the rent to income ratio is a little higher in the strict than in the ordinary. That is, incomes are proportionately even lower than rents.

3.19 More detailed examination of the distribution of renters and owners by income class (Table 3.2) suggests that most households are renters, at all income levels, but the relationship is not monotonic. Figure 3.7 highlights the fact that homeownership increases with income; relatively more low income households are "other," but the fraction varies. Turning now to rent-to-income ratios and their distribution within income classes, Table 3.2 confirms the stylized demand patterns described in the previous chapter and in Malpezzi and Mayo (1985): rents increase but not as fast as incomes (the income elasticity is positive but less than unity), so poorer tenants pay larger fractions of their incomes on rent and the variance of rent-to-income is larger for poor households, as measured by the spread between the first and the third quartiles of R/Y within deciles. Figure 3.7 illustrates graphically.

Table 3.2: Distribution of Tenure, and Rent Burdens, by Income Decile

<table>
<thead>
<tr>
<th>Income Decile</th>
<th>Percent Renters</th>
<th>Median Income</th>
<th>First Quartile R/Y</th>
<th>Median R/Y</th>
<th>Third Quartile R/Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (0-200)</td>
<td>59%</td>
<td>174</td>
<td>.11</td>
<td>.18</td>
<td>.38</td>
</tr>
<tr>
<td>II (201-266)</td>
<td>68%</td>
<td>243</td>
<td>.07</td>
<td>.11</td>
<td>.20</td>
</tr>
<tr>
<td>III (267-315)</td>
<td>62%</td>
<td>300</td>
<td>.07</td>
<td>.10</td>
<td>.18</td>
</tr>
<tr>
<td>IV (316-385)</td>
<td>55%</td>
<td>350</td>
<td>.06</td>
<td>.11</td>
<td>.17</td>
</tr>
<tr>
<td>V (386-475)</td>
<td>63%</td>
<td>420</td>
<td>.06</td>
<td>.10</td>
<td>.18</td>
</tr>
<tr>
<td>VI (476-570)</td>
<td>61%</td>
<td>500</td>
<td>.04</td>
<td>.08</td>
<td>.16</td>
</tr>
<tr>
<td>VII (571-699)</td>
<td>64%</td>
<td>620</td>
<td>.05</td>
<td>.09</td>
<td>.13</td>
</tr>
<tr>
<td>VIII (700-900)</td>
<td>61%</td>
<td>800</td>
<td>.05</td>
<td>.08</td>
<td>.13</td>
</tr>
<tr>
<td>IX (901-1294)</td>
<td>54%</td>
<td>1074</td>
<td>.04</td>
<td>.08</td>
<td>.11</td>
</tr>
<tr>
<td>X (1295-9500)</td>
<td>54%</td>
<td>1858</td>
<td>.03</td>
<td>.08</td>
<td>.12</td>
</tr>
</tbody>
</table>

Notes: 1. Median income data for total sample (renters and owners).
2. Median quartiles of rent-to-income ratios (R/Y) for renters only.
3.20 Finally, Table 3.3 presents the distribution of controlled units by income. No strong and completely consistent pattern emerges from the data, except that the higher income quartiles have fewer strictly controlled units.

Table 3.3: Distribution of Controlled Units, by Income Quartile

<table>
<thead>
<tr>
<th>Income Quartile</th>
<th>&quot;Uncontrolled&quot;</th>
<th>Ordinary Controlled</th>
<th>Strictly Controlled &quot;Uncontrolled&quot;</th>
<th>Median R/Y Ordinary Controlled</th>
<th>Median R/Y Strictly Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>44%</td>
<td>40%</td>
<td>16%</td>
<td>.10</td>
<td>.15</td>
</tr>
<tr>
<td>II</td>
<td>44%</td>
<td>32%</td>
<td>24%</td>
<td>.13</td>
<td>.10</td>
</tr>
<tr>
<td>III</td>
<td>56%</td>
<td>34%</td>
<td>10%</td>
<td>.13</td>
<td>.08</td>
</tr>
<tr>
<td>IV</td>
<td>44%</td>
<td>49%</td>
<td>6%</td>
<td>.11</td>
<td>.09</td>
</tr>
<tr>
<td>Total</td>
<td>47%</td>
<td>41%</td>
<td>12%</td>
<td>.12</td>
<td>.09</td>
</tr>
</tbody>
</table>

Note: Based on 1984 resurvey of 211 renter households from original 1974 survey. Resurvey results may not be strictly representative of original population (see text).

How Would These Data Look Today?

3.21 These survey data are a decade and a half old. A resurvey of Bangalore would be well worth doing, and be an almost unique opportunity to study detailed changes in urban incomes and living standards over such a period. Until such a survey is mounted (if it ever is), we will have to make do with extrapolations. Since 1974 prices have risen by about 7 percent per annum in India, population by about 2 percent, and nominal GDP has risen at about 12.5 percent per annum. In Chapter 6 we will calculate some rough estimates of the 1974 rents and incomes at today's prices.
B. Rent Control In Bangalore

3.22 A detailed description of rent control's legal framework and enforcement can be found in the companion paper by Tewari and Kumar (1986). Here, we summarize some of the key provisions of the Bangalore regime.

Coverage

3.23 The main provisions of the Karnataka Rent Control Act of 1961 (Government of Karnataka, 1984) and its subsequent rules and amendments are selectively made applicable to different urban areas in the state, depending upon the level of urbanization of the areas concerned and local needs. In Bangalore city and other cities under the Karnataka Municipal Corporation Act, all the provisions of the Rent Control Act are applicable to areas within the city corporation limits and within a radius of three kilometers from the limits. In the case of other urban centers the provisions of the act are applicable to areas within the limits of the local bodies.

3.24 Provisions regarding allotment of buildings and fixation of fair rent do not apply to buildings constructed after August 1, 1957, for a period of five years from the date of construction of such buildings. Units that rent for 15 Rs. or less are also exempted from these provisions.

Administrative Machinery

3.25 Primary responsibility for enforcement of the acts rests with the city rent controller and his staff. Rent controllers are executive officers of the state government and enjoy quasi-judicial powers. Under certain conditions described below, they have the power to fix fair rents, increase rents, evict tenants, allot vacant units to tenants, and determine whether possession should revert to the dwelling's owners. Disputes under the law are be adjudicated in civil courts (in Bangalore, the Small Causes Court).

3.26 Until recently, Bangalore City has had two rent controllers, one for the city area and one for the cantonment (civil) area. The number of rent controllers is now increased to four: one each for the East, West, North, and South zones. All the four rent controllers report to the deputy commissioner, Bangalore District. Each controller has a field force of five field inspectors.

Controlled and Allotted Housing

3.27 According to the act, whenever a house that is more than five years old becomes vacant, the landlord must inform the rent controller of the vacancy within 15 days. The controller then starts the process of allotting the house to the tenant, according to the rent control rules. In general, to be considered for allotment an applicant must be a resident of Bangalore and cannot own another house within the city. The latter provision only came into force in 1976, however, and is not necessarily enforced. Strict guidelines exist for
determining priority in the queue for allotment (see Table 5). Priority is determined mainly by employment. Elected officials and government servants generally have the highest priority for allotment. Based on interviews with the rent controller's office it is estimated that about two-thirds of the allotted units go to government servants. Eligibility is also limited to those persons whose incomes do not exceed 10 times the rent of a particular unit.

3.28 In practice, landlords seldom give intimation of vacant buildings to the controller unless they are compelled to do so due to various reasons. As a result, only a small proportion of units are actually allotted by the rent controller.

3.29 Rental housing under control of the act can, therefore, be considered as subdivided into (i) ordinary controlled housing and (ii) housing that has its "fair rent" set by the rent controller, and/or which is allotted to specific tenants by the rent controller. The latter is in most senses a stricter form of control. Rents for ordinary controlled housing are frozen in theory and go up slowly, if at all, in practice. But if the unit has been allotted by the rent controller, as described below, rents may be rolled back below their current level. Also, an unallotted tenant may apply to the rent controller for fair rent fixation, which may again be below the current controlled rent. As detailed below, it appears that a significant proportion of renters choose not to apply for fair rent fixation, but that the possibility of tenants applying is an incentive for landlords not to raise rents illegally on "normal" controlled units. For the rest of this paper we will adopt the following convention. Controlled units are those whose rents are frozen, but those rents are not "fair rents" set by the rent controller. Strictly controlled units are those whose tenants have been allotted by the rent controller, and/or whose rents are set by the rent controller. (When the context is clear we will refer to both groups as controlled). Uncontrolled units are units that rent for less than 15 Rs. per month or rental units which are less than five years old.

Fair Rent Determination

3.30 Fair rents are fixed by the rent controller when a unit has been allotted (if fair rent had not been fixed earlier), or upon application by a landlord or a tenant. Not surprisingly, landlords rarely apply. Rent controllers have some leeway in fixing fair rents, within certain guidelines. For units constructed before April 1947 the controller is supposed to take into account prevailing rents in the locality for similar units during the 12 months prior to April 1947 and the rental value as entered into the property tax assessment records. He may allow an increase of up to 50 percent of rents based on these pieces of information. For buildings constructed after April 1947, fair rent is based upon the rental value of the building in the year of its construc-
### Table 3.4: Order of Priority in Allotment of Residential Buildings

<table>
<thead>
<tr>
<th>Order of Priority</th>
<th>Public Authority/Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Direction holder</td>
</tr>
<tr>
<td></td>
<td>Court or Tribunal, Members of the Legislature, the Presiding Officers of the Legislature, Deputy Presiding Officers, Government Whips of both the Houses, Members of any Committee or Board or Corporation or its employees)</td>
</tr>
<tr>
<td>3</td>
<td>General Government (for its employees)</td>
</tr>
<tr>
<td>4</td>
<td>Any person who vacates the Government residential accommodation or who has been evicted from Government buildings</td>
</tr>
<tr>
<td>5</td>
<td>Any person who has been served with notice for termination of tenancy under the proviso to clause (b) of Section 21-A</td>
</tr>
<tr>
<td>6</td>
<td>Any person who has been ordered to be evicted under Clause (h) of sub-Section (1) of Section 21</td>
</tr>
<tr>
<td>7</td>
<td>Any other public authority for providing accommodation to its employees</td>
</tr>
<tr>
<td>8</td>
<td>Members of the State Legislature or Parliament</td>
</tr>
<tr>
<td>9</td>
<td>Officers employed under the State Government</td>
</tr>
<tr>
<td>10</td>
<td>Officers employed under the Central Government</td>
</tr>
<tr>
<td>11</td>
<td>Officers employed under any public authority</td>
</tr>
<tr>
<td>12</td>
<td>Honorary Medical Officer employed in Government Hospitals in the area in which building is situated</td>
</tr>
<tr>
<td>13</td>
<td>Part-time Professors or Lecturers employed in the Government Colleges in the area</td>
</tr>
<tr>
<td>14</td>
<td>Persons employed in any Bank</td>
</tr>
<tr>
<td>15</td>
<td>A member of any Committee, Board or Corporation constituted by the Government of Karnataka and who is required by virtue of his position as such member to reside in the area</td>
</tr>
<tr>
<td>16</td>
<td>Any person employed in Indian Institute of Science Indian Council of Agricultural Research, and Council of Scientific and Industrial Research</td>
</tr>
</tbody>
</table>

**Note:** Priority 9 to 16 are applicable only if the person concerned is not in possession of any alternative accommodation.
tion; on assessed rental value according to property tax records; or, when such records are not available, annual fair rent is computed as 6 percent of the cost of construction and the market value of the site (at the time of construction). Buildings constructed and let out after August 1957 have their first rents set by negotiation between landlord and tenant during the first five years. After a five year "rent holiday," the rent agreed upon between landlord and tenant continues unless one of them decides to go to the rent controller for fixation of fair rent.

3.31 Once fixed, fair rents remain frozen until landlords file a petition with the rent controller for an increase. Possible grounds include additions or improvements to the unit or increases in property taxes. Reassessment is almost never done in practice.

3.32 Interviews with the rent controller and with landlords and tenants confirm that consistent setting of fair rents is difficult in practice, given the poor state of records on which they are based.

3.33 Reassessment is almost never done in practice. Procedurally, the landlord may apply for an increase in fair rent where some additions, improvements, or structural alterations in the unit have been carried out at landlord's expense or where the rate of tax or less payable by the landlord is enhanced. However, only rarely do such cases appear before the rent controller, as landlords who have no incentive even to carry out minimum necessary repairs in their rent-controlled units seldom think of making any improvement in the structure and property tax rate increases are very unusual. There is no provision under the act to allow an increase in fair rent on the plea of increases in cost of living.

3.34 Fair rents operate in rem, not in personam; that is, they are characteristic of the unit, not the tenant. No adjustments in fair rents are made for new tenants.

Treatment of New Construction

3.35 It has already been noted that newly constructed units have their rents set by negotiation rather than by administrative fiat. After five years the unit then comes under the purview of the rent control acts. Landlords will clearly have an incentive to set these rents as high as possible, and tenants will be willing to pay higher initial rents if they expect future real rents to fall. On the other hand the possibility that a tenant will later apply for a revaluation of fair rents if it is set too high can act as a moderating influence. We will return to this point later in the paper, in Chapter 7.

Security of Tenure

3.36 Eviction clauses are tilted heavily in favor of tenants, and there are procedural delays even when landlords have legal grounds for eviction. Grounds for eviction include: (i) failure of the tenant to clear rent arrears, (ii) erection of any permanent structure on the premises without the landlord's
consent, (iii) tenant misconduct, (iv) unlawful subletting, (v) construction or acquisition of another building by the tenant, (vi) major repairs undertaken by the landlord, (vii) and landlord self-occupation. If the landlord recovers the use of the property for repairs, demolition and reconstruction, or self occupation, the original tenant has right of reentry to the new or modified structure or if the owner vacates the unit.

Maintenance and Repairs

3.37 Every landlord is required by the act to maintain essential services like water, electricity, lights in passages and on staircases, and conservancy or sanitary facilities and to keep the building in reasonably good repair. If the landlord fails to make needed repairs the tenant can undertake them himself and deduct the cost of such repairs from the rent, up to a maximum of one half of that year's rent. If the cost of repairs exceeds this amount, the tenant may prevail upon the landlord through a court order.

Bangalore's Rent Control in Practice

3.38 Many key points about enforcement practices have been noted in the text above. Primary responsibility for enforcement rests with two rent controllers and their relatively small staffs. Based on interviews with landlords, tenants, and one of the rent controllers, Tewari and Kumar (1986) report that enforcement is necessarily selective. It appears that few landlords report vacancies to the rent controller for allotment; but a significant portion of the rental stock has nonetheless been allotted or had fair market rents set. Table 6 presents data on the distribution of types of rental units from a special survey of 211 rental units in Bangalore City, carried out in 1984 as part of this study. Roughly half the units are under either strict or "normal" controls; about one unit in eight has either been allotted by the rent controller or had a fair rent set. No strong relationship between tenure and income is evident.

The Political Economy of Bangalore's Rent Control

3.39 The main objective of the rent control legislation is to ensure reasonable rents and security of tenure for tenants in a situation of extreme scarcity of housing units. As a control on price on an item of basic necessity, it is also considered as a welfare measure to help the disadvantaged group of society to consume an adequate amount of housing services. Rent control, like any other price control, is also justified as an anti-inflationary measure.

3.40 Rent control acts in India were enforced in the 1940s as temporary measures to cater to war-time and post-war housing crises in the country. Originally conceived purely as a temporary measure of regulation, its
perpetuation to the present day has been dictated by continuing, or, in fact, aggravating housing shortage in the country.\footnote{39/}

3.41 Provisions of rent control acts have been repeatedly challenged as ultra vires of the Constitution of India in the country's high courts and Supreme Court on various grounds, such as legislative incompetence, excessive delegation, and infringement of fundamental rights. However, in a majority of cases the provisions have been held as valid. Also, it is being increasingly recognized that even after over thirty-five years of rent control, the legislation has failed to serve the social purpose for which it was enacted. On the other hand, the legislation has acted as a disincentive to house building for the rental market. Further, the state governments have been continuously receiving complaints both from the tenants and the landlords about the problems and inadequacies in the implementation of the acts and undue hardships caused to both the classes. As a result, rent control laws are frequently cited as a major hurdle in the construction of new houses for rental purposes by government officials, market participants, and other observers.

\footnote{39/} Shortage of housing in India was estimated as 23.8 million units in the year 1984, the shortage, in 1981, was about 21.1 million, and a decade ago in 1971, it was around 14.5 million. Out of the total housing shortage of 23.8 million units in 1984, the shortage in urban areas was estimated as about 5.7 million units (Suresh, 1987).
IV. PREVIOUS ANALYSIS OF RENT CONTROL

A. Overview

4.1 Economic analysis of rent control has traditionally been based on the simple comparative statics of an imposed price reduction that is similar to a tax or a tariff on housing capital. Extensions such as Olsen's model (1969) highlight the role of reduced maintenance which ceteris paribus reduces the quantity of housing services produced by a controlled dwelling. If rent (PQ) is fixed by controls, Q can be reduced by accelerated depreciation, until the price per unit of services, P, meets or exceeds its precontrol level. Both comparative static and dynamic models indicate that a simple price control on housing will decrease maintenance and the useful life of a dwelling.

4.2 There are at least seven alternative adjustment mechanisms that can equilibrate a notionally controlled market. The maintained hypothesis is that markets must adjust in some fashion in the long run, given alternative opportunities for landlords and a housing stock of limited durability. Four of the adjustments can be embodied in rent control laws: (i) indexing (keeping real rents constant); (ii) reassessment for new tenants; (iii) differential pricing of new and existing units; and (iv) differential pricing for upgraded units. Five are market responses that policy makers would generally consider undesirable outcomes, namely (v) outright evasion; (vi) side payments such as key money; (vii) adoption by tenants of maintenance expenditures; (viii) accelerated depreciation and abandonment, and (ix) distortions in consumption, not only in the composite housing services but also crowding, length of stay, mobility and tenure choice.

4.3 What is the evidence on the relative size of these? Generally, there are few estimates of the magnitudes of the costs and benefits from rent control, and even fewer present estimates for developing countries. There have been few dynamic models that explain how lags in market behavior affect the relationship between rents and the quantity of housing services. Little is known about the speed of adjustment to imposition or relaxation of controls. We survey this literature, and attempt to add to it, in this chapter.\(^{40}\)

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\(^{40}\) Surveys of controls can be found in Thibodeau (1981) and Arnott (1981). A survey of previous Indian literature can be found in Tewari and Kumar (1986). See also Block and Olsen (1981) and Appelbaum and Gilderbloom (1981) for readers on rent control, with contrasting points of view.
B. Descriptive Studies of Indian Rent Controls

4.4 There are a number of relevant studies of Indian housing markets which focus on the effect of controls. We surveyed some demand and other studies above; here we focus only on studies that addressed rent control directly.\(^{41/}\)

4.5 Though rent control came to India about 45 years ago, a survey of the literature reveals a lack of analytical indepth studies on the subject. The literature may be broadly classified into descriptive and empirical/analytical. We discuss the former here, and the latter below (within topics).

4.6 For a general review of rent control legislation in the country, Datta (1972) and Khatkhate (1975) are noteworthy. Datta contends that rent control, by ignoring the two basic tests of capacity (are landlords the best choice to bear the costs of controls?) and needs (do benefits accrue to tenants in a progressive manner?) falls short of its avowed objective of protecting low-income tenants. Inequities may also arise between landlord and tenant.\(^{42/}\)

4.7 Datta notes that rent control has an inbuilt bias in favour of old tenants at the expense of recent migrants and mobile tenants, and in favor or relatively new construction and against old buildings. He argues further that rent control is a partial subsidy tied to consumption of housing space, and may, therefore, distort the consumer budget by forcing the tenant to occupy more or less space than he might wish. Even where the tenant does begin with a higher level of housing services than desired, the fact that maintenance of rental units is not monitored under rent control and so the landlord neglects maintenance could imply that a higher rate of depreciation would bring housing services in line with rents over some period of time.

4.8 Datta finally recommends a more general subsidy package for the low-income bracket, tailored to consumption of most basic necessities, including shelter. The administrative implications of such a scheme would need to be examined. Definitional problems apart, identification of the low-income groups and the kinds of housing services that would fulfill their needs, the financial resources and the extent of coordination required, and the sheer moral or social commitment involved would all entail staggering tasks.

4.9 Khatkhate asserts that current rent control has failed to meet its objectives and suggests that a modified regime of rent control rather than a blanket repeal is in order. She alleges that the practice of freezing standard rent at some historical level decreases the capital stock in housing through accelerated deterioration and restricts fresh housing investment. State

\(^{41/}\) In addition to the studies discussed in Chapter 3, see Paul (1982), Gupta (1985), and Kumar (1982) for other discussions of Indian housing markets that touch on controls.

\(^{42/}\) It can be argued that Datta imputed an objective to rent control that it did not possess, i.e. that rent control was never meant to be an equitable redistribution device, but simply to protect tenants at the expense of landlords without regard to income redistribution.
intervention in housing construction would then become necessary on a major scale, further accentuating resource constraints. Ultimately, existing rent controls fail to protect tenants, since either the tenant himself would have to bear the maintenance expenditure for his unit, or he would be forced to move out due to sheer wear and tear of his unit, thereby forfeiting his privileges under rent control. Khatkhate recommends that, rather than set an absolute level of rents, some norm of rate of return on invested capital may be introduced, with allowance for maintenance expenditure. Such a normative rate of return cannot be exceeded and will be tied to the value of capital declared by the owner. Property tax assessment would act as a control against declaration of an inflated value. Moreover, capital valuation may be updated once in five years to allow for price changes and to eliminate administrative ambiguity. Increases in property values due to such updating could be used specifically for low-cost public housing schemes.

4.10 While the scheme suggested by Khatkhate is not without its virtues, some thought may have to go into its practical underpinnings. Watertight assessment procedures would have to be evolved if the scheme is to service its purpose. Norms may have to be identified for investment in different kinds of housing, and how exactly they would be tied to maintenance expenditure may need to be spelled out precisely. Updating of capital values once in five years would actually be a running year-to-year expenditure with huge administrative requirements. Such expenditure may or may not be superior to that of subsidized mass-housing, but it remains a sound idea at least in principle and may be justified if there is a corresponding increase in tax revenues. Where increase in tax revenues from such quinquennial updating are to be recycled for public housing schemes, the implications for municipal administration are worth a thought; how will they deal with incremental costs of municipal services of tax collection? Further, at the individual level the landlord would lose through such capital value increments, to the extent of the additional tax, but he would make good the loss through the normative rate of return on the increased capital value. As to the individual tenant, it could only mean a rise in rent level every five years, the extent of which depends on the various attributes of the house. Such increases in rent are not necessarily accompanied by an increase in income to absorb the same. This would cause considerable hardship to the old and fixed income tenants.

4.11 Mohan (1982) identifies the monopsonist power of the tenant in a controlled situation, and argues that it could lead to artificial increases in rentals of new houses but restrict supply of existing vacant property. As a result, rent control possibly protects only those tenants "who happen to have been tenants for a long time." As regards the negative effect of rent control on maintenance of existing buildings, Mohan moots a housing finance system with provision for house repair expenditure in general. However, the logistics of such a scheme are not spelled out by the author.

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43/ This may not hold under the plausible assumption that tax rate is less than the allowed rate of return on capital.
C. Analysis of Rent Control Viewed as a Tax on Housing Capital

Rent Control as Price Control

4.12 Simple rent control can be viewed as a tax on the profits of landlords, or a tax on the return to housing capital. The traditional textbook analysis of rent control as a price control then follows directly. When rent control is imposed, the price per unit of housing service charged by landlords is reduced by fiat. In Figure 1, representing market demand and supply, this is represented by a move from \( P_0 \) to \( P_1 \). If rather than being reduced, rents are frozen at existing levels, then an assumed shift in demand or price inflation leads to a similar divergence between equilibrium and controlled prices. In the short run, the housing stock is fixed, \( (S_0) \), so at \( P_1 \) there exists excess demand \( (Q_1 - Q_0) \), and housing is rationed. The divergence between \( P_0 \) and \( P_1 \) also provides a strong incentive for the development of a key money system, where amortized key money makes up the difference \( (P_0Q_0 - P_1Q_0) \).

4.13 In the longer run, the supply schedule has more elasticity \( (S_1) \), and so if key money has not become an effective equilibrating mechanism (because of strict enforcement, or because it is difficult to collect key money from tenants already in place, or simply because low incomes and poor capital markets make it difficult for many renters to finance key money payments) then landlords decrease the quantity of housing services supplied to \( Q_2 \). Some houses are demolished early, and new starts are foregone. Obviously, shifts in demand as population and income increase will exacerbate this situation. In the very long run, with an elastic supply \( (S_2) \), the simple competitive model implies an unhoused population.

Rent Control as Expenditure Control

4.14 In fact, landlords even have some ability to alter the quantity of housing services from an existing unit. Figure 2 therefore presents an alternative model, based on Olsen (1969) and Frankena (1975), which models rent control as an expenditure control, not a price control.

4.15 Suppose that rent control is imposed, and initially lowers real rents to \( P_1 \). That is, the supply curve in the immediate market period, which is not
shown, is vertical, and the immediate effect of the unanticipated imposition of controls is to effectively reduce the price from $P_0$ to $P_1$. Rent is fixed at $P_1Q_0$.

4.16 But in the intermediate run landlords have some latitude to vary the quantity of housing services available in the market, as represented by the slope of $S$. Also, virtually all real world rent control regimes fix rents, not the price per unit of housing services. Specifically, rental expenditure is fixed at $P_1Q_0$; that is, landlords are constrained by the rectangular hyperbola $E$, the locus of all quantities and prices yielding rents equivalent to $P_1Q_0$.

4.17 Now there is no longer a market clearing equilibrium, and, in fact, the final price per unit of housing services can exceed the original uncontrolled price. As drawn, landlords can reduce supply to $Q_1$ during the intermediate period, but charge $P_2Q_1$. Note that at $P_2$ there is excess demand $Q_2 - Q_1$. If the minimum quantity that could be offered in the intermediate run (the vertical portion of the supply curve) were less than $Q_3$ (where $E$ intersects with the demand curve), $Q_3$ would become the binding constraint because at prices higher than $P_3$ consumers would demand less housing than was offered.

4.18 The existence of an alternative owner-occupied market further complicates the analysis. In one polar case, if the supply of housing services from this sector is perfectly elastic (and transactions costs broadly defined are ignored), the existence of this sector will limit prices to $P_0$, since if prices rise farther households will switch sectors. In the other polar case, assume that there is no available owner housing or that transactions costs, lack of finance, etc. constrain households to remain in the rental market. Then the analysis presented earlier stands.

4.19 The extension of the price control model by Olsen and others to expenditure control is therefore shown to lead quickly to further complications. Data requirements for predicting consequences of rent control using this model are quite high: in particular, the existence of alternative submarkets complicates the analysis. Further, little insight is provided about dynamics.
D. **Estimates of Costs and Benefits, and their Incidence**

**The Basic Model**

4.20 This model is similar to that used by Olsen (1972) in his econometric analysis of rent control in New York. It is assumed that there is an uncontrolled housing market as well as a rent controlled market. The quantity of housing services provided by a unit reflects all of the characteristics associated with the unit: size, amenities, appearance, location, and physical features. Thus the rent of any unit reflects all the characteristics associated with housing. Differences in rent in a non-controlled market would thus reflect differences in services associated with the good.

4.21 The costs and benefits of rent control can be assessed by comparing the controlled situation with the non-controlled situation. One way of implementing this with-without perspective is to estimate how much controlled units would rent for in the absence of controls, and consider the difference between that rent and the observed controlled rent as the cost imposed on the landlord and, conversely, the transfer to the tenant.

4.22 These transfers lead to changes in producer, but more importantly in consumer surpluses, resulting from the existence of controls, as can be seen in Figure 4.3.

4.23 With an uncontrolled rent per unit of housing service, $P_m$, households would consume $Q_m$ units of housing service and pay a rent $P_mQ_m$. The immediate effect of rent control is to reduce rent to $P_cQ_m$. Thus the consumer spends $(P_mQ_m - P_cQ_m)$ more on non-housing goods.

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44/ For convenience we refer to this as the Olsen model because his 1972 paper was (to our knowledge) the first published study to analyze rent controls with this particular model. Olsen cited the work of De Salvo (1970, 1971) and others as antecedents; similar models and extensions have been applied to housing market policies and programs of various kinds, e.g. Murray (1975), Mayo (1986), and Schwab (1985) to name but a few. Malpezzi (1986), Malpezzi, Tipple, and Willis (1990), and Struyk (1988) apply variants of the model to rent controls in Cairo, Kumasi (Ghana), and urban Jordan, respectively.
4.24 At price $P_c$ the consumer would demand $Q_d$ units of housing services. However, under real world rent control regimes, landlords have no incentive to increase the flow of housing services to $Q_d$; and indeed as landlords filter housing downwards, tenants are likely to end up consuming $Q_c$ housing units. Households will find it more difficult to obtain and move to a suitable unit. Households will systematically consume "off their demand curve."

4.25 With rent control, expenditure on the units is reduced to $P_c Q_m$. In the short run, price control has no effect on supply. But it has a profound effect on the allocation of supply between demanders. Previously the available units only went to renters who valued them at $P_m$ or above. But now that price has been reduced to $P_c$, demand has risen to $Q_d$. Demand exceeds supply. We do not know in detail how owners will allocate the available units between renters. But there is evidence to suggest that family and own use occupation has risen in Kumasi. However the allocation is done, the total market value of the available units to consumers (renters or owners) will be less than the value before price control.

4.26 If housing is filtered to $Q_c$, there is a further efficiency cost since supply will be altered: in other words, there is an additional loss of producer surplus ($WXV$). Thus the triangle $ZVX$ is a minimum estimate of the welfare cost of price (rent) control.

4.27 This geometric exposition illustrates the basic method quite well, but an algebraic generalization is better suited for actually estimating the size of welfare gains and losses using a sample. It can be shown that if the price elasticity of demand is constant, the benefit of a program that changes prices and quantities can be written as:

$$\text{Benefit} = \frac{1}{1/b} \cdot \frac{b+1}{b+1} \cdot Q_c \cdot b - Q_m \cdot b + P_m Q_m - P_c Q_c$$

where:

- $\text{Benefit}$ = cash equivalent value, a measure of change in consumer's surplus
- $Q_m$ = predicted housing consumption in the absence of rent controls
- $Q_c$ = housing consumption under rent controls
- $P_m Q_m$ = estimated rent in the absence of controls, also denoted $R_m$
- $P_c Q_c$ = observed controlled rent, also denoted $R_c$
- $b$ = price elasticity of demand
4.28 In the special case where the price elasticity of demand, \( b \), is equal to \(-1\), the expression \( \frac{b}{b+1} \) is undefined. But it can be shown that in this special case the benefit can be expressed using natural logarithms as:

\[
\text{Benefit} = P_m Q_m \left( \log(P_m Q_c) - \log(P_m Q_m) \right) + P_m Q_m - P_c Q_c
\]

4.29 These two related equations will be the centerpiece of the empirical analysis in the next chapter. The benefit may be thought of as composed of two parts. The first is comprised of the two terms to the right of the brackets in equations [1] and [2]. This is simply the additional spending on non-housing goods brought about by paying a rent \( R_c \) (\( = P_c Q_c \)) rather than \( R_m \) (\( = P_m Q_m \)). This simple difference between market and controlled rents, \( R_m - R_c \), is often used as an approximation to tenant benefits from the imposition of controls. But this simple benefit measure does not take into account how households value changes in housing consumption in addition to changes in disposable income. The second, comprising the terms in parentheses and brackets in the two equations, depends on the difference in housing consumption with and without rent controls. But whereas in the simple benefit measure (\( R_m - R_c \)) an extra dollar of non-housing is counted as being worth exactly one dollar to the tenant, in the benefit measures [1] and [2] extra housing is discounted based on the tenant's relative preference for housing vis-a-vis other goods.

4.30 The measures in [1] and [2] do not include all possible costs and benefits to tenants. For example, rent control may increase transactions costs for tenants, including search costs (Clark 1982) and increase waiting time for housing units (the cost of which to tenants may be considerable, see Willis 1984). All of these will reduce the benefits to tenants, but the full system may also increase the bundle of property rights, such as security of tenure, enjoyed by tenants, thus increasing their benefits in this area. The above measures [1] and [2] are then better approximations of benefits than \( R_m - R_c \), but they are still approximations.

4.31 The cost imposed on landlords is straightforwardly approximated by \( P_m Q_c - P_c Q_c \), or the difference between controlled and market rents for the unit inhabited by the tenant. This measure of cost to landlords does not include losses from prior accelerated depreciation of the unit. However, this could be regarded as a saving in maintenance costs, which would generate benefits elsewhere, perhaps equal to the opportunity cost forgone. The cost to landlords would also include losses from the uncompensated transfer of property rights to renters. Thus, the true costs to landlords may exceed the \( (P_m Q_c - P_c Q_c) \) estimates.

**Empirical Estimates**

4.32 Perhaps the first careful study of the costs and benefits of rent control is Olsen's (1973) paper. Using data from New York City in 1958, he used estimates from a hedonic index of uncontrolled units to predict the uncontrolled rentals of controlled units. In an analogous fashion, he used the data from the uncontrolled portion of the market to estimate the free market Engel curve for housing services. The average controlled rent for an apartment was $999 per annum; for comparison, the average income was $6229. The average uncontrolled
rent predicted by the hedonic results for those same units was $1,405, implying a subsidy of $406. The average free market expenditure for the controlled households was $1,470, indicating that they consumed slightly less housing than they would have in the free market. The average household in the controlled market consumed about four and a half percent less housing than they would have in the free market.

4.33 Olsen computed the economic benefit of rent control to each tenant under the assumption of a unitary price elasticity, in other words, using equation [2] from above. Olsen's estimate of the average net benefit is $213, little more than half the gross subsidy implied by rent control.

4.34 The benefits are found to be slightly negatively related to income, larger for larger households, and larger for households headed by older people. The annual benefit is estimated to decrease by about one cent for every dollar of additional income, $9 per year of head's age, and $69 per additional household member. Olsen notes that these results may understate the regressivity of benefits because lower income people are more likely to rent in the controlled market and, hence, appear in the regression sample. Benefits do not vary significantly by race or sex of head of household. Rent control in New York City in 1968 appears to redistribute income, but very weakly, and is in no way proportional to its cost. Olsen showed that there was a slight tendency for lower income households in New York City in 1968 to receive slightly larger benefits.

4.35 Linneman (1987) updated Olsen's study. In 1969, 1971, and 1974, New York made important changes in its system of controls, with two key effects: (i) most post-1947 units were brought into the rent control system and (ii) a distinction was drawn between "controlled" and "stabilized" units. Controlled units (roughly, pre-1947 units with tenants who moved in prior to 1947) have rents set by the Rent Control Division while stabilized units (newer units, or pre-1947 units with new tenants) have rents set by negotiations between landlord and tenant, subject to approval of a board comprising landlord, tenant, and government representatives (see Linneman for details). In 1981, about 19 percent of privately rented units were in the controlled sector; 62 percent were stabilized; and 19 percent were uncontrolled. Private rental housing was about 72 percent of stock.

4.36 Linneman examines (i) the length of tenure in each sector (controlled, stabilized, and uncontrolled) and (ii) rents paid in each sector compared to predicted rents from hedonic regressions from the stabilized sector. He finds that, after controlling for age and other household characteristics, (i) tenancy duration in the stabilized sector and (ii) the controlled sector has a much longer tenancy duration (12 years) than the other two sectors. The hedonic confirms large differences between the controlled and stabilized sector rents, after controlling for quality: controlled units rented for $951 per year less (on average) than the hedonic predicted they would rent for if stabilized. And in fact, rents are actually lower in the uncontrolled sector than predicted if in the stabilized sector ($200 per year less, on average). A detailed analysis of
the distribution of the benefits of rent control demonstrate that the New York system does, on balance, redistribute income from high to low income households, but the effect is weak and very poorly targeted.

4.37 Pena and Ruiz-Castillo (1984) carried out a similar household level cost-benefit analysis for Madrid. Madrid also has, in effect, a two tiered system. Roughly, units occupied before 1964 have their rents controlled by the government. Only small increases in their rents have been permitted. Units occupied after 1964 are under a slightly more liberal system: leases must be renewed, but at a rent agreed upon by the landlord and tenant, subject to a government ceiling that is more generous than the increases permitted in the strictly controlled sector.

4.38 The authors treat the post 1964 sample as approximately uncontrolled, a limitation imposed by the data. They find an average monthly rent of 945 pesetas in the strictly controlled sector, while the average predicted rent for these units (using moderately controlled hedonic prices) is 4,694 pesetas. The average income in the strictly controlled sector is about 75 percent of the average income in the moderately controlled sector, suggesting some redistributive effect. However, extensive multivariate tests suggest that the subsidy is poorly targeted: personal characteristics, including income, explain only 30 percent of the variances in benefits. The size of the benefit is positively correlated with income. Further, households with lower socioeconomic or educational status, unemployed household heads, and female household heads receive systematically lower benefits.

4.39 Malpezzi (1986) presents estimates of the costs and benefits of rent control in Cairo, Egypt. Controlled units in Cairo rent for much less than estimates of their market rent in the absence of controls. However, this paper shows that when account is taken of side payments, including key money, utilities, maintenance and repair, and upgrading by tenants the discount is greatly reduced for the typical (median) household. When these are excluded the median estimate of the price per unit of housing services is about 38 percent from the estimated long-run equilibrium free market price. When they are included the ratio increases to 70 percent of the market price. But it must also be emphasized that there is a wide distribution around this median. Quite a few Cairo households receive large discounts, just as some pay very high prices for housing services. These differences appear to be largely unrelated to tenant characteristics measuring ability to pay, raising questions of horizontal equity. Otherwise equal households receive quite different housing "deals." Most Cairo renters are well off their demand curve—much farther off than can be explained by the stochastic nature of the estimated demand relation. Corresponding to this departure from equilibrium, many households have significant welfare losses from under and over consumption of housing services. Underconsumption dominates, but about a third of the renters consume more housing than predicted by their demand relation. This conclusion holds up even if households very far from their demand relation are analyzed separately from those within a 95 percent confidence interval of their equilibrium demand.

4.40 Struyk (forthcoming) presents evidence on the distribution of benefits from rent control in urban Jordan. Using Olsen's method, Struyk finds that average benefits are equal to 27 percent of mean rents in Amman and 7 percent in
smaller towns. The distribution of benefits is only weakly related to income; lower income households do receive slightly larger benefits, but the biggest benefits accrue to households that had been in their units the longest, regardless of income.

4.41 Malpezzii, Tipple, and Willis (1989) analyzed the costs and benefits of controls in Kumasi, Ghana. Ninety percent of Kumasi's population rent or live as tenants in family houses. Based on 1986 data, typical controlled rents were less than 2 percent of total consumption. A simple cross-country model predicted that the median rent-to-income level would be about .08 in the absence of controls. Malpezzii, Tipple and Willis found that renters pay a fraction of the estimated market rents for their units. The actual rent paid is roughly half the estimated market. Furthermore, while the controlled rents P_{cQc} hardly vary, the estimated market rents P_{mQc} vary with size and type of unit. Market demand P_{mQm} varies even more.

4.42 The median cost of the subsidy implied by these rent reductions is estimated to be about 274 cedis per month in the tenement and 301 in indigenous sector. But households would spend even more on housing in the absence of controls. Median estimated market demand P_{mQm} is over 1000 cedis in both sectors. Comparing P_{mQc} and P_{mQm} it appears that while units rent for less because of controls, households would spend even more at market prices; that is, consumption of housing services has been greatly reduced under controls.

4.43 Rent control imposes a landlord cost (P_{mQc}-P_{cQc}), which exceeds the net benefit to tenants in both sectors. The "transfer efficiency" (ratio of benefits to costs) is therefore low. Under the most "favorable" assumption in terms of controls' efficiency, the efficiency is 40-50 percent. Tenants receive net benefits which are less than half the static cost to landlords. If the price elasticity is on the order of -0.5, net benefits to most tenants is negative; both landlords and (most) tenants are made worse off by controls.

4.44 While costs and benefits are large relative to rents paid, they are small relative to income. The cost of the subsidy is usually on the order of 2-3 percent of consumption. Net tenant benefits are, at best, negligible compared to total consumption.

4.45 The bottom line, then, is that rent control reduces the rents households pay, but the benefit of this rent reduction is more or less offset by the welfare loss from underconsumption of housing. We estimate that existing units of typical quality would have rented for about twice current rents in 1986, but that households would typically spend more than three times current rents—implying higher housing consumption, if supply was elastic.

\[\text{For the great majority of units, rents were fixed at 300 Cedis per room. Such fixed rents are in some sense a more strict regime than Indian systems, almost all of which permit some variation by type of unit. At the time of the study, in 1986, U.S.\$1=C90 (approximate).}\]
E. Rent Control, Mobility, and Tenure Security

4.46 Two studies, by Clark and Heskin (1982) and Boersch-Supan (1983), examine the relationship among rent control, tenure discounts, and mobility. It has been well documented that even in the absence of rent control long-term tenants pay lower prices for rental housing, \textit{ceteris paribus} (Follain and Malpezzi (1979), Malpezzi et al. (1981)). Landlords find it difficult to raise rents for sitting tenants relative to increases for new tenants, landlords have an incentive to keep desirable tenants in place through discounts, and tenants themselves are less likely to move when they receive a good deal. Clark and Heskin (1982) examined length of tenure discounts and mobility rates, with and without controls, in southern California in the late 1970s. They disaggregated their results by geographic location, race, and income, among other things. They found: length of tenure discounts increased under rent control; tenant mobility decreased, except for the youngest group of renters; and the differences were slightly larger for lower income households.

4.47 Boersch-Supan (1983) provides a detailed microeconomic model of a housing market which implies that rent control of a particular type--a freeze in real rents which is lifted whenever a new household moves in--will result in larger length of tenure discounts and lower mobility rates. Initially he found empirical support from Follain and Malpezzi's (1980) estimates of the length of tenure discount for renters in 39 U.S. metropolitan areas: the average annual discount was .95 percent for uncontrolled cities, and slightly higher--1.1 percent in controlled cities. The average length of stay was half a year longer in the rent controlled markets--4.7 years versus 5.2 years. But when in later work (Boersch-Supan 1984) he used Malpezzi, Ozanne, and Thibodeau's larger sample of 59 metropolitan areas, the statistical differential disappeared.

F. Other Evidence on Distributional Effects of Controls

4.48 The cost-benefit papers discussed above presented evidence on the distribution of benefits from rent control within the class "controlled renters" and a little evidence between "controlled renters" and "other households" (uncontrolled tenants and homeowners). Since rent control is seen by many as a redistribution of income from landlords to tenants, direct tests of the incomes of each class are of particular interest.

4.49 Previous research on distributional effects of these transfers has been limited. Johnson (1951) presents evidence that, in the United States, low income renters receive an important share of their income from rents. His data did not permit a direct test of the effects of transfers, however. Malpezzi (1986) presented evidence from Cairo that median landlord incomes were higher than median tenant incomes: 127 1981 Egyptian pounds versus 87 pounds, respectively in 1981.\footnote{The official exchange rate in 1981 was LE1 - US$1.43; the market rate was about 1 to 1.} While the difference is not negligible, typical landlords in Cairo are by no means rich. Broadly, Malpezzi, Tipple, and Willis (1990) found similar results for Kumasi: landlords were, on average, about 36 percent richer.
than tenants; but about one quarter of landlords had incomes below the median renter income, and one quarter of renters had incomes above the median landlord income.

G. The Effects of Controls on the "Uncontrolled" Submarket

4.50 Several papers have addressed the potential effects of a price control on a related, though nominally uncontrolled, market. We focus on a paper by Fallis and Smith (1984).

4.51 Fallis and Smith actually develop two related models, one for rent control regimes that exempt new units from price controls, and one for regimes with vacancy decontrol provisions. Their short-run models predict that under most conditions excess demand spills over into the uncontrolled market, and, in the short run, drives up the uncontrolled price. In the long run, they implicitly assume an elastic supply function that implies a reduction in the quantity of housing services from the controlled sector and an expansion in the uncontrolled sector, narrowing the wedge between prices.

4.52 They also present an empirical test of the model using data from Los Angeles (1969-1978). Fallis and Smith assume that there is a straightforward relationship between rental rates, $R$, operating expenses, $E$, and the vacancy rate, $V$, estimated as:

$$R_t = -6.25 + 0.078 E_t + 34.09 \left( \frac{1}{V_t} \right) + 26.49 \left( \frac{1}{V_{t-1}} \right)$$

(3.30) (1.64) (4.12) (3.10)

where dots indicate time derivatives and standard errors are in parentheses. Rent control was introduced in Los Angeles at the end of this period (1978). The estimates are used to forecast what rents would have been in the absence of controls, and the forecast compared with rents in the controlled and uncontrolled sector. After two years, controlled rents had risen by 10 percent less than the forecast, and uncontrolled rents by 22 percent more, confirming the hypothesis that rent control increased prices in the uncontrolled sector in the short run.

4.53 Malpezzi (1986) was the first paper to address this issue for a developing country. That paper used the cross country demand model of Malpezzi and Mayo (1987) to predict long run equilibrium rents in the uncontrolled (furnished) sector in Cairo. There it was found that rents in the "uncontrolled" sector were much greater than predicted by the model. The average predicted rent to income for this group was 0.16; the actual observed was 0.53, as reported in Malpezzi (1986).

4.54 Malpezzi, Tipple, and Willis followed up with a similar method in Kumasi. They used an improved version of the cross country demand model to calibrate their model. In contrast to the Cairo case, it was found that controls reduced the rents paid in the "uncontrolled" sector in Kumasi in 1986. Predicted rents from the model were 9 percent of income, while actual was 5 percent, as reported in Malpezzi, Tipple, and Willis (1990).
H. Supply Responses

Overview

4.55 Many theoretical treatments suggest that rent controls reduce the supply of rental housing. Despite the keen interest in supply responses, most of the work on supply to date has been theoretical, and/or based on simulation models; disappointingly little empirical work has been done on the supply side of the housing market to date. Olsen, in his (1987) review of empirical work on housing markets, discusses some of the conceptual and, especially, data problems that account for these lacunae.

4.56 Figure 4.4 shows in a very stylized way how the supply side of the rental housing market can be decomposed. Abstracting for the moment from the existence of a related market (an uncontrolled portion of the rental market, and/or an owner occupied market), the imposition of controls and related tenure security regulations can (i) cause suppliers to forgo supplying rental housing; (ii) cause them to hold some of the stock vacant; (iii) cause the remaining stock to be used less efficiently. Forgone supply, (i), can be further subdivided into foregone starts, reduced maintenance and repairs (in other words, accelerated depreciation of the existing stock), and premature demolition of the existing stock.

4.57 Most discussions of the supply side effects of rent controls discuss their presumed negative effects on rental starts; but it is quite difficult to unambiguously attribute declines in starts to rent controls (just as it is possible that rent controls could retard starts ceribus paribus while we observed total starts rising). The extreme cyclicality of the housing market makes imputing such effects difficult, as does the difficulty of acquiring good data on the number of rental starts separately from owner occupied starts. Even worse (from the point of view of analysts), investment decisions are affected by expectations about controls, not simply or even mainly the contemporary policy.

Figure 4.4 Stylized Decomposition of Rental Housing Stock

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48/ Cf. Mayo et al. (1982) who suggest that large key money payments and the absence of alternative investments in Cairo could fuel investments in rental housing (which are then undermaintained).

49/ The ratio of housing starts peak-to-trough approaches three in the United States, for example.
environment. Finally, in many countries (most notably but not only in developed countries), the supply of rental housing is greatly affected by tenure conversions, and good data on these are sorely lacking.

4.58 The same point can be made about premature demolitions, conversions from owner occupied to rental, and vice versa. Data for direct tests are hard to come by. There has been, however, some work on the effects on maintenance.

Reduced Maintenance

4.59 We have just seen that comparative static models that allow for some price elasticity of supply of housing services imply that rational landlords will permit their dwellings to deteriorate over time. If the rent control regime fixes rent, it can be modeled as a tax or a tariff in the immediate market period, but a reduction in the quantity of housing services supplied over a longer period results in a fixed expenditure, in other words, lower quantity, with a return to market price.

4.60 Dynamic models of profit maximizing landlords have provided some insight into this process, and a little empirical support. One of the first studies in this vein was by Moorehouse (1972), who examined the optimal choice of maintenance inputs by a value maximizing landlord. Using a three input production function (capital, current inputs that must be employed at some exogenous fixed rate, and variable maintenance inputs), and assuming geometric physical depreciation of the unit, Moorehouse investigates a rent control regime which freezes nominal rents during an inflationary period. In other words, the time path of real rents falls by the rate of general price inflation, and rises by the rate of depreciation not offset by maintenance. His model predicts that in a competitive market with general inflation, dynamic equilibrium requires concomitant increases in rents; but in a rent controlled market, the burden of adjustment falls on maintenance.

4.61 Related studies by Dildine and Massey (1974), Arnault (1975), and Kiefer (1980) reach the same conclusion: rent control reduces maintenance of housing units ceteris paribus. Kiefer additionally studies the optimal economic life of a structure and finds that rent control leads to premature abandonment, compared to the uncontrolled case. In a related empirical study of an uncontrolled market, Bender (1979) finds that declining housing prices in general are associated with higher rates of demolition. This unsurprising finding indirectly supports Kiefer's conclusions that rent control reduces the optimal life of a dwelling. It can do this because (i) the present value of rents is lowered relative to alternative uses and (ii) lower maintenance can directly shorten the life of a structure.

4.62 Rydell and Neels (1982) estimate directly the elasticity of housing services with respect to maintenance using data from the Housing Assistance supply experiment. In any period, housing services are the sum of housing services last period, plus some (non-linear) function of the last period's maintenance and repair inputs, minus gross depreciation:

\[ Q_{t+1} = Q_t + aM_t^L - bQ_t \]
Using iterative techniques, they find that the best fit is obtained when a gross depreciation rate $b$ of eight percent is assumed ($L$, the elasticity of housing output with respect to maintenance, is estimated to be 0.17). In other words, without maintenance, dwellings will depreciate by 8 percent per year. This places a limit on how fast landlords can decrease the quantity of housing services as a response to the imposition of controls.

4.63 There are conditions under which the effect of controls on maintenance is ambiguous. Malpezzi (1986) and Olsen (1989) demonstrate theoretically that rent control regimes which reset rents based on the condition of the unit could increase maintenance (since the marginal return to a unit of maintenance expenditures could exceed its cost if the entire unit was revalued past some threshold). While such laws exist in some markets, it is not clear that enforcement is sufficiently discriminating for this effect to be observed in practice, and no empirical test has been conducted.

4.64 In summary, then, directly testing the supply side effects of rent control--foregone starts, vacancy rates, conversions, demolition, and maintenance--is inherently difficult, especially without major improvements in available data. While it is difficult to directly test many supply side hypotheses without major improvements in data, indirect evidence can be gleaned by analyzing the effects of controls and related regulations on profitability.

Rent Control's Effects on Profitability

4.65 Indian Studies. Earlier studies on the effects of rent control on housing investment were those sponsored by the National Building Organization, Government of India, in the 1960s, in the cities of Delhi, Calcutta (NBO, 1965, 1968), and Bombay (Ramachandran and Pillai, 1972).

4.66 The Delhi study by the NBO sampled 200 houses from all private residential houses constructed during 1951-1965 in the urban areas of Delhi covered by rent control. Tenants and owners were interviewed separately, besides officials and administration personnel. Regarding the provisions of the Delhi Rent Control Act (1958), it was noted that the Rent Act covered residential accommodation only, and that it clashed directly with other special enactments like the Delhi Slum Area Act (1956) over the issue of eviction of tenants. This was seen to hamper development and renewal of the slum areas in the city. Major lacunae identified in the legislation per se related to the protection of tenants twice over--both by general and by special law--and the lack of a systematic quantitative basis for allocation of housing space according to family needs. Also, new owners were given a rent holiday period of five years, thereby discriminating against old owners. Another egregious feature of the Delhi

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50/ Older units do, in general, provide lower levels of housing services. Hence, even in an uncontrolled market, older units rent for less than new units. The empirical question to be answered is whether rent control further increases the size of this age-price discount, discriminating in favour of tenants of controlled units with a long tenancy tenure. (Malpezzi, 1986).
legislation was the provision for compulsory lease or acquisition of vacant property by the government for allotment to government offices and staff, embassies and their personnel, etc.

4.67 Empirical analysis suggested that residential construction in Delhi as a whole rose continuously from 1951-1965, with a marked step-up during the rent holiday period 1961-1965. The study erroneously concludes from this evidence that rent control has not had a negative effect on the rate of residential construction in the private sector. A possible contradiction may be identified here--the fact that residential construction actually showed acceleration during the rent holiday 1961-1965 could itself imply some dampening influence of rent control. Unless factors other than rent control that affect residential house construction are considered in detail, one cannot shed much light on this topic. Moreover, the rate of construction will not depend solely on rent control for its operation. The general growth pattern of the city of Delhi, the burgeoning employment opportunities, and the high returns to be realized in such a situation, would all go to increase total housing construction, notwithstanding the negative impact of rent control. To study its effect on rental housing may be more in order.

4.68 Rent control was also seen to exercise very little influence on the nature of occupancy or tenure status of new houses in the formal sector. Among the houses that came up in 1961-1965, 8 percent were found to be occupied solely by tenants, 41 percent were completely owner-occupied. This was in line with the trend towards owner occupancy in Delhi during the period.

4.69 Since a portion of the period under scrutiny in this case corresponds to the rent holiday--some of the houses sampled were constructed in 1961-1965--and the Delhi Act provides a five-year rent holiday for buildings rented out/constructed after June 9, 1955, where fair rent would be the rent agreed upon when first let, the sample may have been too narrow to truly reflect the impact of rent control on tenure status. However, the figures reveal that over 40 percent of the landlords built houses partly for themselves and partly for the rental housing market.

4.70 The study calculated the economic rent (the concept of economic rent used is not defined, though) for single-room units at Rs.28 per month, while 78 percent of the households in urban Delhi were found to be paying rents less than Rs.26 per month. Accordingly, it was recommended that a majority of the population needed subsidized or low-cost housing, rather than rental protection; the subsidy forthcoming under such a scheme could be the difference between economic rent and afforded rent--affordability being loosely defined in terms of family income and rent actually paid. Difficulties in determining "afforded rent" and the financial implications to government are the serious practical problems under this recommendation.

4.71 On an average, tenant turnover, as reported by owners, was found to occur once in ten years, but tenants reported an average shift once in five years. This difference in reporting between owners and tenants could be a result of under reporting of vacancies by the owners. This was based on the pattern for 1951-1965. The low rates of mobility were associated with the dominance of the professional and salaried class in the city of Delhi.
Finally, expansion of the uncontrolled sector in the high-rent segment and in areas with low pressure of occupancy was suggested, as was a bolstering of the rent control machinery, especially the maintenance of a complete official roster of all rent controlled houses in the city.

In the case of the Calcutta study by the NBO, the level of investment in housing was studied for the period 1951-1966, measured alternatively by number of houses constructed, total floor area, number of units (flats), and aggregate investment. This was matched against rental value and the rate of return measured. The analysis revealed that return on investment was an important determinant of housing investment. Construction was accordingly polarized in favor of high rent units, with increasing scarcity for the medium ranges. The West Bengal Premises Tenancy Act (1956) contributed directly to this tendency by stipulating that the annual (controlled) rent for new construction would be 6 3/4 percent of construction cost and market value of land, because the normal rate of return for houses in the low and high ranges is less than 6 3/4 percent. In terms of total volume, the impact of rent control on housing construction was found to be not significant. Once again it must be said that this study did not consider all the factors that determine residential house construction. Thus it cannot claim that the effect of rent control on housing construction was found not significant. The study also revealed limited awareness on the part of tenants regarding the various provisions of rent control. One basic amendment to the Rent Act was put forward to separate 'vacant lands' from the definition of 'premises' in the clause on eviction of tenants, as this was seen to hamper fresh construction.

Ramachandran and Pillai (1972) in their study of Bombay, which was also sponsored by the NBO, interviewed 472 respondents comprising tenants, owners, and landlords to elicit their opinion on the impact of the Rent Act on housing production. The respondents were found to be not fully aware of the provisions of the act, and therefore had no views to offer on the issue. However, interviews with selected experts led to the conclusion that, because of the act, the focus of building activity in the private sector has shifted almost entirely on the middle and upper income groups. The study suggested that in view of the pronounced feeling among landlords and experts and to some extent tenants, it would be well-advised to give serious consideration to modifying the act in order to streamline its implementation, reduce litigation, make standard rent modifications more reasonable, and so on.

Studies of Other Countries. Malpezzi, Tipple, and Willis (1990) analyzed the effect of Ghanaian rent controls on the profitability of rental investment in Kumasi. They studied a number of cases, but their central representative case suggested that controls reduced the rate of return on rental housing from about 6 percent per annum to about -1 percent. However, they noted that in the recent past Ghana's economy was so disrupted that -1 percent was not an unattractive return to some investors; during the 1970s returns to Cedi denominated financial assets were around -40 percent. Merely preserving capital-

51/ It is possible that low rent or low income units escape controls, and that high income tenants are able to supplement the quoted rent by informal payments.
- or losing it slowly—is attractive under such conditions. Malpezzi, Tipple and Willis point out the paradox that as Ghana’s economy recovers, the constraint controls place on rate of return will begin to “bite,” and controls may restrain investment more under “normal” economic conditions.

I. Rent Control’s Effects on Government Revenue

Property Taxes

4.76 Property taxes provide 40 percent of municipal government taxes in India and 24 percent of revenue. Rent control affects property taxes in several ways; the nature and magnitude of the effect depends on whether the property is taxed based on its capital value or on the stream of rents it generates, as well as important administrative details to be discussed.\textsuperscript{52/}

4.77 Many countries—including the United States—base property taxes on their capital value. In such countries, rent controls lower taxes by decreasing the capital value of the underlying asset. As will be discussed in detail in Chapter 7, the extent of the reduction depends not only on the reduction in current and future rents, but on regulations affecting the security of tenants and the conversion of property to other uses. From the point of view of investors, the decreased rent will be partly offset by decreased property taxes and maintenance costs, but aggravated by increased depreciation following the reduced maintenance. All these effects should be netted out in examining the effect of controls on taxes.\textsuperscript{53/}

4.78 Other countries—including India—base property taxes on rental value. In India, property taxes are assessed on the basis of fair rents. Furthermore, the courts have held that rents for uncontrolled properties, including owner-occupied properties, must be assessed on the basis of the fair rents that would be obtained if they were controlled.\textsuperscript{54/}

4.79 In all cases, property tax collections are obviously greatly affected by actual assessment and collection practices. Systems that in theory are based on market rents but in practice are rarely revalued are similar in effect to controlled systems of a sort.

4.80 Obviously the effects of controls depend on the nature and effect of controls on rents. In particular, it is important to establish whether the control—of whatever type—results in a decrease roughly proportional to market value, market rent, or income (in other words, to some measure of ability to pay

\textsuperscript{52/} For a general discussion of the property tax see Dillinger (1988).


\textsuperscript{54/} Balachandran provides a comprehensive review of the legislation and its judicial review.
or whether the decreases are either random, or mainly correlated with things like the age of the structure, which are themselves poor measures of ability to pay. This is because if controls merely shift the basis for assessment by some constant amount, tax revenue can be recovered without doing violence to equity or efficiency by appropriate adjustments in the tax rate. If controls shift rents stochastically, then taxes themselves are stochastic.

4.81 Rajadhyaksha's study of Bombay and Ahmedabad have examined the adverse effects of rent control on property values and municipal revenues (Rajadhyaksha 1973). He took the instances of Bombay and Ahmedabad to gauge the effect of rent control on municipal revenues through underassessment of properties. The methodology followed in the two cases was broadly similar. Unit letting rates were worked out according to locality, age (old or new), and use-type. Similar properties were aggregated over localities to yield an average letting rate for a type of property.

4.82 In the case of Bombay, it was estimated that, because of the use of "standard rent" for assessment purposes, the Bombay Municipal Corporation lost 185 million Rs. annually. Important reasons included: the exclusion of subtenants and licenses from the assessment procedures; static "standard rents" in the face of mounting municipal expenditures; determination of rental solely on the basis of capital value of property, with no cognizance of the use to which it was put; and non-use of the method of comparison in assessing owner-occupied, unlet, or vacant properties. Besides, rent control led to collection of premia by the outgoing tenant and by the landlord from the incoming tenant. In this latter case, the landlords' acceptance of premium could also imply a lower contractual rent than the standard rent, thus adding to tax evasion. The study revealed that "let out" cases were fast being taken over, for new constructions, by owners, licenses, and members of cooperative societies.

4.83 For Ahmedabad, a 100 percent improvement in municipal revenues was deemed possible if property assessment was not tied to the "standard rents" provisions of the Rent Act. Owner-occupied properties seemed to enjoy favourable treatment, with ratable values at roughly 50 percent of tenanted property values. The study does not describe the mode of assessment or the reasons for such discrimination. One possible reason can be suggested. The revenue officials assessing the property values have a tendency to undervalue property not yielding rental income and over-value property that yields rental income. Underhand dealings were supposedly active, in the form of premia collection of excess rent as liquid cash, and absorption of tenant as a business partner, especially for industrial properties. Since in Ahmedabad the annual value of a property is tied to the user, the survey showed a marked difference in average letting rates between residential and commercial uses, for both old and new properties. Having been in the erstwhile state of Bombay until 1969, Gujarat came under the Bombay Rent Control Act (1947) and the Bombay Provincial Municipal Corporation Act (1949). The latter act had originally recognized the value of occupation to an occupant and had provided for apportionment of property tax payment between landlord and tenant in cases where premises were sub-let or the rent charged for assessment was greater than the rent paid by the tenant. Subsequent amendments annulled this provision, however. The study made a plea for a return to the earlier arrangement, where the tenant's share of the property tax could be the difference between the hypothetical rent and the standard rent of his unit.
In his later study of Calcutta, Nath attempts to decompose the loss of potential tax revenue into losses from underassessment due to controls and from other assessment biases due to, *inter alia*, what he believes to be a systematic tendency to underassess new units, commercial properties, and owner occupied properties, even in the absence of controls. Using rough but perhaps plausible guesses about the likely size of each, and carrying out some sensitivity analysis, Nath still finds that controls reduce tax revenue by about one half.

**Income Taxes**

Surprisingly, it is little noted in the literature that rent control can depress income tax collections as well, at least in countries that collect taxes on rental income. As a very crude back-of-the-envelope illustration, consider a country where market rents would be (say) 10 percent of GDP, and (say) half the households were renters. If the marginal tax rate on typical landlords were (say) 30 percent, then rental income taxes could be as much as a percent and a half of GDP. If controls cut legal rents by (again, say) half, government revenue would be cut by .75 percent of GDP. If total government revenue were 15 percent of GDP, the foregone tax revenue on rental income could approach 5 percent of government revenue (.75/15). This is not a trivial amount.

Obviously the loss is directly related to the size of the rent control "discount." While general equilibrium effects could also be taken into account, even a very partial analysis of this effect in India would be worthwhile. See our calculations in Chapter 7.

**Increases in Other Government Expenditures**

Rent controls are expensive to administer. While there is a dearth of careful analysis of administrative expenses, anecdotal information suggests they can be high. For example, in Santa Monica, California, where legislation requires that administrative costs be recouped by surtaxes on rental units, the current surtax works out to about $75 per unit per annum.

Another underresearched area is the extent to which governments cause or exacerbate market failure by policies like rent control and related regulations, then try to ameliorate their effects by increased expenditure on public housing and/or land development projects. To the extent these expenditures are a cost born to ameliorate the effects of controls (or restrictive land use regulations, or tenure security laws) they should be counted as a cost of regulation.

**J. Studies which Analyze Alternative Adjustment Mechanisms and Methods of Decontrol**

4.90 Arnott presents a complete analysis of an actual law and its enforcement. Ontario has had rent control since 1975. The law applies to the existing stock (pre-1975), but rents are not frozen. Landlords choose an automatic 6 percent annual increase or can apply for exceptions based on one of three criteria: (i) on the basis of cost increases exceeding the guideline; (ii) to attain a modest rate of return, currently two percent; (iii) because of a documented increase in the quality of the unit, presumably through increased maintenance and repaid expenditures. Most landlords take the automatic increase, and the third option for exceptions had not been used at all as of the study date.

4.91 Arnott's analysis is primarily theoretical, some of it an extension of the analysis cited earlier. He reiterates several important arguments from the literature: (i) controls unambiguously hurt landlords but their true distributional implications are unknown; (ii) spillover effects into the uncontrolled market are also ambiguous (see also Fallis and Smith, 1984, and Marks, 1984); and (iii) effects on new construction of laws that currently exempt new units depend on expectations of landlords, so new construction may still be adversely affected. An interesting new result from his analysis is that rent control could actually increase book profits in early years, which would be more than offset by later losses. Arnott also provides one of the few cogent discussions of alternative decontrol schemes.

4.92 Decontrol is an important topic not often analyzed in the literature. The familiar comparative static models provide little guidance on how best to get there from here; by their static nature they assume blanket decontrol works best in all circumstances. Arnott, on the other hand, lists seven forms of decontrol (pp. 74-75):

(a) **Vacancy decontrol.** Units are decontrolled as they become vacant.

(b) **Vacancy-rate decontrol.** Particular housing submarkets (defined on the basis of the location or type of unit) with a vacancy rate above some statutory level are decontrolled.

(c) **Rent-level control.** Rent-level decontrol could be more appropriately termed decontrol from the top down, since it involves decontrolling the most expensive units first and the cheapest last. The rent level above which units are decontrolled can depend on the location or the type of unit.

(d) **Floating up and out.** This designation covers any gradual relaxation of controls that applies uniformly across housing submarkets. When controls are the GI/CPT type, floating up and out entails gradually raising the guideline increase. Where the control program contains a rate-of-return provision, this kind of decontrol could entail raising the rate of return.

(e) **Contracting out.** This is a form of vacancy decontrol; the landlord and tenant negotiate a sum that the landlord pays the tenant if he vacates.
(f) **Local option.** A higher jurisdiction that currently administers controls allows lower jurisdictions to choose whether or not to retain them. Usually, the higher jurisdiction requires the lower to administer the controls if the latter decides to retain them.

(g) **Blanket-lifting.** All rent-control provisions are suddenly and completely lifted.

After a thorough discussion of these alternatives, he concludes that lack of quantitative estimates of relative effects precludes choosing a clear-cut winner for Ontario's rent control regime, much less one method best for all regimes. In particular, the method implied by comparative static analysis, blanket decontrol, can have high costs:

The advantage of blanket-lifting is obvious: it eliminates at a stroke what could become a malignant cancer in the housing market. Such precipitate action has its costs, however, and the greater the degree of excess demand in the market, the greater these costs will be. If there is even moderate excess demand in the housing market as a whole, there is probably substantial excess demand in certain submarkets. The sudden and dramatic increase in rents that tenants in these submarkets will experience with blanket-lifting may have serious social and political repercussions... In short, blanket-lifting is an attractive option only if there is little or no excess demand in any housing submarket (p. 98).

4.93 Rydell et al. (1981) present an analysis of Los Angeles' rent control regime. Los Angeles rent control has been in force since 1978. After an initial freeze, rents for units occupied by sitting tenants could be increased to recover repaid costs, or in recent years by some fixed percentage (7 percent) which has been lower than the general rate of inflation. Units are decontrolled as they are vacated, however, and several classes of rental accommodation are uncontrolled: newly constructed units, luxury housing (defined by pre-control rents), and single family structures. Substantial rehabilitation ($10,000 - $17,000, depending on size of units) also exempts units from controls.

4.94 The authors use a combination of empirical and simulation methods to measure the effects of the laws on rents, depreciation, and conversion. In addition to analysis of the effects from recent years, they forecast the effects of six proposals for decontrol or tighter control (see Figure 4.5):
(a) End rent control immediately (labeled no law).

(b) Phase out current law over two years, meaning two years of rent increases up to 75 percent of the general price level, followed by complete decontrol (labeled phaseout law).

(c) Extend the current law (7.6 percent increase for sitting tenants, no cap for units when they turn over).

(d) Lower the increase for sitting tenants to 5.6 percent, with no cap on turnovers.

(e) Keep the 7.6 percent increase for sitting tenants, but cap the increase at turnover at 10 percent.

(f) Lower sitting increases to 5.6 percent, cap turnover increase at 10 percent.

4.95 Examination of Figure 4 highlights the wide range of outcomes from alternative policies. All simulations assume a 10 percent increase in the general price level, and that in the absence of controls the relative price of housing would remain fixed. Blanket decontrol results in rapid price adjustment, and a slower adjustment back to the long-run equilibrium housing stock. A two-year phase in period, unsurprisingly, has similar effects with a lag. Note that large real rent reduction of the tightest law (5.6 percent allowable increase in rents for sitting tenants, a 10 percent cap at turnover), is accompanied by a large decrease in the quantity of housing services available. Note that in this case prices are being reduced at a rate that is declining over time, while the quantity reduction is accelerating.

4.96 Estimating the time path of rents under alternative regimes places a lot of demands on any general equilibrium model, and no such model has yet been built for developing country markets. On the other hand, qualitative inferences about the time path of rents can be made in the absence of such a market clearing model. Malpezzi, Tipple, and Willis (1990) presented a simple analysis of profitability and supply, and used it to make simple inferences about decontrol by making what amounted to educated guesses about the time path of rents under alternative changes in controls. The implications of these estimates can be studied iteratively and the sensitivity of profitability and affordability to alternative plausible time paths of rent also can be studied. Since we take a similar approach in Chapter 7 we defer a more detailed discussion.

K. The Need for Additional Research

4.97 Most theoretical research to date has focused on analysis of a simple price control without much reference to common methods of adjustment of the controlled price. Two exceptions, by Arnott and by Rydell et al., suggest that
the effects of different stylized laws can vary drastically. The little empirical research that has been done has been inconclusive as regards the effects of rent control on investment. Research on benefits to tenants suggests that rent control yields very small benefits when compared to its costs. There is no evidence that rent control operates as an effective redistributive device, and rent control seems to decrease household mobility.

4.98 This review of previous research demonstrates important practical gaps in our knowledge about rent control. Little is known about the extent of rent control generally, and even less about the prevalence of specific provisions of rent control laws, how they are enforced, what related laws exist, and what market conditions are like in controlled markets. Few econometric studies have been done anywhere of the costs and benefits of rent control laws. Only two have been done in developing countries. No econometric studies have been done in India, despite the long history of controls there. This paper and the other case study papers being prepared, are designed to fill some of these gaps.
V. DATA AND METHOD

A. Data

Household Survey Data

5.1 The primary data source for the econometric analysis of costs and benefits of rent control in this study is a household survey carried out in 1974-75 for the Bangalore City Survey Project by Prakasa Rao and Tewari. The survey comprised 1,745 households from all income and social strata. The sample frame was constructed from an urban frame survey of the National Sample Survey Organization conducted in two stages: first, 150 sample blocks were chosen using circular systematic sampling procedures with spatial control, then households were chosen randomly from within blocks using the household lists prepared for each of the 150 sample blocks. The sample was self-weighting. The survey has quite good information on income, assets, and demographic variables and fairly good information on housing characteristics, including rents paid and (for owners) asset value of non-agricultural land and buildings. This primary data source has been supplemented by additional data collection described below.

5.2 Unfortunately the household survey does not contain three important pieces of information required for this study: whether or not a unit is under controls, and what form of control; whether or not key money is paid; and the age of the structure. Each will be dealt with in turn.

5.3 While the 1974 survey does not contain explicit questions about whether or not a unit is controlled, or about the type of control (strictly controlled unit allocated by the rent controller, or other controlled unit), it does contain information that allows indirect imputation of whether or not the unit is controlled. Recall from Chapter 3 that newly constructed units are exempted from controls for 5 years. Units that rent for less than 15 Rs. per month are also exempt. As a first approximation, then, information on age of structure and on rent could in principle should be used to categorize units as controlled or uncontrolled.

Resurvey of A Subsample of Rental Units

5.4 Though the survey does not contain information on the age of the structure, it does, however, contain information on the tenant's length of stay, which is correlated with the age of the structure. No unit's age can be less than the length of tenure, so all units classified as "controlled" by this criterion will be correctly classified. But because rent control is a legal attribute of the structure, not the tenant, some units that are classified as uncontrolled (length of tenure less than or equal to five years) will actually be older, controlled units. This would impart a downward bias to estimates of

See Prakasa Rao and Tewari (1979) for detailed documentation of data.
rents prevailing in the "uncontrolled" sector, and the size of the bias will be larger the more mobile the renter population. A simple test using the data described in the next section suggests that such a bias could be quite large. A resurvey of 211 of the rental units was therefore carried out in 1974 and 1984 in order to determine their control status.

5.5 The resurvey was carried out for units classified as rental in 1974. Information was collected on past and current tenure status: owner occupied (in 1984 only); under rent control (in 1974 and 1984); and exempt (recently constructed, or under limits, in 1974 and 1984). The subsample, as noted in Chapter 3, was entirely rental in 1974 and slightly higher income than the general population.

5.6 Despite the shortcomings of relying on a subsample that is not randomly selected from the population, the requirement that we be able to identify controlled units as accurately as possible led us, after some experimentation, to work with this subsample in the cost-benefit analysis. Some statistical techniques that can reduce the bias from such a sample were employed, and the techniques and possible biases are discussed more fully below.

**Semistructured Interviews**

5.7 To obtain information on several key variables such as age of the structure, key money or other deposits, and maintenance and repair expenditures it was desirable to carry out a newly designed household survey. However resources for such a major data collection effort were not available for this study, so a small sample of households was administered a semistructured interview. No attempt was made to draw a sample representative of the population because of limited resources. Rather, a purposive sample was drawn with the aim of obtaining the widest possible variation in types of occupants. Of 21 successful interviews, 11 were of owners, and 10 of renters. Of the renters, two had units allotted by the rent controller; of the owners, three had land allotted by Bangalore Development Authority. The sample was largely middle class, as documented in the empirical analysis below.

**B. Methodological Notes**

**Costs and Benefits to Individual Tenants and Landlords**

5.8 Perhaps the simplest way to view the costs and benefits of rent control is to estimate how much controlled units would rent for in the absence of controls and to consider the difference between that estimate and the observed controlled rent as the cost imposed on the landlord and, conversely, the benefit transferred to the tenant. But tenants under rent control are usually not free to adjust their consumption to reflect the new relative prices. Consequently, they do not generally value a reduction in rent for the unit they occupy as highly as they would value an equivalent cash transfer. Costs and benefits of rent control to existing tenants in existing rental units can better be studied by estimating changes in consumer's and producer's surplus resulting from the existence of controls. Figure 5.1, based on Olsen (1972), illustrates such changes for a representative consumer and his or her landlord. This model was
discussed in the literature review, above, but it is so central to our work that we discuss it in more detail here.

5.9 Analysis of consumer surplus rests on the fact that demand curves slope downward, i.e. that under quite general conditions the higher the relative price of a good the less of that good a consumer will demand. If the price of housing rises, consumers will consume less housing, and more of other goods and services. An interesting implication of this fact is the following. The "steepness" of the demand curve implies that households would, if necessary, be willing to pay a high price for the first few essential units of housing services. They would pay a high price for the first "bit" of housing, a little less for the next "bit," and so on down to the price actually paid for the last "bit" they consume. But in a competitive market, households pay only that last, lowest price for all "bits." They receive a sort of bonus in being able to consume much of their housing at a lower price than they would pay if they had to. This bonus is measured by the area under the demand curve but above the horizontal line representing the prevailing price. Changes in the household's welfare from changes in prices and in quantities consumed can be analyzed by measuring these so-called "welfare triangles" before and after the price or quantity change.

5.10 As a first approximation, changes in producer's surplus can be estimated as changes in the rectangles bounded by the price line, the vertical line representing the quantity of housing services, and the axes. This rectangle represents the landlord's money revenue.

5.11 Suppose that in the absence of controls the representative consumer would choose to consume $Q_o$ units of housing services at the prevailing market price $P_o$, paying rent equal to $P_oQ_o$. Suppose that controls are imposed and effectively enforced, so that initially the rental price of one unit of housing services falls to $P_c$ for all rental units. At this price the consumer would demand $Q_d$ units of housing services. But elsewhere we have alluded to the fact that under real world rent control regimes landlords will produce less housing and the transactions costs of moving will rise. We will return to this point below, but here it is sufficient to note that households will find it more difficult to find and move into a suitable unit. Households will systematically consume "off their demand curve," in other words, they will consume more or less housing than their equilibrium demand at that price. As drawn, the representative household consumes $Q_c$, which is less than their equilibrium demand. They receive an implicit subsidy of $(P_o-P_c)Q_c$, whose cost is born by the landlord. However, notice that the consumer has given up consumer's surplus equal to the triangle 123.
5.12 This geometric exposition illustrates the basic method quite well, but an algebraic generalization is better suited for actually estimating the size of welfare gains and losses using a sample. Equations [1] and [2] from the preceding chapter are the measures we use:

\[ [1] \ \text{Benefit} = \frac{1}{b} \left( \frac{Q_c}{b+1} - \frac{Q_{\text{m}}}{b+1} \right) \]

and

\[ [2] \ \text{Benefit} = \frac{a}{b} (\log(Q_{\text{m}}) - \log(Q_{\text{c}})) + \frac{a}{b} Q_{\text{m}} - C_{\text{Q}_{\text{c}}} \]

5.13 Estimating these net benefits requires four pieces of information for each consumer:

(a) the rent currently paid for the current controlled unit, \( P_{\text{c}} Q_{\text{c}} \);

(b) the rent that the current unit would rent for in the absence of controls, \( P_{\text{m}} Q_{\text{c}} \);

(c) the rent that the household would pay if they were at their equilibrium demand at market prices, \( P_{\text{m}} Q_{\text{c}} \); and

(d) the price elasticity of demand for housing, \( b \).

5.14 The first datum will be observed directly from a sample of controlled households. The second will be estimated using the method of hedonic indexes, described below, which uses information from an additional sample of housing units rented at market prices. The third will be estimated using a demand relation from a sample of households facing market prices. The fourth will be a parametric assumption based on other studies. While each of these methods has potential problems, sensitivity analysis will give us some idea of the confidence we can place in these results.

Distributional Issues

5.15 Since the method just described can readily be applied to each household contained in a sample, it is straightforward to examine the correlation between the estimated costs and benefits of rent controls and criterion variables of interest, most obviously income. The approach usually taken is to construct auxiliary regressions of costs and benefits against income, length of tenure, and socioeconomic status (e.g. Olsen). There are two problems with such an approach. First, the costs and benefits are calculated only for controlled renters; so strictly speaking, as Olsen (1972) noted, this method only examines the distribution of benefits conditional on being a controlled renter. Conceptually, we could examine equity among controlled renters; we could examine equity between controlled renters and other tenure groups; and we could examine equity between
landlords and tenants. The cost and benefit estimates will be broken out by tenant income, the first concept of equity. To study the second we will make use of the data contained in Tables 3 and 4 above, which present the relationships between income and tenure. To study the third, we will make use of a simple comparison of the incomes of landlords and tenants.

C. Analysis of Supply Effects

5.16 So far most of our discussion has revolved around analysis of changes in consumer welfare. Of course the cost-benefit analysis described above does generate first order approximations of the cost imposed on landlords. But it was noted that these estimates understate or ignore losses to producers from several sources. The cost estimates do not shed much light on several important supply side issues, namely accelerated depreciation; foregone rental and total housing investment; and increases in risk and transactions costs. Here each will be discussed briefly in turn. Then ways of studying these effects with the data in hand will be described. Some alternative methods that can be applied in other case studies where the data support them will also be briefly described.

Supply Side Responses to Changes in the Profitability of Rental Investment

5.17 In the literature review the relative lack of direct estimates of supply responses to housing market policies was discussed in some detail. In the absence of direct econometric estimates, supply side effects can best be studied with a simple present value model of the profitability of rental housing investment. The key input to such a model is the change in rental prices brought about by controls, which can be readily estimated with the data at hand. Once the effects of rent control on profitability are clear, the model is readily extended to explain rent control's effects on maintenance, depreciation, and changes in supply from demolitions, tenure conversions, and starts foregone.

Rent Control and Housing Deterioration

5.18 Rent control offers landlords an incentive to allow their properties to deteriorate. When the rent reduction caused by rent control is 10 percent, landlords can charge the market price for only 90 percent of the housing services they produce. In the long run, landlords will allow the portion of their output that yields no revenue to disappear through deterioration.

5.19 However, knowing that in the long run landlords will allow their properties to deteriorate in proportion to the size of the rent reduction tells us little about deterioration in the short or intermediate run. Also, incentives can be created for tenants to invest in or maintain units if an increase in occupancy rights (tenure security) associated with rent control implies that tenants can now capture the gains from such expenditures. The existence and size of this effect will vary with type of law, market conditions, and with landlord and tenant characteristics.

5.20 The question is not only whether rent control induces deterioration or by how much, but rather how rapidly it does so. Rydell et al. have provided one
estimate of a bound on such deterioration. Hedonic indexes from some of the other case studies will provide additional information from developing countries, but reliable estimation of such effects is not possible with the Bangalore household survey data. At this stage of the research we will rely on present value analysis of alternative maintenance-depreciation strategies by landlords and on analysis of the semistructured interviews. The interviews do provide some information on maintenance and repairs, but as noted above the sample is not representative of the city as a whole, and the sample sizes are too small to statistically estimate the size of the effects with any precision.

Rental Housing Losses: Demolitions, Conversions, and Foregone Starts

5.21 Regardless of the cause—declining demand or rent control—rent reductions motivate landlords to consider alternate uses for their property. Some remove the property from the housing stock (by either demolishing it or converting it to nonresidential use); others convert their rental units to owner-occupancy units. Only a small fraction, however, make such changes in any one year, even in the face of large rent reductions. More serious, especially over the long run, are future starts foregone. For all three components of inventory change, as in the case of deterioration, the question of rental housing losses caused by rent control becomes a question of the pace at which change occurs.

5.22 In principle this could be estimated directly if we had time series data on removals by tenure, starts by tenure, and tenure-conversion rates. Such data do not exist for Indian cities, unfortunately. Instead we will estimate the effects of observed rental prices on profitability of rental investment. Then, using reasonable assumptions about behavioral responses of landlords to the observed changes, we will estimate losses in the rent-controlled housing supply from removals, conversions, and foregone starts.

Rent Control and Property Taxes

5.23 So far we have focused on the effects rent control has on the welfare of landlords and tenants. We have also explained how it can affect the welfare of households living in the "uncontrolled" sector. But rent control also affects government; the most obvious effect is the possibility of reductions in property tax revenue.

5.24 The effects of rent control on property taxes can be studied for two cases: when controlled rents are the basis for assessments and when market values are the basis for assessments.

5.25 The first case is the more extreme. India is an oft-cited example, where even units in the uncontrolled submarket, including owner-occupied units, are assessed at the controlled rents. Once we are armed with reductions in rents, calculation of rough estimates of the losses are straightforward. Once the rent reduction is further decomposed into price and quantity changes, and
information is collected about reassessment practices, more refined estimates of the effects of changes in the rent control law on property tax collections can proceed. We will use the present value model to estimate the effects on selected "representative investments."

5.26 In the second case rent control also affects tax revenues because market values are related to the present value of rents. Under some conditions rent control will, for example, depress values of controlled units but increase values of uncontrolled units (Fallis and Smith 1984). Sorting out the net effect on tax revenues correctly requires taking this effect on related markets into account.

D. Empirical Specification

Hedonic Indexes

5.27 In order to estimate the rent of controlled units in the absence of controls we use the method of hedonic indexes.56/ Housing is not a homogenous good like wheat or oil, but can be thought of as a bundle of diverse characteristics such as number of rooms, of a certain type, in a particular location, with particular services, etc. Rents (or house values) are expenditures on housing; decomposing rents into the quantity of housing services consumed and the price paid per unit of housing services is the key to analysis of rent control.

5.28 The method of hedonic equations is one way that rents for different dwellings can be compared or rents for identical dwellings in different market can be predicted. A hedonic equation is a regression of expenditures (rents or values) on housing characteristics and is explained in detail in Malpezzi et al. (1980). Briefly, the independent variables represent the individual characteristics of the dwelling, and the regression coefficients are estimates of the implicit prices of these characteristics. The results provide us with estimated prices for housing characteristics, and we can then compare two dwellings by using these prices as weights. For example, the estimated price for a variable measuring number of rooms indicates the change in value or rent associated with the addition or deletion of one room.

5.29 Specifically, using a reference group sample of uncontrolled renters, we estimate a regression of the form:

$$\log R = b_0 + Xb_1 + Lb_2 + u$$

56/ See Malpezzi et al. (1981) for an introduction to hedonic indexes and more details on specification.
where

\[ X \text{ are dwelling characteristics,} \]

\[ L \text{ is the length of tenure,}^{57/} \]

the \( b_i \) are the hedonic coefficients, or implicit price of the characteristics, and

\[ u \text{ is a random error term.} \]

5.30 Once we have estimated the implicit prices of measurable housing characteristics in the uncontrolled submarket, since we know the characteristics (number of rooms, and so forth) of the units in the controlled sample the coefficients can be used to predict uncontrolled rents in the controlled sector, that is \( P_m Q_c \) in Olsen's notation.

Expenditure Relations

5.31 In order to estimate household's expenditure on rent in the absence of controls we use the reference group to estimate a simple expenditure relation (Engel curve) of the form:

\[
\log R = d_0 + (\log Y)d_1 + Zd_2 + v
\]

where

\[ Y \text{ represents income,} \]

\[ Z \text{ are the demographic characteristics such as household size, religion/caste, head's age and education} \]

\[ d_i \text{ are regression coefficients, and} \]

\[ v \text{ is a random error term.} \]

In a completely analogous fashion the estimated \( d_i \) can then be used to predict \( P_m Q_m \) for the controlled sample.

\[ 57/ \] In general, only those tenant characteristics which affect the prices faced for housing should be included in the hedonic equation. For example, people with higher incomes can afford better housing, but they face the same schedule of prices for identical dwellings as poor people. Income is not included in the equation because income represents the demand for housing, not the price of housing. Long time renters, on the other hand, are hypothesized to face lower prices for housing because of lower turnover costs. Therefore, length of tenure is included in the hedonic regression as one of the contract conditions.
Choice of a Reference Group

5.32 Perhaps the single most difficult empirical problem is choosing a reference group. It must be reasonable to assume that they are enough like the controlled group that they are comparable—or can be made so statistically. It must be reasonable to assume that rents are not so distorted in the reference group by the presence of controls that they are unreliable guides to rents in the absence of controls—or that a good adjustment can be made for that distortion. Annexes 1 and 3 present tests and discussion of these issues in detail. Here we note the following:

5.33 Regression analysis is, in fact, a statistical method which enables analysis of “treatment” and “control” groups that are not identical.\(^{58/}\)

5.34 As noted earlier, rent controls can, under some circumstances, affect rents in the uncontrolled sector. Annex 1 presents tests of this hypothesis using a version of Malpezzi and Mayo’s (1987) cross country model of housing demand.

Selectivity Bias

5.35 Consider the following potential source of bias in the demand and hedonic estimates using households who pay more than the controlled rent as a proxy for “uncontrolled” rents. We have, in effect, chosen the sample on the basis of the dependent variable; while we retain information on controlled households we don’t use those observations directly in the estimation.

5.36 It can be easily shown that this is a version of the so-called “censored sample” problem simply

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\(^{58/}\) See any intermediate statistics text for a more detailed explanation. One possible problem is that households in the reference and control groups are systematically different in their demand for housing; but we will examine such selectivity bias in Annex 3.
illustrated in two dimensions in Figure 5.2.\textsuperscript{59} Suppose the unobserved true relationship between (say) uncontrolled rents and income could be represented by the data points in the figure, and the heavy regression line through those points. But in the procedure adopted above, we stated that any rents lower than $300\textsuperscript{60}$ were denoted as controlled. In Figure 5.2 the regression estimate of the relationship is biased because the two points lying below the dotted line are not included in the estimation.

More formally, the model is

\[
\ln R_u = Xs + m \quad \text{(if } R > 300) \]

\[R_u \text{ is unobserved} \quad \text{(if } R \leq 300)\]

where \(R_u\) is "uncontrolled" rent, \(R\) is rent (controlled or not), and \(Xs\) are the vectors of demand (or hedonic) determinants and coefficients; \(m\) is the error term.

5.37 Randall Olsen (1980) has proposed a simple consistent estimator for such models. Estimate a linear probability model for selection into the sample, and then use the predicted value from the probability model to construct an explanatory variable in the hedonic and demand regressions in turn.

5.38 Suppose that whether a specific household or unit is controlled or uncontrolled depends on some combination of household or unit characteristics.\textsuperscript{61} The model above can be rewritten:

\[
\ln R = Xs + m \quad \text{if } Q = 1
\]

and

\[
Q = 1 \text{ if } c < Z_q \\
Q = 0 \text{ if } c \geq Z_q
\]

where \(Q\) is the 0-1 index which denotes whether an observation is in the sample.

---

59/ Censored samples are those in which observations on particular values of the dependent variable (here "uncontrolled" rent) are not available but the right hand side variables are, permitting estimation of the probability of being in the selected sample. Another important class of problem, where the right hand side variables are also unobserved, is known as truncated samples, and is more difficult to handle. See Maddala (1986), and Heckman (1979).

60/ Actually a set of cutoffs depending on type of unit, but the graph represents the basic idea.

61/ Note that in general, specification of these selectivity bias models is very much \textit{ad hoc}. 
Olsen's least squares procedure works as follows. Estimate the least squares model
\[ Q = Zq + w \]
then estimate
\[ \ln R = Xb + u(Zq - 1) + n \]

The added variable \((Zq - 1)\) corrects for the potential selection bias. If the estimate of \(u\) is large relative to its standard error we can reject the null hypothesis that there is no difference between samples.

Even if the estimated hedonic coefficients change with the inclusion of the correction variable, the prediction for individual households may or may not change. Since the purpose of these regression models is predicting total rent, the question is whether the selectivity bias correction makes much difference in estimating \(PmQc\) and \(PmQm\), and hence the final cost-benefit results.

This procedure made no appreciable difference in the predictive power of the hedonic or demand regressions; nor did they affect the predictions themselves, or the cost-benefit estimates derived from them. The estimates of \(PmQm\) and \(PmQc\) were the same within 3 percent with and without the correction. For the rest of this paper, therefore, we report results based on models without this correction. The alternative estimates are available on request.

Other Empirical Problems

Several other potential empirical problems deserve discussion: problems caused by misspecification, especially of the hedonic index; length of tenure in hedonic and demand models; key money or deposits in lieu of rent; and definitional and measurement problems.

Possible misspecification of the hedonic index. General discussion of functional form, principles of variable construction, and so on have been treated in detail in earlier papers. To conserve space, we will focus briefly on possible problems from omitted variable bias, and in particular, on the effect of omission of the age of the structure from the hedonic regression. Specification problems involving the length of tenure will be treated separately.

62/ Olsen (1980) and Goodman (1976) suggest that in practice the least squares correction results will be similar to the more complicated maximum likelihood methods.

63/ See Butler (1983) and Ozanne and Malpezzi (1985) for more details on the robustness of predictions versus robustness of coefficients.

5.45 Theory provides only a general guide to the choice of variables for inclusion in the hedonic index. There are potentially hundreds of dwelling characteristics that can affect rents or market values. Specification is therefore always somewhat *ad hoc* and data driven. Several variables that are sometimes included in hedonic models are missing from the Bangalore data; for example, we don't know the age of structures. Does this bias our results? The key result from studies of this problem using datasets with more complete specifications can be stated succinctly: omitted variable bias can indeed seriously bias the estimates of individual coefficients; but given a reasonable specification which includes measures of dwelling size (such as rooms) and quality (such as sanitary facilities) the bias in predicted rent for a dwelling is negligible. Analysis of individual coefficients and estimating the demand for individual characteristics can be difficult in practice for this reason. But hedonic indexes reliably predict rents for individual units or for types of units, so uses like ours, and the construction of place-to-place indexes using hedonics estimated in different markets are fine.

5.46 It remains true that we would prefer to be able to estimate more complete models, especially given the key role age of the structure plays in the rent control system. But the fit of the equations (described below) is very good, and analysis of residuals and other tests demonstrate that this specification is adequate.

5.47 Possible *misspecification* of the demand relation. The general specification of the housing expenditure equation is described in Malpezzi and Mayo (1985, 1987a). Those papers explain several shortcomings of the specification, including the omission of a price term, and rely on household income rather than some measure of long run permanent income. Those papers described several tests of the specification in markets with better data and found that the biases due to these misspecifications were remarkably small.

5.48 Length of tenure in hedonic and demand models. One issue which deserves more detailed discussion in this paper is the role of the length of tenure in hedonic and demand models. First we will describe the role this variable plays generally in such models and then discuss some possible problems of interpretation in a controlled rental market.

5.49 Length of tenure discounts have been documented in many rental housing markets, for example Malpezzi *et al.* (1981, pp. 78-80). Supply costs may be lower for landlords renting to tenants who are a known quantity and often are at least perceived as being more stable than prospective new tenants. Second, it is easier for landlords to raise rents as new tenants move in, even in markets without rent controls. Such raises are often customary to recoup the costs associated with the search for a new tenant. Third, tenants have an incentive to remain longer than usual in dwellings that rent for less than their highest market value.

5.50 In a controlled market such as Bangalore's, where new units are not controlled and fair rents are based at least partly on historical cost, rents

65/ See Butler (1982) and Ozanne and Malpezzi (1986).
will decline even faster with the length of tenure. Even rents in the "uncontrolled" sector could be affected. Because it is known that at the end of the five year rent holiday tenants have recourse to having fair rents set by the controller (probably at lower levels than originally agreed with the tenant) landlords have an incentive to not increase rents once set in the initial period.

5.51 Also, the uncontrolled sample is mostly recent tenants. Analysis of length of tenure discounts of uncontrolled markets shows that the discount is typically very large, in the first few years, then tapers off. If we estimated a length of tenure--price profile using recent movers and tried to extrapolate to long term renters in the controlled sector--estimated rents would be biased downwards.

5.52 The problem, and possible solutions can be illustrated with the help of Figure 5.3. The free market discount profile starts steep and tapers off. Consider several alternatives:

(a) Estimate the hedonic with the uncontrolled sample, including the length of tenure as a right hand side variable. Use this coefficient to estimate the rents of the controlled units, most of which have long-time tenants. Figure 5.3 shows that this procedure will underestimate market rents for controlled units.

(b) Estimate the hedonic as above, but cancel the discount by computing the predicted rent without any length of tenure adjustment. Figure 5.3 shows that this will overestimate market rents for controlled units.

(c) Exclude length of tenure from the regression completely. Figure 5.3 shows that this will also overestimate market rents for controlled units.

(d) Estimate with length of tenure, but rather than use the estimated effect, as in (a), use an exogenous estimate of the discount for predicting rent for controlled units. If reliable exogenous estimates exist, this is the best procedure. If the exogenous estimate is correct, the result is unbiased.
5.53 We have adopted the fourth procedure. The exogenous estimates are from the 59 U.S. housing market (Ibid). It would be preferable to be able to estimate this directly with Indian data, but it is not possible. The choice of procedure is dictated by the fact that this procedure will result in smaller biases than the other three alternatives. The exogenous estimates presented in Malpezzi et al. were used to derive the following discount function:

\[ \log R^* = Xb - 0.03L + 0.0008L^2 \]

if the length of tenure is less than or equal to 18 years, and

\[ \log R^* = Xb - 0.3A \]

if the length of tenure is greater than 18 years. This quadratic function yields a discount that declines to 30 percent after 18 years, and is then held constant (in percentage terms). 55

5.54 Key money. Previous analysis of some rent controlled markets has emphasized the role that can be played by key money and deposits in controlled markets. Malpezzi (1986) found that key money played an important role in equilibrating the Cairo housing market. However, key money is only one of the possible market adjustments to rent control, and it is not universal. 56

5.55 Key money systems are costly to landlords as well as tenants, particularly if financial markets are not well developed. When the rent control system "bites," but the difference between controlled and market rents is small, key money may not be used as the main adjustment mechanism, especially if social norms discourage it. However over time as market rents rise and real controlled rents fall, key money becomes more prevalent.

5.56 The collateral data from the 1984 survey are consistent with this pattern. Recent movers (less than 5 years) reported paying key money averaging 7 month's rent, and all report that current key money levels are much higher. On the other hand, no renter in this sample who lived in the unit longer than 9 years reported paying deposits greater than a month's rent. There are two important conclusions. One is that the 1984 data suggest that the absence of key

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56/ The interpretation of length of tenure variable for owners in an uncontrolled market is quite different. As Malpezzi et al. explain, the variable corrects for appraisal biases rather than price discounts in free markets. In Annex 2, where we present results based on owner occupants as the reference group, the variable has this interpretation. However, the correction for controlled renters remains the same.

57/ Unpublished survey evidence provided by Dr. A. G. Tipple of the University of Newcastle upon Tyne (formerly UST Kumasi) that until 1980 or so key money was rare in Kumasi, Ghana's severely controlled market. Personal communications with Tipple and with Professor Paul Asabere of Bentley College, and Professor Jarjisu Sa-Aadu of Lousiana State University suggest that key money may becoming more prevalent in that market.
money data do not seriously bias the analysis of the 1974 data because key money was not common at that time. The other is that market pressures seem to have changed the rules of the game, so that new renters do pay key money.

5.57 This study is a good guide to the costs and benefits of rent control in 1974. What can it tell us about 1987? A large number of renters in place in 1974 are still in place. During the intervening years nominal market rents would have risen; controlled rents remained fixed, so real rents fell. On the other hand, their units have deteriorated since then, mitigating the increase in benefits. Evidence from the small survey suggests that renters who have moved in recently have paid large amounts of key money, so it is not clear that they have benefitted on balance (cf Cairo fn).

E. Summary of Estimation Procedures

5.58 Table 5.1 presents a quick summary of the estimation procedures and key calculations for the basic cost benefit analysis. In addition, we will analyze collateral data from 21 semi-structured surveys to examine more recent market trends; compare landlord and tenant's incomes; estimate effects of rent controls on property tax collections; and briefly examine recent overall housing investment in India. These empirical results are presented in the next chapter.
Table 5.1: Summary of Estimation Procedures and Key Calculations

I. Estimate Hedonic Indexes

Sample: Uncontrolled renters, from 1973 data; restricted to resurveyed households for which we know 1973 control status.

Model: \( \log(\text{Rent}) = f(\text{Housing Characteristics}) \)

II. Estimate Expenditure Equation

Sample: Uncontrolled renters.

Model: \( \log(\text{Rent}) = f(\text{Income, Other Demand Determinants}) \)

III. Calculate Welfare Measures

Sample: Controlled Renters.

\( P_cQ_c \) is directly observable from the sample.

\( P_mQ_m \) is estimated by applying the hedonic coefficients from the reference group to the controlled renters.

\( P_mQ_m \) is estimated by applying the expenditure equation coefficients from the reference group to the controlled renters.

Benefits are estimated under alternative assumptions about the price elasticity of demand:

\[
\text{Benefit} = \frac{1}{1+b} \frac{1/b\ b\ b+1\ b+1}{Q_c\ b - Q_m\ b + P_mQ_m - P_cQ_c} Q_c + b+1
\]

where \( b \) is the assumed price elasticity (-.5), and

\[
\text{Benefit} = P_mQ_m(\log(P_mQ_m) - \log(P_mQ_m)) + P_mQ_m - P_cQ_c
\]

in the special case when \( b \) is assumed to be -1.

IV. Distributional Implications

Sample: Controlled Renters

Model: Benefits = \( f(\text{Income, Length of Tenure, Socioeconomic Status}) \)

V. Effect on Landlord Profitability

No sample. Study profitability of representative rental investments under different rent control regimes.
VI. EMPIRICAL RESULTS

6.1 The aim of this Chapter is to add to the empirical literature on controls by (i) presenting an analysis of variance in rent control laws and corresponding market outcomes by state; (ii) estimating costs and benefits of controls, their effect on duration of tenure, and their distributional effect, using the 1974-75 Bangalore survey data; (iii) speculate on how these results might look with today's data, using less rigorous methods applied to purposive surveys and semi-structured interviews.

A. Analysis of Variation in Laws and Market Outcomes by State

6.2 Table 6.1 presents key market data for the urban rental housing stock in each state.\textsuperscript{68} The first two columns of data are self-explanatory. Percent rental, obtained by subtraction,\textsuperscript{69} ranges from only 19 percent in Jammu and Kashmir to almost two thirds in Himchal Pradesh. Karnataka, the state that is the focus of our data analysis below, is in the middle. The annual growth rate of rental housing is derived from census data on the number of urban households in each state in 1961 and 1981 and the percentage of renters in each census year. Comparing these numbers to the next column, we see that most states have growing rental sectors, but these figures are falling behind their population. Statewise vacancy rates are quite high by international standards.\textsuperscript{70}

6.3 Other data not shown in the table are consistent with a moderate relative decline in the rental sector. Karnataka also saw slight decrease in the percentage of urban households that rent (from 55 percent to 53 percent). Overall, 10 States saw a decrease in the percentage of households renting, and 3 showed an increase. The most notable changes were in Maharastra, with an increase from 38 to 57 percent, and Madyha Pradesh, with a decrease from 70 to 53 percent.

6.4 Two key columns, from our point of view, are the annual per capita growth in rental housing and the vacancy rate. These are our rough and ready

\textsuperscript{68} We have compiled the dataset from a number of published sources, but the ultimate sources for most of it are the Indian census and National Income and Product Accounts. The full set of statewise data -- including data for census years 1961, 1971 and 1981 -- is available from the authors in spreadsheet form. Reading the data require Lotus version 2.1 or higher.

\textsuperscript{69} The published census tables we used present data for owner occupation. Some urban households that do not pay cash rent are therefore classified as renters in this table.

\textsuperscript{70} The vacancy rates are for census houses, which are many structures besides strictly residential units. We were not able to disaggregate rental and owner occupied vacancy rates.
indicators of the health of the rental sector. Note that while rental housing has grown for all states for which we have data, in all but two states the growth has lagged behind population growth. In nine states owner occupied housing has grown faster than rental; in five the reverse is true.

6.5 Vacancy rate is an important indicator of market conditions, but we have no strong a priori view of the relationship between overall strength of rent regulation and vacancy rate. Generally we would expect lower vacancy rates where more restrictive controls on rents were in place, but these may well be correlated with the strongest tenant protection provisions. Measures that grant stronger security of rental tenure provide stronger incentives for homeowners to hold units off the market (for example, while awaiting future use by family members). If, on the other hand, all states have more or less similar and strong security of tenure, then we might observe a negative relationship between vacancy rate and strictness of the regime.

### Table 6.1: Urban Housing Market Indicators, By State

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>12,488</td>
<td>4.1</td>
<td>39</td>
<td>46</td>
</tr>
<tr>
<td>Assam</td>
<td>2,047</td>
<td>4.7</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Bihar</td>
<td>8,719</td>
<td>4.1</td>
<td>44</td>
<td>46</td>
</tr>
<tr>
<td>Gujarat</td>
<td>10,602</td>
<td>3.5</td>
<td>61</td>
<td>58</td>
</tr>
<tr>
<td>Haryana</td>
<td>2,827</td>
<td>4.1</td>
<td>NA</td>
<td>37</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>326</td>
<td>2.8</td>
<td>70</td>
<td>71</td>
</tr>
<tr>
<td>Jammu &amp; Kashmir</td>
<td>1,260</td>
<td>3.8</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>Karnataka</td>
<td>10,730</td>
<td>3.9</td>
<td>53</td>
<td>55</td>
</tr>
<tr>
<td>Kerala</td>
<td>4,771</td>
<td>3.5</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>10,587</td>
<td>4.3</td>
<td>70</td>
<td>53</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>21,994</td>
<td>3.7</td>
<td>38</td>
<td>68</td>
</tr>
<tr>
<td>Orissa</td>
<td>3,110</td>
<td>5.5</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>Punjab</td>
<td>4,648</td>
<td>4.5</td>
<td>45</td>
<td>40</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>7,211</td>
<td>4.0</td>
<td>43</td>
<td>41</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>15,952</td>
<td>3.2</td>
<td>59</td>
<td>53</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>19,899</td>
<td>4.1</td>
<td>47</td>
<td>46</td>
</tr>
<tr>
<td>West Bengal</td>
<td>14,447</td>
<td>2.9</td>
<td>66</td>
<td>60</td>
</tr>
<tr>
<td>Delhi</td>
<td>5,768</td>
<td>5.8</td>
<td>NA</td>
<td>58</td>
</tr>
<tr>
<td>Goa/Daman/Diu</td>
<td>352</td>
<td>5.5</td>
<td>NA</td>
<td>49</td>
</tr>
<tr>
<td>Meghalaya</td>
<td>241</td>
<td>6.4</td>
<td>NA</td>
<td>72</td>
</tr>
<tr>
<td>Pondicherry</td>
<td>316</td>
<td>5.9</td>
<td>NA</td>
<td>51</td>
</tr>
<tr>
<td>Tripura</td>
<td>226</td>
<td>3.9</td>
<td>NA</td>
<td>40</td>
</tr>
</tbody>
</table>

6.6 The next step in the analysis is to relate growth in per capita rental housing and vacancy rate to the variation in controls and other determinants. Table 6.2 presents statewise indicators of the strength of controls. Table 2.1
of Chapter 2 presented a verbal summary; here we have tried to translate those into numerical indices.\textsuperscript{71/}

6.7 The approach we took was necessarily partly subjective and quite simple. We collected as much information as we could about the following aspects of controls: the date that the major aspects of the current regime were in place; the number of years new construction is exempt from controls; how fair rents are set for existing units; how fair rents are set for new units; whether costs (taxes, rates, and utilities) can be passed through to tenants; how rents are reset after upgrading; allowable rent increases over time; and whether non-residential units are subject to looser controls. These data were collated, and each state assigned a subjective index of 1 to 3 for each aspect, where 2 represented middle or typical treatment, 1 was looser, and 3 was most restrictive. When we had no information, or data were vague, we assigned the value 2. We further aggregated these into two indices, one which was a simple sum of all the components, and another which comprised components which might be particularly relevant to someone contemplating a new investment, viz. years new construction exempt, fair rents for new units, cost pass through, and changes in rents over time. For the aggregates, as for the components, higher numbers represent more restrictive regimes.

6.8 The indexes only measure the variation in existing Indian systems, and even do that imperfectly, so the tests that follow are limited. There are no extraordinarily restrictive regimes such as Ghana (rents for most housing fixed, comprising around one percent of income) or Burkina Faso (rents outlawed). Neither are there regimes that allow large automatic increases in line with inflation, and full cost pass through, such as some U.S. regimes. And some important features of the Indian system are left out, either for lack of systematic statewise information or (more commonly) for lack of variation by state. In particular, all states have strong security of tenure provisions. Thus, if we find that the outcomes do not vary with type of regime this does not prove that changes in regimes cannot affect market responses, only that we can not observe any such differentials in this sample.

\textsuperscript{71/} For examples of the relationship between housing market outcomes and policy measures, see Malpezzi (1989); and for the relationship between policy measures and macroeconomic performance see Agarwala (1985).
### Table 6.2: Statewise Indices of Rent Regulation

<table>
<thead>
<tr>
<th>Overall Enactment Index #1</th>
<th>Overall Present Act Index #2</th>
<th>Year of Enactment</th>
<th>Index Age of Act</th>
<th>New NC Construct Exempt Years</th>
<th>Index, Fair Rent Cost of New Units</th>
<th>Index, Fair Rent Pass Revisions</th>
<th>Index, Rent Rents New Units Thru</th>
<th>Index, Rent Rents over Time Controls</th>
<th>Index, Rent Rents New Units Revisions Time Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>7.0</td>
<td>15.5</td>
<td>1960</td>
<td>2.0</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Assam</td>
<td>8.5</td>
<td>14.0</td>
<td>1972</td>
<td>1.0</td>
<td>0</td>
<td>3</td>
<td>1.5</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Bihar</td>
<td>10.0</td>
<td>18.0</td>
<td>1977</td>
<td>1.0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Gujarat</td>
<td>8.0</td>
<td>19.0</td>
<td>1947</td>
<td>3.0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Haryana</td>
<td>5.5</td>
<td>11.5</td>
<td>1973</td>
<td>1.0</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>8.0</td>
<td>17.0</td>
<td>1971</td>
<td>1.0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Jammu &amp; Kashmir</td>
<td>8.5</td>
<td>18.5</td>
<td>1966</td>
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<td>0</td>
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<td>3</td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Karnataka</td>
<td>8.0</td>
<td>16.0</td>
<td>1961</td>
<td>2.0</td>
<td>5</td>
<td>2</td>
<td>2.5</td>
<td>2.5</td>
<td>1.5</td>
</tr>
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<td>Kerala</td>
<td>8.5</td>
<td>17.5</td>
<td>1965</td>
<td>2.0</td>
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<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>9.0</td>
<td>17.5</td>
<td>1961</td>
<td>2.0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>8.0</td>
<td>19.0</td>
<td>1947</td>
<td>3.0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Orissa</td>
<td>8.0</td>
<td>15.0</td>
<td>1976</td>
<td>1.0</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Punjab</td>
<td>9.0</td>
<td>19.0</td>
<td>1949</td>
<td>3.0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>8.0</td>
<td>15.5</td>
<td>1950</td>
<td>2.5</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>6.5</td>
<td>14.0</td>
<td>1960</td>
<td>2.0</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>5.0</td>
<td>13.0</td>
<td>1972</td>
<td>1.0</td>
<td>20</td>
<td>0.5</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>West Bengal</td>
<td>9.5</td>
<td>18.0</td>
<td>1956</td>
<td>2.5</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Delhi</td>
<td>9.5</td>
<td>19.5</td>
<td>1958</td>
<td>2.5</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Goa/Daman/Diu</td>
<td>8.0</td>
<td>16.5</td>
<td>1968</td>
<td>2.0</td>
<td>4</td>
<td>2</td>
<td>1.5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Meghalaya</td>
<td>8.5</td>
<td>14.0</td>
<td>1972</td>
<td>1.0</td>
<td>0</td>
<td>3</td>
<td>1.5</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Pondicherry</td>
<td>9.5</td>
<td>19.0</td>
<td>1949</td>
<td>3.0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2.5</td>
<td>2</td>
</tr>
<tr>
<td>Tripura</td>
<td>8.5</td>
<td>15.5</td>
<td>1975</td>
<td>1.0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2.5</td>
<td>2</td>
</tr>
</tbody>
</table>

**Figure 6.1:** Growth in Rental Housing and Regulator of New Construction

**Figure 6.2:** Growth in Rental Housing and Rent Regulation
6.9 Several plots of housing market outcomes by values of the rent control index are presented in Figures 6.1 to 6.4 (These plots present data for the first 17 states and territories only.) Generally, the message from these plots is that there is no strong simple relationship between the growth of rental housing and the type of regime, at least within the range of regimes currently in force in India as we have been able to measure it. We also examined plots with the components of the index, and found similar results (in other words, no strong relationships). That does not mean that there is no relationship; the simple plots may obscure multivariate relationships.

6.10 Several ad hoc regression models were estimated using this data. We estimated simple models explaining growth in rental housing per capita and vacancy rates using base period percent rental, growth in owner occupied housing per capita, and the two rent control indexes. In brief, no strong multivariate relationships were found.

Conclusions

6.11 We have found no strong relationship between types of controls currently in force in India and two measures of rental market performance: growth in rental housing and vacancy rates. Whether this lack of relationship is because of the essential similarities of most Indian regimes, because of the imperfectness of our measures, or whether there is really no such relationship in principle is impossible to say. Cross country evidence on the relationship between house prices to income and indexes of macroeconomic policies suggested to us that policies do matter, but policies are difficult to measure and the variation in rental policies among states within India may be insufficient to differentiate the effects of policy changes. Improving these Indian measures and using cross country models which would have more variation in the data are two obvious directions for future research.
B. Static Costs and Benefits of Controls

6.12 Empirical estimation of the Olsen cost benefit model discussed in the previous chapter requires 4 pieces of information:

(a) the rent currently paid for the current controlled unit, PcQc;
(b) the rent that the current unit would rent for in the absence of controls, PmQc;
(c) the rent that the household would pay if they were at their equilibrium demand at market prices, PmQm;
(d) the price elasticity of demand for housing, b.

6.13 The controlled households from the household survey yield PmQm directly. Using "uncontrolled" households demand models can be used to estimate PmQm and hedonic models to estimate PmQc. The price elasticity of demand, b, is not estimated, but is varied parametrically.

6.14 The rest of this section is organized as follows. First we examine the difference between the controlled and "uncontrolled" sub-markets. Then the hedonic and demand models are estimated, and estimates of household benefits from rent controls are derived.

Controlled and "Uncontrolled" Households Compared

6.15 Table 6.3 presents some key statistics for the sub-sample of 211 which can be subdivided into "uncontrolled" and strictly and "ordinary" controlled. Some of these were presented and discussed in Chapter 3, above. The ordinary controlled households are (on average) higher income than "uncontrolled" households but somewhat more crowded. The strictly controlled households have the lowest income.
Table 6.3: Controlled and Uncontrolled Samples Compared

<table>
<thead>
<tr>
<th></th>
<th>&quot;Uncontrolled&quot;</th>
<th>Ordinary Controlled</th>
<th>Strictly Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Observations</td>
<td>97</td>
<td>84</td>
<td>25</td>
</tr>
<tr>
<td>Median Number of Rooms</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Median Persons Per Room</td>
<td>2.5</td>
<td>3.3</td>
<td>3.0</td>
</tr>
<tr>
<td>Median Rent</td>
<td>80</td>
<td>60</td>
<td>45</td>
</tr>
<tr>
<td>Median Income</td>
<td>550</td>
<td>633</td>
<td>410</td>
</tr>
<tr>
<td>Median Rent-to-Income</td>
<td>.12</td>
<td>.09</td>
<td>.08</td>
</tr>
<tr>
<td>Median Length of Tenure</td>
<td>2</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Median Education of Head</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

6.16 The evidence suggests that the differences between households are a matter of degree rather than kind. How important these differences are for cost-benefit estimation is an empirical question. Among similar studies, Malpezzi's (1986) study of Cairo and Malpezzi, Tipple and Willis' (1990) study of Kumasi found that correcting for possible "selectivity bias" made little difference in the results, so they dropped such corrections. Caudill, Ault and Saba (1989), on the other hand, found that such selectivity bias did make a difference in their study of Vancouver's housing market.

6.17 In brief, we found that in Bangalore correcting for selectivity bias did make a difference in the results. We used the simple linear probability model suggested by Olsen (1980) and described in the preceding chapter. Since the selection model itself is (like all such models) an ad hoc regression of little interest, it is presented as an annex. The hedonic and demand models presented below will include a variable constructed from this selection model to correct for selectivity bias. Results from models without the correction are available from the authors.

6.18 One other sample issue remains to be discussed: the extent and nature of the net bias in "uncontrolled" rents from the presence of controls.

Uncontrolled Rents Compared to Results From a Cross Country Model

6.19 Recall from Chapter 4 that theory suggests that rent control can affect rents in the uncontrolled as well as the controlled market, but that even the sign of the effect is indeterminate. Whether such an effect exists, and its nature, is an empirical question.

6.20 We examine this question by comparing typical rents for "uncontrolled" tenants (from Table 6.3, above) to predictions from a simple cross country demand
model. The model is a variant of the Malpezzi and Mayo (1985, 1987a, and 1987b) results presented in Chapter 2 above. The new model is presented in full in Malpezzi et al. (1989); here we only note that the main difference compared to the original model is that the new model is estimated separately for controlled and uncontrolled markets, so that the predictions from it can be better interpreted as long run equilibrium rents in the absence of controls.

6.21 The cross country model was previously applied to Cairo, where it was found that rents in the "uncontrolled" sector were much greater than predicted by the model;\(^{22}\) and to Kumasi, Ghana, where it was found that actual rents were much less.\(^{21}\) When applied to Bangalore in 1974, predicted rents and actual rents for the "uncontrolled" segment are not too far apart. The prediction from the cross country model is about 0.09, while the actual observed is 0.12.\(^{24}\) Given the standard error of the prediction (about 0.04), the actual value is within a one standard error interval prediction, so controls have no statistically discernible effect on the uncontrolled sector in Bangalore in the mid 1970s.\(^{25}\)

Hedonic Regression Results

6.22 Hedonic regression models can be used to estimate the second piece of information required -- \(P_{MQC}\), the rent that would be commanded by the controlled units in the absence of controls.

6.23 Table 6.4 presents the hedonic results for the sample of 99 rental units resurveyed in 1984 and found to have been uncontrolled in 1974, the date of the survey data. The dependent variable is the natural logarithm of rent, and the independent variables are linear values of length of tenure, number of rooms, etc. or dummy variables indicating the presence of a particular condition. Details of variable construction are contained in Annex 4. The coefficients can be interpreted as (approximately) the percentage change in rent, given a unit change in the variable in question. For dummy variables, the coefficient is approximately the percentage change in rent compared to some omitted category.

\(^{72}\) Predicted, 0.16; actual, 0.53, as reported in Malpezzi (1986).

\(^{73}\) Predicted 0.09, actual 0.05, as reported in Malpezzi, Tipple and Willis (1990).

\(^{74}\) Details of the calculations are available from the authors.

\(^{75}\) Of course this is not conclusive, in that not rejecting a null does not prove it. Note that the way we have presented this "test" we have implicitly treated the actual median as a fixed number and the prediction as a random variable, when in fact both are random variables. The conceptually correct test, if it could be devised, would, as a non-parametric test between random variables, have less power than the "quasi" test of whether the actual median falls within the interval estimate from the cross country model. So we can be sure that the conceptually correct test would not reject the null if the "quasi" test does not.
For example, there are three variables for type of floor material: FLOORMUD, FLOORSTN, AND FLOORMOS, representing mud, stone, and mosaic respectively. The omitted category is any floor made of material other than these three; in this sample, it is cement. The data dictionary lists omitted categories for all such dummy variables when they were not obvious.

Table 6.4: Hedonic Index for "Uncontrolled" Renters

| VARIABLE                      | PARAMETER | STANDARD ERROR | T STATISTIC | PROB > |T|       |
|-------------------------------|-----------|----------------|-------------|--------|--------|
| Intercept                     | 3.421     | 1.335          | 2.56        | .013   |
| Number of Rooms               | 0.194     | 0.054          | 3.61        | .001   |
| Length of Tenure              | -0.839    | 0.025          | -3.33       | .002   |
| Number of Baths               | 0.026     | 0.347          | 0.07        | .940   |
| Number of Toilets             | 0.301     | 0.410          | 0.73        | .466   |
| Compound House                | 0.394     | 0.146          | 2.77        | .006   |
| Outhouse                      | -0.259    | 0.124          | -2.08       | .042   |
| Separate House                | 0.186     | 0.133          | 2.91        | .005   |
| On First Floor                | 0.176     | 0.165          | 1.07        | .289   |
| Number of Floors in Bldg      | 1.481     | 1.065          | 1.39        | .170   |
| Number of Floors, Squared     | -0.404    | 0.335          | -1.21       | .233   |
| Mud Floor                     | 1.037     | 0.703          | 1.48        | .145   |
| Stone Floor                   | 0.204     | 0.368          | 0.56        | .581   |
| Mosaic Floor                  | 0.123     | 0.277          | 0.45        | .657   |
| Mud Walls                     | -0.814    | 0.428          | -1.90       | .062   |
| Sheet Roof                    | -0.566    | 0.201          | -2.88       | .048   |
| RCC Roof                      | 0.017     | 0.158          | 0.11        | .912   |
| Other Roof                    | 0.828     | 0.633          | 1.31        | .196   |
| No Kitchen                    | -0.551    | 0.319          | -1.73       | .089   |
| No Water Tap                  | -0.140    | 0.166          | -0.86       | .403   |
| No Electricity                | -0.836    | 0.517          | -1.62       | .111   |
| Cook w. Electricity           | 0.241     | 0.137          | 1.76        | .089   |
| Cook w. Gas                   | 0.292     | 0.135          | 2.15        | .036   |
| Intermediate Location         | 0.177     | 0.266          | 0.66        | .510   |
| Peripheral Location           | 0.385     | 0.262          | 1.47        | .148   |
| Selectivity Correction        | -1.217    | 1.229          | -0.99       | .326   |

In general, the regression results are quite reasonable. The overall fit of the equation compares very favorably with such models estimated in other countries, both developing and developed: over 80 percent of the variance in the log of rent is explained by the model. Coefficients are generally of the expected sign. However, note the large coefficient for the length of tenure variable (LINGER). Rents drop by 9 percent per year for structures in the new construction sample, or rather, observed rents are rising 9 percent per year since rents are not reset to market rates. This greatly exceeds length of tenure.

Details of the specification search are available upon request.
discounts observed in uncontrolled rental markets, as discussed in the preceding chapter. The results will have to be corrected for this bias when computing welfare measures below.

Demand Equation Results

6.25 As noted above, the rent that households would pay if they were at their equilibrium demand at market prices (PmQm) can also be estimated from the household survey. Table 6.5 presents the estimated coefficients from the expenditure regression estimated using the sample of "uncontrolled" renters. The dependent variable is gross rent, adjusted as described above (multiplied by 1.6).

6.26 Again the results are reasonable. Fits are very favorable. Compared to results from similar models reported in Malpezzi and Mayo (1985, 1987a, 1987b) the income elasticity is low (.32), but this could be because of the strong effect of the education index, which is correlated with income and which is omitted in the models reported in the Malpezzi and Mayo papers. This unexpectedly strong effect is of some interest in its own right. It may be due partly to the fact that incomes are reported less reliably than years-of education.

Table 6.5: Demand Equations for "Uncontrolled" Renters

| VARIABLE                      | ESTIMATE | ERROR | T STAT | PROB>|T| |
|-------------------------------|----------|-------|--------|------|---|
| Intercept                     | -4.775   | 2.265 | -2.11  | .039 |
| Log of Income                 | 0.319    | 0.155 | 2.07   | .042 |
| Log Length of Tenure          | -0.097   | 0.031 | -3.06  | .003 |
| Household Size                | 0.074    | 0.157 | 0.47   | .637 |
| Household Size Squared        | -0.011   | 0.014 | -0.77  | .446 |
| Female Head                   | -0.339   | 0.470 | -0.72  | .473 |
| Warrior Caste                 | 0.301    | 0.180 | 1.67   | .100 |
| Artisan Caste                 | -0.647   | 0.379 | -1.71  | .092 |
| Muslim, Christian, Other      | 0.201    | 0.188 | 1.07   | .287 |
| Age of Head                   | .0078    | .0065 | 1.19   | .237 |
| Education                     | 0.122    | 0.031 | 3.91   | .001 |
| Selectivity Correction        | 7.586    | 2.565 | 2.96   | .004 |

6.27 Housing income increases with household size, but at a declining rate. According to these estimates, housing consumption begins to decline after
household size reaches about nine. This is consistent with the hypothesis that as household sizes increase at some point other necessities (such as food) begin to crowd out housing consumption; but the standard errors of these variables are insufficient to reject the hypothesis that this result could be due to chance.

6.28 There are four caste/religious groupings. Bangalore is a largely Hindu city, and there were not enough observations to create separate variables for all possible breakdowns of religion and caste. Muslims, Christians, and certain sects were classified as one group (CASTE4), and Hindus were broken down into warrior castes; artisan and "lower" castes; and Brahmin and often "high" castes. Overall, caste and religion are a significant determinant of housing consumption: the F statistic for the joint effect indicates that there is less than one chance in a hundred that effects this strong could be due to chance.

Cost Benefit Measures

6.29 Table 6.6 presents the cost benefit measures from the 1974 household survey data. The first part of the table presents sample statistics for renters living in "ordinary" controlled units, the second for renters living in strictly controlled units. As noted in the data section, any rental unit whose 1974 rent exceeded 15 Rs. and whose occupant had lived in the unit more than five years is classified as controlled. Some controlled units are mistakenly omitted units that are more than five years old but whose tenants have moved within five years. Strictly controlled units are those whose rent has been officially established by the controller's office. Controlled renters are somewhat more than half the total rental sample, and most of these are "ordinary" controlled households.

6.30 Strictly speaking, these results are for the subsample of 211, which is by itself not randomly drawn from the renter population. However, our judgment is that qualitatively these results are not too dissimilar from results that would be obtained from a random sample. The reason is as follows. To anticipate results below on the distribution of costs and benefits, there is wide variation in costs and benefits but these are largely stochastic with respect to characteristics of the households within the subsample. That is, some households have much larger or smaller benefits than others, but this is not related to (say) income. Thus, the fact that households in the subsample tend to have higher incomes than the total population probably doesn't affect the average results much since households with higher or lower incomes within the sample have roughly similar average benefits.

6.31 As expected, predicted market rents exceed controlled rents; the ratio of the median predicted market rent to median rent paid is 2.2 under both types of rent control. But other outcomes are quite different. The median static cost born by landlords, that is, the subsidy to renters, is almost four times as great under strict controls than under ordinary control. Rent subsidies are equal to

Holding other variables constant, differentiate the quadratic model, \( Lu R = a + 0.074 H - 0.011 H^2 \), and solve for \( H \): \( 0.074 - 2(0.011 H) = 0 \). This yields \( H = 3.4 \).
about 10 percent of the median predicted market rent for units under ordinary control, and about half the predicted rent for units under strict control. Moreover, while households enjoying strictly controlled rents are consuming more housing services than our estimate of their demand at market prices, those under ordinary controls are consuming less. As a consequence, the net benefit to households in ordinary controlled units is actually negative, and even under strict control the benefit is small. As in other studies, the exact size of the benefit is somewhat sensitive to the assumption about the price elasticity of demand (i.e. about "how steep" the demand curve actually is). In general, controlled tenants value the implicit transfer from controls less than its cost to landlords. For typical strictly controlled tenants, the ratio of median benefits to median costs, one simple measure of efficiency, is only .82 if the assumed price elasticity is -1, and .33 if $E_p = -.5$. Under ordinary controls, the typical benefit is negative, in other words, both landlords and tenants are worse off.

6.32 Keep in mind that these are comparative static results. Given the other constraints in Indian housing markets—in land, finance, and the general regulatory framework—removal of rent controls will not, by itself, lead to equilibrium demand at our estimated market prices overnight. Fuller discussion of the collateral actions required and analysis of possible options for decontrol and their dynamic effects are deferred until the next chapter.

Table 6.6: Cost-Benefit Measures From Survey Demand and Hedonic Models

<table>
<thead>
<tr>
<th></th>
<th>Current Controlled Rent</th>
<th>Market Rent for Unit Controls</th>
<th>Est. Cost of Rent Control Subsidy</th>
<th>Tenant Benefit</th>
<th>Tenant Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CcQc</td>
<td>CcQc</td>
<td>CcQc</td>
<td>CcQc-PcQc</td>
<td>CcQc-PcQc</td>
</tr>
<tr>
<td>Mean</td>
<td>96</td>
<td>113</td>
<td>165</td>
<td>13</td>
<td>-42 -215</td>
</tr>
<tr>
<td>Q3</td>
<td>110</td>
<td>120</td>
<td>198</td>
<td>31</td>
<td>22</td>
</tr>
<tr>
<td>Median</td>
<td>60</td>
<td>65</td>
<td>133</td>
<td>7</td>
<td>-24 -57</td>
</tr>
<tr>
<td>Q1</td>
<td>40</td>
<td>47</td>
<td>90</td>
<td>-15</td>
<td>-72 -179</td>
</tr>
<tr>
<td>N</td>
<td>87</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Representative Consumer</td>
<td>60</td>
<td>65</td>
<td>133</td>
<td>5</td>
<td>-22 -66</td>
</tr>
</tbody>
</table>

|                     | Strictly Controlled Rent | Mean | 111 | 103 | 24 | 2 | -31 |
|                     | Q3 | 90 | 162 | 112 | 40 | 35 | 36 |
| Median             | 45 | 107 | 97  | 26  | 15 | 9  |
| Q1                 | 25 | 47  | 75  | -4  | -25 | -67 |
| N                  | 25 | 18  | 18  | 18  | 18  |
| Representative Consumer | 45 | 107 | 97  | 62  | 62  | 61 |
In sum, the key results from Table 6.6 are:

(a) Controlled renters pay less than the estimated market rents for their units, but the amount of subsidy is highly dependent on whether or not the unit is strictly controlled. The median rent paid ($P_{cQc}$) is 92 percent of the estimated market rent ($P_{mQm}$) for ordinary controlled units, but only 42 percent for strictly controlled units.

(b) The subsidy imposes a static cost to landlords equal to ($P_{mQc} - P_{cQc}$). (Dynamic costs, which can also be large, are discussed in the next chapter.) The median cost of the subsidy implied by these rent reductions is estimated to be about 7 rupees for ordinary units and 27 rupees for strictly controlled units.

(c) The total amount households actually spend on housing is (we estimate) also reduced below uncontrolled levels. Median $P_{mQm}$ is approximately twice the consumption in the presence of controls for both ordinary and strictly controlled units.

(d) Moreover, a comparison of $P_{mQc}$ and $P_{mQm}$ for ordinary controlled units shows that while units rent for less because of controls the actual value of housing consumed has also declined, that is, consumption of housing services has been greatly reduced under controls ($Q_c < Q_m$). However, a comparison for strictly controlled units finds that $P_{mQc}$ now exceeds $P_{mQm}$; these households are consuming more housing under controls.

(e) If the loss from the reduction of housing consumption is subtracted from the subsidy paid by landlords, the net benefit to occupants of ordinary controlled units is negative—both landlords and (most) tenants are made worse off by controls. Such analysis finds that occupants of strictly controlled units do receive net positive
benefits, but that the level received is small. If \(Ep = -1\) (the most "favorable" assumption in terms of controls' efficiency), the "transfer efficiency" (ratio of benefits to costs) is only 82 percent. Tenants receive net benefits that are less than 60 percent the static cost to landlords. If the price elasticity is on the order of -0.5, net benefits to renters are only 33 percent of the cost to landlords. Thus, a relatively small portion of the renting population is slightly better off, while the vast majority of renters, as well as landlords, is worse off.

(f) While costs and benefits are large relative to rents paid, they are small relative to income. The cost of the typical subsidy to "ordinary" controlled renters is about 1 percent of their typical income; few households receive subsidies greater than 5 percent of their income. For strictly controlled renters, typical subsidies are around 6 percent of typical incomes. Net tenant benefits are, at best, negligible for small compared to total income.

(g) All this discussion of the "typical tenant" and the medians masks the fact that these welfare estimates have wide distributions. Even in the strictly controlled submarket, over one quarter of households have negative estimated net benefits. And over a quarter of ordinary controlled households have positive estimated benefits, even under the lower price elasticity.

Costs and Benefits for Representative Consumers

6.33 Recent work by Malpezzi (1986, pp. 108-110) and by Gyourko and Linneman (1986) have indicated that estimates of welfare losses from individual households are biased upwards by the stochastic nature of any estimated or assumed demand relation. Estimated demand curves are in a sense the average of many individual curves. Individual demand curves remain unknown. Each individual household will be "off" the estimated demand curve even if they are "on" their own (unknown) curve. But Malpezzi (1986) demonstrates that the problem is mitigated if we compute cost-benefit measures for aggregate statistics (in other words, for median \(P_c Q_c\), \(P_m Q_c\) and \(P_m Q_m\)) rather than aggregate the cost-benefit measures for each separate observation.

6.34 Table 6.6 also presents the costs and benefits so calculated for "representative consumers." The first three columns are the medians of \(P_c Q_c\), \(P_m Q_c\) and \(P_m Q_m\) from the previous table. The last three columns are costs and benefits calculated from these statistics.
With these results we can put some numbers on the graphs from the previous theoretical chapter. Figure 6.6 presents such a diagram for the “ordinary” controlled household. Normalizing the market price per unit of housing services at one, we estimate that the typical household would consume 133 units of housing services in the absence of controls and other market imperfections. In fact we observe households consuming 65 units, but spending only 60 (in other words, the price per unit of housing services is 60/65 = .92 of the market price). Two demand curves are drawn, representing the two alternative assumed price elasticities of -1 and -0.5, respectively. As with any normal good, if unconstrained this typical household would like to consume more housing at the lower controlled price than at the higher market price. Depending on which demand curve we use, we estimate they would like to consume around 150 units of housing services at controlled prices. But they are constrained by a shortage of appropriate units at the lower price, and they end up consuming less, in other words, 65 units for 60. They benefit from the lower rent (a 5 Rs. per month subsidy from landlords) but they also lose from consuming less housing than they would consume in the absence of controls. As discussed in the previous chapter, this loss can be measured as the area under the demand curve and above the market price line, in other words, triangle ABC or A'BC. According to our estimates, the loss is greater than the gain from lower rent, and the tenant is worse off than he or she would be in equilibrium at market prices. The loss is greater the lower the price elasticity in absolute value.

Strictly controlled renters are in a quite different situation according to these “representative” calculations. For the typical strictly controlled household, we estimate that 97 units of housing services would be demanded in the absence of controls and other market imperfections. The typical household actually consumes 107 units, actually a little more than demand at market prices, but spends only 45 (in other words, the price per unit of housing services is about .42 of the market price). In other words, strictly controlled households are (compared to “ordinary” controlled) receiving a bigger transfer from a lower price (the rectangle that households gain is bigger) and are closer to their
demand curve (the triangle that measures welfare loss is very small). Under both assumptions about demand curves, these favored households are better off under controls because they receive a bigger transfer and they also value the transfer at close to its cost to landlords.

6.37 The bottom line is that rent control reduces the rents households pay, but for the typical "ordinary" controlled household the benefit of this rent reduction is small and is more than offset by the welfare loss from underconsumption of housing. Households under "strict" controls benefit substantially at the expense of landlords.

6.38 Several further points should be made. First, tenants often perceive that controls reduce rents even more than they do. Second, these estimates do not account for "persistence" or habit--tenants are now used to low rents, and change will be resisted. Many tenants probably see no strong link between low rents and low quality housing. Third, once again, these are long run, comparative static results. How fast households would adjust to market prices and the absence of controls to get to the new equilibrium would depend on the elasticity of supply of housing, which again depends on many things in addition to rent control, such as the effectiveness of the markets for land and finance. How to get from here to there--especially in terms of better housing--is the topic of the next chapter.

6.39 Fourth, once again, this analysis of the typical consumer masks large variation in costs and benefits to individual households. Is this variation random, or is it related to characteristics of households? These questions are important for understanding the potential redistributive effects of controls.

C. Distribution of Benefits and Costs

6.40 This section addresses three distributional questions:

(a) How do controlled renters compare to uncontrolled households?

(b) Within the group of controlled renters, who gets the largest benefits?

(c) How do renters compare as a class to landlords?

78/ In what is, to our knowledge, the only direct test of these perceptions, a study prepared for the city of Los Angeles (USA) by Hamilton et al. (1984) found that tenants there believed controls reduced their rent by an average of 33 percent. Los Angeles' rent control system is very lax, compared to Ghana's -- for example, rents are indexed to inflation, newly constructed units are exempt, and rents are reset when tenants move. As a consequence, the average actual rent reduction was estimated at about 2 percent.
Comparison of Controlled Tenants and Other Tenants

6.41 This question has already been addressed in Chapter 3 and earlier in this chapter (see Table 3.1 and Table 6.4). Figure 6.8 represents the key data graphically. The bars in the graph represent the first to the third income quartiles of each group; the line through each bar represents the median. For example, the median income of all renters is 458 Rs. (1974) and the first and third quartiles are 300 Rs. and 735 Rs., respectively. The graph, and the table and discussion in Chapter 3 point out that the resampled renters are, as a group, somewhat higher income than all renters; that ordinary controlled renters are higher income than uncontrolled renters, and that strictly controlled renters are lower income; but that there is a great deal of overlap in all these distributions. Controlled renters are more or less like other renters and like the general population; they are not, as a class, greatly more or less disadvantaged. Rent control does not seem efficient as a redistributive device on this account.

Distribution of Benefits Within the Controlled Sample

6.42 Table 6.7 presents summary cost-benefit measures by income quartiles, vis-a-vis the median within each quartile. The striking result is that there is no simple relationship between income and benefits within the sample. We disaggregated by strict versus loose controls, and estimated simple multivariate models with the same result: within the sample of controlled households, benefits are largely unrelated to income, household size, or length of tenure.

<table>
<thead>
<tr>
<th>Household Income Quartile</th>
<th>Median Controlled Rent</th>
<th>Median Controlled Unit Cost of the Unit (Median Qc)</th>
<th>Median Controlled Subsidy (Median Qc - Median Qm)</th>
<th>Net Benefit</th>
<th>Eps = 1</th>
<th>Eps = 0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Within 1st Quartile</td>
<td>245</td>
<td>38</td>
<td>49</td>
<td>90</td>
<td>14</td>
<td>-19</td>
</tr>
<tr>
<td>Median Within 2nd Quartile</td>
<td>380</td>
<td>36</td>
<td>67</td>
<td>96</td>
<td>6</td>
<td>-21</td>
</tr>
<tr>
<td>Median Within 3rd Quartile</td>
<td>578</td>
<td>45</td>
<td>53</td>
<td>107</td>
<td>-18</td>
<td>-48</td>
</tr>
<tr>
<td>Median Within 4th Quartile</td>
<td>1175</td>
<td>105</td>
<td>108</td>
<td>176</td>
<td>-13</td>
<td>-21</td>
</tr>
</tbody>
</table>
6.43 We also examined this question using multivariate analysis\textsuperscript{79} simple regression model relating benefits to income, length of stay, and several other demographic characteristics. Benefits were found to be so weakly related to income, household size, length of tenure, and other potential determinants that we cannot statistically reject the hypothesis that benefits are conferred randomly. It is worth noting that in studies of rent control in other countries it has been sometimes found that benefits are related to income, length of tenure, and other household characteristics, but such does not appear to be the case in Bangalore.\textsuperscript{80}

Comparison of Landlord and Tenant Incomes

6.44 Another distributional issue is whether the implicit transfer of income from landlord to tenant improves the distribution of income. The cost-benefit estimate numbers presented above demonstrate that the distribution of benefits among tenants is largely stochastic, in other words, does not improve equity within the renter class. This section presents evidence on the distributional consequences of transfers between classes, specifically between landlords and tenants.

6.45 Previous research on distributional effects of these transfers has been limited. Johnson (1951) presents evidence that, in the United States, low income renters receive an important share of their income from rents. His data did not permit a direct test of the effects of transfers, however. Malpezzi (1986) presented evidence from Cairo that median landlord incomes were higher than median tenant incomes: 127 Egyptian pounds (1981) versus 87 pounds, respectively.\textsuperscript{81} While the difference is not negligible, typical landlords in Cairo are by no means rich. Broadly, Malpezzi, Tipple, and Willis (1990) found similar results for Kumasi: landlords were, on average, about 36 percent

\textsuperscript{79} This analysis uses welfare measures calculated separately for each observation and is subject to a downward bias in the benefit measures. But there is no \textit{a priori} reason that the bias will be systematically larger for different classes of tenants. The bias should affect the intercept in these regressions, but not the other coefficients.

\textsuperscript{80} For example, Malpezzi, Tipple, and Willis found that poorer households received slightly larger benefits in Kumasi.

\textsuperscript{81} The official exchange rate in 1981 was LE1 = US$1.43; the market rate was about 1 to 1.
wealthier than tenants; but about one quarter of landlords had incomes below the median renter income, and one quarter of renters had incomes above the median landlord income.

6.46 The 1974 household survey of Bangalore includes data on income from rents on non-agricultural lands and buildings. This data can be used to identify landlords; however we cannot distinguish between landlords of different types of structures. Some rental tenants are themselves landlords, so we constructed a three way classification: (1) tenant, not a landlord, (2) landlords who own their own dwelling, and (3) landlords who are themselves renters; and a two way classification: (1) tenant, not a landlord, (2) all landlords.

6.47 Table 6.8 presents a comparison of landlord and tenant incomes using each of these classifications in turn. Parametric and non-parametric tests of the hypotheses that there is no difference between classes are also presented. The key data are graphed in the first part of Figure 6.9.

6.48 First, it is clear that both classes of landlords have higher incomes than tenants who are not landlords, on average; median incomes for the landlord groups are some 70 percent higher than non-landlord tenants. But note also the following:

(a) Almost one quarter of the landlords have incomes below the median (non-landlord) renter income; almost one quarter of the non-landlord renters have incomes greater than the median landlord income.

(b) More than 10 percent of renters (110 out of 1,045) are also landlords; and as a class, they are as rich as homeowning landlords.

(c) Most landlords hold relatively few units; the ratio of occupied rental units to number of landlords is about 4.

6.49 Thus it does not appear that rent control does very much redistribution of income from rich to poor, and almost certainly does some redistribution in the wrong direction. Of course richer tenants own more units. Table 6.9 presents income distribution figures weighted by income from property, for comparison to Table 6.8. The survey has no information on number of units owned; but of those who receive income from property the median of that income is about 115 Rs. As a rough calculation, dividing this typical rental income by typical rents suggests that about half of landlords own one or two units; examining the distribution of rental income and using the rough rule of thumb of 50 Rs. per unit suggest that around two thirds own three or fewer. Less than 3 percent of landlords receive more than 1,000 rupees per month from their property. But still, when the data are so weighted the income disparities between landlords and tenants who do not own other property are accentuated (see also the bottom half of Figure 6.9), the fact that renters who themselves own property are actually the richer class remains unaltered.
6.50 One other important redistributive issue can be mentioned here. Given that households that own property are somewhat richer than other households, and that the modest disparity unsurprisingly grows larger for households that own more property, it remains questionable whether it is equitable and sound policy to effectively tax households that invest in rental housing (through controls) while owners of non-housing capital (and indeed households of similar income) bear no such tax. Such a narrowly based tax raises questions of equal treatment of equally placed investors in different assets (housing and non-housing). Assuming for the moment that there is in some sense "too little housing," taxing it so heavily can be questioned on efficiency and equity grounds.

6.51 In summary, rent control is extremely inefficient as a redistributive mechanism. Many tenants are surprisingly well off, and not a few of those own other units. Many landlords are people of comparatively modest circumstance. Within the class of controlled tenants, benefits of controls are more or less unrelated to household circumstance. Rent control is not an effective redistributive device in Bangalore.

Table 6.8: Comparison of Landlord and Tenant Incomes

<table>
<thead>
<tr>
<th></th>
<th>Median Income</th>
<th>Q1</th>
<th>Q3</th>
<th>Mean Income</th>
<th>Standard Deviation</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three Way Classification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renters Who are Not</td>
<td>425</td>
<td>280</td>
<td>700</td>
<td>589</td>
<td>536</td>
<td>935</td>
</tr>
<tr>
<td>Landlords</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landlords Who Own</td>
<td>750</td>
<td>442</td>
<td>1286</td>
<td>1054</td>
<td>899</td>
<td>148</td>
</tr>
<tr>
<td>Their Own Dwellings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landlords Who are</td>
<td>721</td>
<td>450</td>
<td>1199</td>
<td>1374</td>
<td>3027</td>
<td>110</td>
</tr>
<tr>
<td>Also Renters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test H0: Y1 = Y2 = Y3</td>
<td>Chi Square = 55.04 1/ F = 34.25 2/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob &gt; X2 = .0001</td>
<td>Prob &gt; F = .0001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two Way Classification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renters Who are Not</td>
<td>425</td>
<td>280</td>
<td>700</td>
<td>589</td>
<td>536</td>
<td>935</td>
</tr>
<tr>
<td>Landlords</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Landlords</td>
<td>746</td>
<td>450</td>
<td>1275</td>
<td>1191</td>
<td>2091</td>
<td>258</td>
</tr>
<tr>
<td>Test H0: Y1 = Y2</td>
<td>Chi Square = 55.04 1/ F = 62.68 2/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob &lt; X2 = .0001</td>
<td>Prob &gt; F = .0001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1/ Nonparametric test of the null hypothesis using the median scores test, which is based on the number of observations from each sample above the combined median.

2/ Parametric test of the null hypothesis using the standard analysis of variance.
Table 6.9: Comparison of Landlord Tenant Incomes
Landlord Incomes Weighted by Income From Property

<table>
<thead>
<tr>
<th></th>
<th>Median Income</th>
<th>Q1</th>
<th>Q3</th>
<th>Mean Income</th>
<th>Standard Deviation</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Three Way Classification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renters Who are Not Landlords</td>
<td>425</td>
<td>280</td>
<td>700</td>
<td>589</td>
<td>536</td>
<td>935</td>
</tr>
<tr>
<td>Landlords Who Own Their Own Dwellings</td>
<td>1140</td>
<td>600</td>
<td>1991</td>
<td>1397</td>
<td>960</td>
<td>148</td>
</tr>
<tr>
<td>Landlords Who are Also Renters</td>
<td>1329</td>
<td>658</td>
<td>2460</td>
<td>2626</td>
<td>3333</td>
<td>110</td>
</tr>
<tr>
<td><strong>Two Way Classification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renters Who are Not Landlords</td>
<td>425</td>
<td>280</td>
<td>700</td>
<td>589</td>
<td>536</td>
<td>935</td>
</tr>
<tr>
<td>All Landlords</td>
<td>1182</td>
<td>625</td>
<td>2000</td>
<td>1909</td>
<td>2353</td>
<td>258</td>
</tr>
</tbody>
</table>

D. Evidence on the Effect on Property Taxes

Hedonic Regression Results

6.52 Hedonic regression models can be used to estimate the second piece of information required -- $P_{mQc}$, the rent that would be commanded by the controlled units in the absence of controls.

6.53 Table 6.10 presents the hedonic results for the sample of rental units that were resurveyed in 1984, and that were found to have been strictly controlled in 1974, the date of the survey data. The specification is a short version of the model estimated above.

Table 6.10: Hedonic Index for Strictly Controlled Renters

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>PARAMETER</th>
<th>STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ESTIMATE</td>
<td>ERROR</td>
</tr>
<tr>
<td>Intercept</td>
<td>3.077</td>
<td>0.569</td>
</tr>
<tr>
<td>Number of Rooms</td>
<td>0.061</td>
<td>0.164</td>
</tr>
<tr>
<td>Length of Tenure</td>
<td>-0.021</td>
<td>0.028</td>
</tr>
<tr>
<td>Baths</td>
<td>0.741</td>
<td>0.282</td>
</tr>
<tr>
<td>Compound House</td>
<td>-0.219</td>
<td>0.339</td>
</tr>
<tr>
<td>Outhouse</td>
<td>0.477</td>
<td>0.377</td>
</tr>
<tr>
<td>Separate House</td>
<td>0.693</td>
<td>0.367</td>
</tr>
</tbody>
</table>
6.54 In general, the regression results, while not totally random, are disappointing in comparison to the regression results from the "uncontrolled" market presented earlier. There is remarkably little correlation between rents and the characteristics of the unit. This result holds robustly when different specifications are tried. That suggests that if fair rent is the basis for assessment, it is not possible to proxy the result of property taxes on market rents by bumping the mill rate of the tax up by some fixed proportion. If market valuation or characteristics of the unit are taken as benchmark, fair rents cannot serve as a basis for fair taxation.

6.55 However, another point of view is that property values and/or income from property are themselves simply a proxy for income and/or other determinants of ability to pay. We can examine the correlation between fair rents and characteristics of households in a simple demand equation.

**Demand Equation Results**

6.56 Table 6.11 presents the estimated coefficients from the expenditure regression estimated using the sample of controlled renters.

<table>
<thead>
<tr>
<th>Dependent Variable: Log of Fair Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degrees of Freedom: 16</td>
</tr>
<tr>
<td>R-Square: 0.67</td>
</tr>
<tr>
<td>R-Squared (Adj): 0.51</td>
</tr>
<tr>
<td>F: 4.14</td>
</tr>
<tr>
<td>Prob&gt;F: .001</td>
</tr>
</tbody>
</table>

| Variable                | Estimate | Std Error | T-stat | Prob>|T| |
|-------------------------|----------|-----------|--------|------|
| Intercept               | 3.307    | 2.005     | 1.65   | .119 |
| Log Income              | -0.137   | 0.357     | -0.38  | .706 |
| Household Size          | 0.098    | 0.055     | 1.77   | .095 |
| Length of Tenure        | -0.037   | 0.021     | -1.81  | .090 |
| Warrior Caste           | -0.246   | 0.385     | -0.64  | .532 |
| Artisan Caste           | -0.244   | 0.297     | -0.82  | .432 |
| Muslim, Christian, Other| -0.042   | 0.415     | -0.10  | .921 |
| Age of Head             | 0.016    | 0.012     | 1.37   | .189 |
| Education               | 0.180    | 0.071     | 2.64   | .018 |

6.57 These results are quite different from the demand equation presented above for the uncontrolled sector. Demand in the strictly controlled sector is related to household size; households that have been in units for longer periods of time have lower fair rents; and more educated households consume more. But there is no positive relationship between income (our measure of ability to pay taxes) and fair rent (the basis of taxes). In effect, we cannot reject the hypothesis that there is no systematic relationship between fair rents and income, and the point estimate is perverse: richer households would pay lower taxes. If the standard of comparison is income, taxation based on fair rents is essentially random.

6.58 Recall from Table 2.2 that median fair rents are about 42 percent of median estimated market rents. If Bangalore's market had been in equilibrium at
our estimate of long run market prices, (i) property tax collections would have been about 2.4 times their actual collection, assuming no change in mill rates or improvements in collection procedures and (ii) the incidence of the tax would be more equitable, if we adopt the standard that ability to pay is related to characteristics of the unit and/or income of the household.

6.59 Since property taxes are nominally paid by the landlord, not the tenant, does this randomness violate our equity criteria? This is a more difficult question.

6.60 First, many states permit full or partial pass through of property taxes in rents. To the extent these pass throughs are effective, the incidence of these taxes does fall on tenants.

6.61 Second, a common view of an uncontrolled market is that, to the extent the market is competitive, the incidence of taxes on rental property ultimately falls on tenants; taxes are, in the long run, passed on as are other costs. But of course this is not the case in a severely controlled market.

6.62 Third, in the case where controls prevent taxes from being passed on to tenants (either statutorily or effectively) analysis of equity is more difficult. But once again, in a simple framework, if incomes of the landlords are linked to the characteristics and value of their units, a system such as this one breaks the link between tax liability and income.

E. Recent Market Trends

6.63 The cost and benefit measures just described, and the analysis of landlord and tenant incomes, are based on an analysis of 1974 survey data. This section presents some simple analyses of data collected during semistructural interviews undertaken with 21 households during 1985. The households were chosen to represent the range of housing tenure types (including allotted units) and are not in any sense a representative sample. The sample is quite small in addition to being non-representative. But it is the best recent information available at the present time.

6.64 Statistics from this sample are calculated and presented mainly for their heuristic value. Here it is appropriate to mention that while means and medians are not representative of the population, within samples differences between classes will suggest hypotheses for more rigorous tests if better data are collected in the future. Also, it is well known that regression coefficients
from such a sample are unbiased, under the restrictive assumption that the model is completely and correctly specified.\footnote{12} However the estimates will not be efficient; and again, the variance of the estimates could be quite large with such small samples. \footnote{12}

**Incomes**

6.65 As noted above and in the section of the paper describing the data, this small sample is not representative of the wider population of Bangalore. The median monthly income of the small sample is 1450 Rs.; ranging from 800 Rs. to 5000 Rs. (1985 Rs.). Half of the small sample have incomes between about 1,300 and 3,000 Rs. (1985) (about 700 and 1,600 (1974) Rupees, respectively). Even after accounting for income growth during the intersurvey period, this sample appears to be drawn out of the upper half of the income distribution.\footnote{13}

**Changes in Rents and Values Since 1974**

6.66 Direct comparisons of average rents between the two samples are not possible, since the 1974 sample is representative of Bangalore's entire population while the 1985 sample is not. Two indirect methods of studying changes in rents and values can be used with the existing data. We can draw a sample from the 1974 data with a similar income distribution to the 1985 sample, and we can examine changes in rents and values in the units in the 1985 sample because retrospective questions were asked about past rents and values.

6.67 The restricted sample of 1974 data was drawn as follows. All households outside of the income range of the 1985 data (deflated, of course) were deleted. The resulting distribution would contain about as many households in what would be the tails of the 1985 distribution as in the center of the distribution. A refinement is to sample further within this distribution to approximate the 1985 distribution. The procedure adopted was quite simple: for households whose income exceeds the third quartile of the (deflated) 1985 income distribution, or is less than the first quartile, the selection probability is one half. For households in the middle of the distribution, the selection probability is one. This procedure, while somewhat crude, does yield a 1974 sample roughly comparable to the 1985 sample.

6.68 An alternative view of changes in rents is possible using the 1985 sample. Among the questions asked were retrospective questions on rent and house

\footnote{12} It is common to implicitly make this assumption but it is rarely true.

\footnote{13} To anticipate some of the results below, many of the regression results suggest this problem is not severe.

\footnote{14} The minimum income, 800 Rs. (1985 Rs.), deflates to about 421 Rs. (1974 Rs.) This is the 45th percentile of the full 1974 income distribution. The median of the small sample deflates from 2,450 Rs. to 1,291 Rs., just below the 90th percentile of the full distribution.
value when the current tenant or owner moved in. As is well known, a change in
rent from original period to period $t$ at rate of change $r$ is given by:

$$R_t = R_0 e^{rt}$$

where $e$ is the base of natural logarithms. Rearranging terms and using rules of
logarithms allow us to solve for the rate of change in rents:

$$r = \log \left( \frac{R_t}{R_0} \right) / t$$

Thus we can solve for the rate of appreciation for each unit. Note that this
model assumes a constant rate of change; since rents and values change at varying
rates from year to year, we can interpret this as the average rate of change over
the length of tenure for each unit.

6.69 The median rate of change in rents for all 10 rental units is much less
than 1 percent per year. For half the units rents did not increase at all, and
the maximum increase was only 3 percent per year. Note that over the past decade
the general price level has increased at about 8 percent per year. At such a
rate, real rents would halve in a decade.

6.70 Values have increased faster than rents. The average change in value
(for the 13 houses with complete retrospective data) is 6 percent per year, but
the median is 2.5 percent. The variation in estimated appreciation rates is
quite large, ranging from 0 to 20 percent per annum.

6.71 Rents increase faster for older units than newer units; recent tenants
tend to rents that remain fixed, while some older units' rents have been
increased. The interviews suggest that fair rents for the oldest units are so
low that tenants sometimes agree informally to modest rent increases, recognizing
that the controlled rents are not tenable.

6.72 House values, on the other hand, rise faster for new units for owner
occupiers. Values of rental units appear depressed by controls.

How Would The Cost Benefit Results Turn Out Today?

6.73 The comparative static cost benefit analysis carried out above used data
from 1974. We have been careful to state that these specific results are for the
particular time and place under study. However, we have just examined, trends
in prices since that time. Can we make some conjectures about what the cost-
benefit results might look like today, at least qualitatively?

6.74 Rent controls that are not indexed to inflation (as Bangalore's is not
indexed) become more binding over time. Consider a household that in 1974 had
the typical values of income, $PcQc$, $PmQc$, and $PmQm$ for its category (strict
controlled and ordinary controlled, respectively). Suppose we know (or assume
parametrically) the time path of incomes, controlled rents, and of uncontrolled
rents in the absence of controls. Suppose further that this household stays in
place during the period under study. Then we can straightforwardly calculate how
the welfare measures also change over time.
6.75 We have built a simple spreadsheet model that does this for given input values of initial income, \( P_{cQc} \), \( P_{mQc} \), \( P_{mQm} \), their rates of change, and the income elasticity of demand. The output for two cases, representing the typical ordinary and strictly controlled household, respectively, are presented graphically in Figures 6.8 and 6.9. These particular simulations used rates of growth of controlled rents of 1 percent per annum, 6 percent of change in market rents and incomes respectively, an income elasticity of 0.6, and a price elasticity of -1. Other cases were studied (and discussed in the next chapter), but these results illustrate the central idea.

6.76 Consider the application of straightforward arithmetic to the typical "ordinary" controlled unit in Figure 6.10. Starting points are from Table 6.6. Starting from a typical rent of about 60 Rs., such a unit would rent for about 160 Rs., had rents increased in line with general price changes. Had rental demand increased with changes in prices (abstracting for the moment from real income growth), demand for those typical "ordinary" controlled households would be about 320 Rs. So over time, with controlled rents largely fixed, the subsidy to these units has been increasing. This suggests that any period's static estimate is an underestimate of the stock value of controls to a sitting tenant. The annual subsidy rises over time from 31 to about 89, and presumably it is still rising.

6.77 For strictly controlled units (Figure 6.11), under similar assumptions, typical estimated market rents would rise from about 45 Rs. to about 260 Rs. Households would demand about 210 Rs. Again subsidies would approximate benefits.

6.78 These results are not surprising but illustrate straightforwardly how controls become "more binding" over time, exacting higher costs of landlords and conferring larger benefits on tenants. Note that for the "ordinary" controlled

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85/ Of course in principle a controlled regime could be devised that would hold the subsidy constant through indexation of controlled rents.
tenant, eventually the benefit of the subsidy outweighs the cost of disequilibrium in consumption, and in both cases costs and benefits increase monotonically with time.

6.79 These simple results are instructive but simplistic in a few important respects. In particular, we are examining only households that were in units 15 years ago and ignore recent household formation (or its repression from lack of sufficient housing). This simple model also assumes houses do not change (in other words, abstract from depreciation). The next chapter tries to build a more realistic model for studying the effects of controls in a simple dynamic context.
7.1 The previous chapter described the costs and benefits to individual landlords and tenants. What are the marketwide effects, particularly on supply? This chapter begins by describing the supply side of the market in more detail. Despite controls, some additional housing is being supplied. To explain the apparent anomaly between rents that seem to offer no real return and a rental stock that, while poorly maintained still houses two thirds of the city, we will develop a simple present value model of housing investment. While simple, the model captures the essentials of the landlord's investment decision, as well as effects on tenants and government revenue. The model will also be used to examine alternatives for relaxation or decontrol.

A. Housing Supply in Bangalore

7.2 As discussed in detail in Chapter 3, the majority of Bangalore's households live in rental housing. How has the supply of this housing in general and the rental stock in particular changed over time? Little data on supply and its components are available over time. Hardly any information is disaggregated by sector or tenure.

New Construction

7.3 Figure 7.1 shows the growth in households, permits, and completions from the time of the household survey to the 1980s. It appears that in the mid 1970s there were roughly four new households for every new housing permit; at the end of the decade the ratio had deteriorated to about five.

7.4 Taking a longer view using census data presents a different picture. Figure 7.1 shows the number of census persons and houses in the three most recent census years. While population grew by about 3.3 percent per annum during the 1960s and 6 percent per annum during the 1970s, the number of census houses grew by 6.8 percent and 6.3 percent in each of the two decades. The ratio of persons per census house declined from 8.4 in 1960 to 6.3 in 1980. But comparing growth rates in the two decades it does appear that population growth has picked up while
growth of census houses tailed off. Of course, analysis of the forthcoming 1990 census will shed light on whether these trends are continuing.

7.5 This data is rather sketchy for our purposes. Starts and completions data only count formally registered dwellings and thus undercount actual changes in supply. Census house data include data for shops and certain structures that may be only partly used as dwellings or not currently used as dwellings at all. None of these data sources tell us much about the intensity with that the stock is used. The data are not disaggregated by tenure. And little insight is given into the supply of rental and other housing from the existing stock, which in any given year is the vast majority of supply.

Housing From the Existing Stock

7.6 Rent control creates an incentive for landlords to allow their properties to deteriorate. Many renters live in housing that structurally has been allowed to fall into disrepair. Strictly controlled rents are often insufficient to cover maintenance costs. The hedonic models show that while these units would rent for more than the controlled price in the open market their price is still low and sometimes less than what tenants would be willing to pay for a better unit. Good data are lacking on maintenance behavior in Indian cities. However, anecdotal evidence indicates that at least some renters spend their own resources on maintaining and improving their rooms, probably encouraged by their perceived security of tenure.

7.7 Several housing market analysts have pointed to rent controls as a cause of declining maintenance in India; while we cannot yet specify how much maintenance would increase if controls were removed, the cash flow analysis of how controls affect incentives for maintenance presented below make the qualitative link clear. Some studies have pointed out that the effect of controls on maintenance depends on the type of control. Control regimes that permit revaluation of upgraded or better maintained units and that enforce lower rents for depreciated units can provide incentives for more maintenance than in the absence of controls. But such regimes do not exist in India.

7.8 Ultimately, in order to understand the interaction between rent control and supply we have to understand the interaction between controls and the investment incentives faced by suppliers. We therefore turn to a simple present value analysis of the effect of controls on landlords' profitability.

B. Rent Control and Landlord Profitability

7.9 In order to understand how controls affect incentives to landlords, and hence supply, we start with a simple present value model.

---

Present Values

7.10 Government subsidies, regulations, taxes and other interventions—including rent control—change the cash flows to landlords. Some interventions impose costs (for example, land use regulations, taxes, rent controls, building regulations) and some benefits (for example, land subsidies, tax relief, financial subsidies) to landlords. The incidence of costs and benefits is discussed in more detail in Malpezzi (1988) and Malpezzi (forthcoming).

7.11 Present values are a summary of the cash flow and its components. Present values are computed by adding a stream of net costs and benefits from an investment after discounting them to account for the fact that a Rupee today is worth more than a Rupee tomorrow.87

Consider a simple four period example:

\[ PV = A_0 + \frac{A_1}{(1+r)} + \frac{A_2}{(1+r)^2} + \frac{A_3}{(1+r)^3} \]

where \( A \) represents the net costs and benefits in each of four periods, and \( r \) is the discount rate, or the opportunity cost of capital. For example, if an initial investment of 300 Rs. is followed by three years of net returns of 150 Rs. per annum, and the discount rate is 10 percent, the present value is:

\[ PV = -300 + \frac{150}{(1+0.1)} + \frac{150}{(1+0.1)^2} + \frac{150}{(1+0.1)^3} = 73 \text{ Rs.} \]

The present value rule states that if the present value of the investment is greater than zero, the investment yields greater than the opportunity cost of capital (the normal rate of profit for an investment of that type) and the investment should be undertaken.

7.12 A closely related concept is the internal rate of return. This is the discount rate at which the present value of the cash flow would be zero (benefits would equal costs, adjusted for the timing of receipts and expenditures). It can be interpreted as a measure of profitability.

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87/ Even in the absence of inflation.
A Present Value Model of Housing Investment in Bangalore

7.13 Rent control's market effects can be analyzed using a simple cash flow model of a representative rental investment. Table 7.1 presents such a model. Each column represents a year's time. Landlord-developers are assumed to build or purchase a unit in development period (year 0) and rent out the rooms therein for 10 years. During this time landlords collect rents and spend money on maintenance and taxes. At the end of the 10 year period the unit (structure and land) have some salvage value.

7.14 The example in Table 7.1 is meant to represent, approximately, a rental unit from the mid 1970s, in the strictly controlled sector so that results from the preceding chapter and from the household survey can be used to calibrate it. But the model itself is quite general and will be used with more recent data below.

7.15 This model is simple yet it allows us to compare two different rent regimes, labeled the baseline regime and the revised regime in Table 7.1. We can examine the interaction between controls, taxes, maintenance, depreciation, profitability, and affordability in a simple but consistent framework.

7.16 But the profitability of the rental investment is only half the story. The present value model can be complemented with a demand side, calculating affordability, willingness to pay, and consumers' surplus measures of benefit. Figure 7.2 presents the layout of the demand side of the model.

88/ The general method used is described in any corporate finance text (e.g. Brealey and Myers 1981). Application of cash flow models to investment in developing countries is discussed in Gittinger (1982) and Mishan (1982). Examples of housing policy analysis using such models include DeLeeuw and Ozanne (1981), Brueggeman (1985), and Malpezzi (1988).

89/ Figures 7.1 and 7.2 are copies of the output of the model. The model itself is constructed in a spreadsheet. Copies of the model are available upon request of the authors. Reading and using the model requires an IBM compatible PC with 640K RAM, a graphics card, and Lotus 1-2-3 version 2.1 or a compatible spreadsheet.

90/ The salvage period is often discussed as if the owner sells the unit. Actually it makes no difference to the analysis if the owner retains it; the salvage value is the opportunity cost of doing so.

91/ For example, we assume the landlords pay cash for the unit. In India, few rental units are financed through the formal financial system. While it remains true that all durable assets must be financed in some way (even if self financed), ignoring finance is an appropriate simplification for the present purpose. The analysis could be readily extended to evaluate proposals for rental finance.
### AFFORDABILITY ANALYSIS

<table>
<thead>
<tr>
<th>Year</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Affordable @ Real MONTHLY Income of:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Under Old Regime):</td>
<td>400</td>
<td>363</td>
<td>330</td>
<td>300</td>
<td>272</td>
<td>247</td>
<td>225</td>
<td>204</td>
<td>185</td>
<td>168</td>
<td></td>
</tr>
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<td>Memo: Income Distribution Assuming All Incomes Rise 102% as Fast As Inflation</td>
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<td></td>
<td></td>
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<td></td>
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<td>1.407</td>
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<td>551</td>
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<td>355</td>
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<td>204</td>
<td>208</td>
<td>212</td>
<td>216</td>
<td>221</td>
<td>225</td>
<td>230</td>
<td>234</td>
<td>239</td>
<td>244</td>
</tr>
</tbody>
</table>

### CONSUMER'S SURPLUS

| MONTHLY Income: | 480 | 490 | 499 | 509 | 520 | 530 | 541 | 551 | 562 | 574 | 585 |
| MONTHLY PmQc | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| PmQm | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 |
| Subsidy | 49 | 50 | 51 | 51 | 52 | 53 | 54 | 55 | 56 | 56 |
| Benefit | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| DWL | 16 | 16 | 15 | 14 | 14 | 13 | 13 | 12 | 12 | 11 |
| Efficiency | 71% | 72% | 73% | 74% | 75% | 76% | 77% | 78% | 79% | 80% |
| ANNUAL Subsidy | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 |
| ANNUAL Tenant Benefit | 467 | 474 | 480 | 487 | 493 | 500 | 506 | 512 | 519 | 525 | 3,630 |
| ANNUAL Deadweight Loss | 193 | 186 | 180 | 173 | 167 | 160 | 154 | 148 | 141 | 135 | 1,227 |

### WILLINGNESS TO PAY BY INCOME QUINTILE (First Year Only)

<table>
<thead>
<tr>
<th>Quintile</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
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<tr>
<td>Cum Pct</td>
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<td>30%</td>
<td>50%</td>
<td>70%</td>
<td>90%</td>
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<tr>
<td>Income (midpoint of each quintile)</td>
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<td>321</td>
<td>490</td>
<td>714</td>
<td>1,326</td>
</tr>
<tr>
<td>WTP (first year)</td>
<td>24</td>
<td>35</td>
<td>49</td>
<td>68</td>
<td>109</td>
</tr>
<tr>
<td>WTP/Income</td>
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<td>10.9%</td>
<td>10.0%</td>
<td>9.3%</td>
<td>8.2%</td>
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<td>42</td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>1st Yr Rents (New Regime)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### WILLINGNESS TO PAY BY INCOME QUINTILE (Fifth Year Only)

<table>
<thead>
<tr>
<th>Quintile</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cum Pct</td>
<td>10%</td>
<td>30%</td>
<td>50%</td>
<td>70%</td>
<td>90%</td>
</tr>
<tr>
<td>Income (midpoint of each quintile)</td>
<td>221</td>
<td>348</td>
<td>530</td>
<td>773</td>
<td>1,435</td>
</tr>
<tr>
<td>WTP (Fifth Year)</td>
<td>28</td>
<td>37</td>
<td>52</td>
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<td>118</td>
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<tr>
<td>WTP/Income</td>
<td>11.7%</td>
<td>10.7%</td>
<td>9.8%</td>
<td>9.1%</td>
<td>8.1%</td>
</tr>
<tr>
<td>5th Yr Rents (Old Regime)</td>
<td>31</td>
<td>31</td>
<td>31</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>5th Yr Rents (New Regime)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
## Table 7.2: Demand Side of Rental Investment Model

### Case 1: Medium Cost Rental Unit; Fair Rents Compared to Market Rents

**Baseline Year (1974-5 Prices), Strict Controls**

<table>
<thead>
<tr>
<th>Year</th>
<th>Present Values</th>
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<tr>
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<td>4</td>
<td>1.95</td>
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<tr>
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<td>1.85</td>
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<td>6</td>
<td>1.71</td>
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<td>7</td>
<td>1.59</td>
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<tr>
<td>8</td>
<td>1.47</td>
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<tr>
<td>9</td>
<td>1.36</td>
</tr>
<tr>
<td>10</td>
<td>1.26</td>
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</tbody>
</table>

**General Price Index**

<table>
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</tr>
</thead>
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<tr>
<td>1</td>
<td>1.08</td>
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<tr>
<td>2</td>
<td>1.17</td>
</tr>
<tr>
<td>3</td>
<td>1.36</td>
</tr>
<tr>
<td>4</td>
<td>1.47</td>
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<td>1.59</td>
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<td>6</td>
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<td>7</td>
<td>1.85</td>
</tr>
<tr>
<td>8</td>
<td>2.00</td>
</tr>
<tr>
<td>9</td>
<td>2.16</td>
</tr>
</tbody>
</table>

**Market Value of Land**

- Baseline Rent Control Regime: NOMINAL Monthly HH Rent 45 45 45 45 45 45 45 45 45 45 45
- Revised Rent Regime: REAL Monthly HH Rent 100 100 100 100 100 100 100 100 100 100 100

**Market Structure Value**

- Baseline Rent Control Regime: NOMINAL Annual Gross Rent 540 540 540 540 540 540 540 540 540 540 540
- Revised Rent Regime: REAL Gross Rent 1,200 1,200 1,200 1,200 1,200 1,200 1,200 1,200 1,200 1,200 1,200

**Financial Cost of Land**

- Baseline Rent Control Regime: Nominal Annual Gross Rent (5,000) (5,000)
- Revised Rent Regime: Nominal Annual Gross Rent (9,000) (9,000)

**Financial Structure Cost**

- Baseline Rent Control Regime: Market Value of Land 5,000 5,000 5,000 5,000 5,000 5,000 5,000 5,000 5,000 5,000 5,000
- Revised Rent Regime: Market Structure Value 9,000 9,000 9,000 9,000 9,000 9,000 9,000 9,000 9,000 9,000 9,000

**Baseline Rent Control Regime:**

- Nominal Monthly HH Rent 45 45 45 45 45 45 45 45 45 45 45
- Nominal Annual Gross Rent 540 540 540 540 540 540 540 540 540 540 540

**Revised Rent Regime:**

- Nominal Monthly HH Rent 100 100 100 100 100 100 100 100 100 100 100
- Nominal Annual Gross Rent 1,296 1,400 1,512 1,633 1,763 1,904 2,057 2,221 2,399 2,591 2,800

**Memo:**

- Final Capital Value at Highest & Best Use 12,800 13,416
- Actual Final Capital Value 4,229 6,067
- Landlord's Real Cash Flow, Baseline Regime (14,000) 210 188 167 149 131 114 99 85 72 4,229
- Landlord's Real Cash Flow, Revised Regime (14,000) 540 540 540 540 540 540 540 540 540 13,956

**Net Change in Landlord Revenue**

- Baseline Regime: 330 352 373 392 409 426 441 455 468 480 500
- Revised Regime: 330 352 373 392 409 426 441 455 468 480 500

**Change in Rental Income**

- Baseline Regime: 700 737 771 803 832 860 885 908 930 950 6,067
- Revised Regime: 700 737 771 803 832 860 885 908 930 950 6,067

**Change in Central Taxation**

- Baseline Regime: 210 221 231 241 250 258 265 272 279 285 1,920
- Revised Regime: 210 221 231 241 250 258 265 272 279 285 1,920

**Change in Local Taxation**

- Baseline Regime: 70 74 77 80 83 86 88 91 93 95 607
- Revised Regime: 70 74 77 80 83 86 88 91 93 95 607

**Change in Maintenance**

- Baseline Regime: 90 90 90 90 90 90 90 90 90 90 90
- Revised Regime: 90 90 90 90 90 90 90 90 90 90 90

**Change in Final Value**

- Baseline Regime: 9,248 5,164
- Revised Regime: 9,248 5,164

**Net Change in Government Revenue**

- Baseline Regime: 280 295 309 321 333 344 354 363 372 380 2,427
- Revised Regime: 280 295 309 321 333 344 354 363 372 380 2,427
7.17 Of course the model has limitations. It focuses on a "representative" investment, and the exact numbers presented aren't exact for all or even most units. But we can analyze more than one "representative" investment (including different structure types, service levels, locations, and rents). We don't want to focus on point estimates but rather on robust qualitative conclusions.

7.18 The cash flow model is only as good as its inputs; "garbage in, garbage out." But we can test, and have tested, the model with a range of inputs not all reported here. While the exact numbers change, the qualitative conclusions drawn from the simulations reported below remain robust.  

7.19 Key inputs to the model are underlined in Table 7.1, 7.2, and 7.3. The latter table lists underlying assumptions about changes in market conditions, depreciation, tax rates, and demand. Other numbers are calculated by the model given these assumptions. The landlord's financial cost of building or acquiring the unit (here 10,000 Rs. for the structure and 5,000 for the land) may be greater or less than their corresponding value, but here we assume the structure and land are worth what they cost, in other words, we focus on the "marginal" unit. Baseline controlled rents are assumed (in this example) to remain at the nominal level of 45 Rs. per month; this corresponds to the median strictly controlled unit in 1974-75 (see Chapter 6). Inflation further erodes the real value of the fair rent over time. Uncontrolled rents are assumed to be 100 Rs. per month in real terms, in other words, they keep pace with inflation. Note that such a rental unit is presumably much higher quality than the rental stock overall (recall from the preceding Chapter that the typical market rent in the strictly controlled sector was about two thirds higher than the typical market rent in the "ordinary" controlled sector).

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92 We encourage interested readers to undertake their own analysis of other representative investments and using other parameter values (especially representing other changes in controls). The model itself is written in Lotus 1-2-3 and is available upon request from the authors. Using the computer model requires the Lotus spreadsheet system, version 2.0 or higher, which is not available from the authors.

93 Today's units would have much higher land values, in particular.
Table 7.3: Key Model Inputs

| Inflation Rate | 8% |
| Real Discount Rate | 6% |

Expected Relative Price Changes in:

- Land: 0%
- Structure: 0%
- Wages: 2%

Gross Depreciation as a Percent of Capital Cost: 4%

Baseline Controls:

- Maintenance to Capital Cost: 1x
- Net Depreciation Rate: 3x
- Landlord Tax Rate: 5%

Revised Controls:

- Maintenance to Capital Cost: 3x
- Net Depreciation Rate: 1x
- Landlord Tax Rate: 30%

Demand

- Average Rent to Income: 0.10
- Elasticity: 0.60

7.20 Other assumptions for this example include a general inflation rate of 8 percent per annum, a real discount rate of 6 percent, real land prices rising by 3 percent per annum, and structure values rising only as fast as general inflation (in other words their relative price remains constant.) Wages are assumed to rise by 2 percent per annum. Gross depreciation of the unit is assumed to be 5 percent per annum; spending more on maintenance is assumed to reduce net depreciation one for one. Landlords pay an income tax of 30 percent on rents collected. Households at the median income are assumed to be willing to spend 10 percent of their income on such a unit; the income elasticity, .6, assumes that lower income households spend higher fractions and vice versa.

Gains and Losses from Four Components and their Interaction

7.21 Five key components of landlord cash flow are: initial outlay, rents, maintenance, taxes, and capital gains. Initial outlay does not change when controls are removed, but the other four do. Rent control directly reduces profitability because it reduces the rents a unit can command. But reduced rents also affect maintenance (and depreciation), taxes, and capital gains. These "indirect" effects can be large and should be taken into account. Figure 7.3 summarizes the changes.

94/ One way the model could be extended would be to build in a more sophisticated production function relating maintenance to depreciation in a non-linear fashion.
7.22 **Rents.** India's current rent control regime fixes nominal and reduces real rents. In the example presented in Table 7.1 above, the reduction in real rents increases over time as inflation takes a larger bite. Our "uncontrolled" or modified regime assumes rents rise with inflation.

7.23 Figure 7.3 shows that the present value of real rents collected from this unit over 10 years under the decontrolled regime is about 2,765 Rs., compared to 8,832 under controls.

7.24 **Taxation.** If taxes on rental income are collected from landlords, rent control reduces these taxes as it reduces rent. This partially offsets the reduction in rent to landlords but also decreases government revenue.95/

7.25 Table 7.3 shows that the present value of taxes rises from 829 Rs. to about 2,650. From the landlord's point of view the tax increase partially offsets the rents collected.26/ But it also represents a badly needed increase in government revenue. Of the increase in taxes, under the current assumptions, slightly more than one-fourth goes to the local authority as property tax assessments rise, and three fourths to the central government as increases in rental income tax collections.

7.26 **Maintenance.** Landlords have the option to increase or decrease maintenance. While good data are lacking, we assume in these first simulations that maintenance on a controlled unit is a minimal 1 percent of structure cost.97/ When controls are removed landlords double maintenance. These are reasonable guesses, but better data on landlord maintenance and its responsiveness to changes in rents are high on any list of future research.

7.27 Figure 7.3 reflects the assumption that landlords roughly double (a still low amount) on maintenance if controls are removed. But if the unit is not

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95/ If the household spends the extra cash on goods or services that are taxed, the reduction in government revenue will be partially offset. We assume this effect is small.

96/ Of course this assumes that taxes are fully collected. Undercollection is trivial to analyze, if desired.

97/ Good data on maintenance are lacking. In developed countries maintenance and other recurrent expenditures are much higher -- on the order of 8 percent of structure values -- but more services are provided with the units. On the other hand, swish units require regular structural maintenance. The figures in these models represent best guesses.
maintained it depreciates faster. This will reduce the final value of the unit and hence the capital gain.

7.28 Capital Gains. Capital gains (and losses) stem from several sources. First, structures and land can appreciate more or less than general inflation. We have already noted that the simulation presented here assumes both structure prices move with inflation and land prices rise by 5 percent per year in real terms. Second, the land and the structure may originally (at period 0) be worth more or less than the value of resources put into it. We've assumed that the land for this example was valued at market prices, and that the original value of the structure and the land (in the baseline case) is worth its financial cost to the landlord-developer. We can also use this model to study cases where land has been allocated by the Bangalore Metropolitan Development Authority (BMDA) when the land is worth considerably more. Third, the real value of structural capital declines as the unit depreciates. As we've seen, depreciation depends on maintenance, and in this version we've assumed a simple one-for-one offset.

7.29 Fourth, if the rent control regime changes, increases in rents can be fully or partially capitalized into value. This is worth discussing in some detail because it is the key to measuring the economic effects of tenure security provisions.

Tenure Security and Value

7.30 The value of an asset at any particular time is simply the expected present value of all future uses of the asset. When we talk about the future value of an asset (for example, its salvage value in 10 years and any associated capital gain or loss), we are implicitly talking about our current expectation of the present value at that time of the rest of the asset's useful life. Suppose that at the end of the notional 10 year holding period landlords can convert their unit to its "highest and best use," in other words, the use that maximizes the present value of its worth in the current market. In an uncontrolled market the "highest and best use" could be owner-occupied housing or a shop or, indeed, it could still be worth more as a rental unit than as any of these alternatives. The salvage value of such a housing unit is simply the present value at that time in its highest use. In a rent-controlled market, because controls reduce rents, it is unlikely that the present value of future controlled rents would exceed other possible uses (such as owner occupation). Therefore the actual salvage value depends greatly on whether the unit in actuality must remain a controlled rental unit or whether the unit can be converted to some other economic use.

7.31 We can use a simple version of this in the present value model to study the effects of tenure security on landlord profitability. If landlords are permitted to convert to highest and best use, the salvage value is calculated as an estimate of the market price of the unit, in other words, our best estimate of the price at which the unit would change hands between willing buyers and

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98/ It only matters that landlords could convert their units. It is not necessary to assume that the landlord actually sells the unit.
sellers if there were no "reasonable" restriction on its use.\textsuperscript{99} If landlords are not permitted to convert by tenure security regulations, the salvage value is the present value of expected future controlled rents, which could be considerably lower.\textsuperscript{100} Again, note that in terms of future value it doesn't matter whether or not they do convert but only that they could.

\textbf{Effects of Rent Control on Landlord Profitability}

7.32 Figure 7.4 presents the overall net present value of the controlled and uncontrolled investments laid out in Table 7.1. We have assumed a real discount rate of 8 percent. Figure 7.5 presents the corresponding internal rate of return or discount rate at which the present value of the unit is zero (the landlord-investor breaks even).

7.33 At a real discount rate of 6 percent, the present value of the controlled unit is about -10,000 Rs. If the unit was uncontrolled, the present value would still be negative, but the "loss" would be smaller: about -2,500. We can interpret these numbers as follows. If investors could receive a real return of 6 percent on an asset with similar risks, they would prefer such an investment over rental housing in either case. But clearly they would lose less in the absence of controls.

\textsuperscript{99} That is, permitting households to convert to owner occupied houses or shops-cum-houses.

\textsuperscript{100} For these particular simulations we've assumed full capitalization of the difference between the average net income streams for the two regimes. We've also assumed that changes in controls were completely unanticipated at the time of initial investment. These assumptions could be compared to alternatives in future work.
7.34 Figure 7.3 (above) breaks the present value down into its major components. From the landlord's point of view, the present value of a decade's rents are reduced from 8,800 Rs. to 2,800; this loss is partly offset by reductions in maintenance (from 1,300 to 700) and taxes (from 2,600 to 800). The final value of the unit is reduced from about 7,500 to 2,300 because we assume that the tenant has security of tenure, and so the final notional salvage value is the present value of the continuing stream of controlled rents. The reduction in value from tenure security is almost as large as the direct reduction in rents.

7.35 How high a rate of return, adjusted for risk, could housing compete with? The internal rate of return for this controlled unit is estimated at -10 percent. In other words, landlords under controls lose about 10 percent per year, "on average." Without controls, such rental housing units could compete for capital with investments yielding real returns of up to 3 or 4 percent. Controls reduce the rate of profit by about 14 percent overall.

7.36 It is worth reemphasizing that this is only one "representative investment." Actual units built (or analyzed for potential development) will vary greatly in their actual returns. But this example highlights how controls can turn a profitable investment unprofitable. Like any other investment activity, if you want someone to build housing, you have to let them make money at it.

Effects on Government

7.37 We saw in the preceding chapter that fair rents lowered property tax receipts and also divorced them from commonly accepted measures of ability to pay taxes. Figure 7.5 shows that the losses to central government from income tax foregone are even higher, and both pale in comparison to net losses to landlords.

Alternative Investment Opportunities

7.38 If housing ceases to provide competitive returns, other forms of investment are available. In recent years anecdotal evidence suggests returns to stock market and financial investments have risen, and it is possible that this is linked to lower rates of housing investment than would otherwise prevail. Long term bank interest rates have hovered at around 10 percent per annum, yielding variable real returns but averaging about 3 percent in recent years.
Affordability

7.39 The model has a simple demand side that enables us to study the affordability of each rent regime. Given an income distribution (midpoints of income quintiles) and average and marginal propensities to consume housing (the median income household's average willingness to pay for such a unit and the income elasticity), the model generates willingness to pay for the entire income distribution and compares it to rents under each regime. Figure 7.7 presents this graphically for the first year. The diagonal line represents willingness to pay by income, given the income distribution and demand parameters from Table 7.3. The five dots on the line represent the income midpoints of the five quintiles. Note that controlled rents (the bottom horizontal line) are affordable to households just below the 1974 median income, while higher uncontrolled rents are affordable to the top quintile, according to our demand assumptions.

7.40 Recall that this is only one representative unit, representing a house well above average quality for the period (two-thirds above, roughly). The term representative unit does not mean that all units will deliver the same package of housing services or will rent for this amount. Some units will be produced that will rent for more, some for less. Some households will devote larger fractions of their income to housing than we assume, some less.

7.41 Since rents change over time, and since incomes can also rise and fall (given an assumption about the growth or decline of real wages, see Table 7.3101/) the model also generates the time path of affordability (Figure 7.8). The five unmarked horizontal lines represent willingness to pay in each of five income quintiles over time (10 years). These lines are rising because of the assumption noted above that real wages rise by 2 percent per year. The heavy marked line represents the income at which real uncontrolled rents are "affordable" over the same period given the particular demand assumptions made. This amount is fixed because (in this simulation) real rents are constant over

101/ We assume that changes in real wages shift the initial income distribution up or down proportionally.
time. So, in this simple case, since real rents remain constant, while real wages increase, the affordability picture improves somewhat over time.

**Consumers' Valuation of the Benefits**

7.42 We have discussed this in some detail in the preceding chapter. For convenience, we have built a simple consumer's surplus valuation into this spreadsheet model as well. Given the demand assumptions, we use the simple log formula (in other words, assuming a unitary price elasticity) to carry out the cost-benefit calculations for a household at an income we choose (in other words, the "target income" is another input to the model). Generally we use the median sample income.

7.43 Figure 7.9 presents the simple consumer surplus calculation for representative consumers once again in the graphic format that the model outputs it. In the previous chapter's notation, market rent is $P_mQ_m$, actual rent is $P_mQ_c$, and the "normal" household rent is $P_mQ_m$. The financial subsidy (cost to the landlord) is just the difference between the controlled and uncontrolled rents for the unit, and the consumers surplus is a measure of how much the tenant values the subsidy. It is, of course, less than the subsidy. The deadweight loss is the difference.

**Profitability and Affordability for a Smaller Existing Unit Circa 1974**

7.44 The preceding results were for typical strictly controlled units, which are not typical of the total rental stock. Let us analyze a typical unit from the "ordinary" controlled sector. Assume that controlled rents are 60 Rs/mo., frozen, and that uncontrolled rents would be 65, constant in real terms. Assume a capital cost of 9,000 Rs.; and this time, let us contrast security of tenure with converting the unit to "highest and best use" at the end of the 10 year period. Figures 7.10 and 7.11 present the key internal rates of return and affordability results for these units.

7.45 These assumptions yield higher profits to landlords, as measured by the internal rate of return. Note also, however, that the unit is affordable to the middle of the income distribution, according to our demand assumptions. Further analysis of units based on (for example) first quartiles of sample rents and values reinforces the notion that if rents for existing units rise to our estimates of market levels, decontrol will not make existing units "unaffordable." How they might reach such a long run equilibrium is important, however, and is discussed below.

**Profitability and Affordability Today: Some Initial Conjectures**

7.46 These "simulations" have so far been based on the preceding chapter, in other words, on data from the mid 1970s. Now let us turn to more recent experience. We do not have any recent survey data, so we will use the rough estimates from the end of the last Chapter to approximate what we think today's data would look like.
7.47 We estimated (Figure 6.10, preceding chapter) that typical controlled rents would hardly change, that today units that were in the "ordinary" controlled sector in the mid 1970s would be about 160 Rs. per month if rents had risen more or less in line with general prices, and that units in the strictly controlled sector would rent for about 260 Rs. if (again) they had risen more or less in line with prices. Typical households would demand units at about 250-300 Rs.

7.48 While comprehensive survey data are lacking, anecdotal evidence suggests that when rental units do come on the market, they rent for considerably more than this. Better quality rooms and parts of houses rent for 300 to 800 Rs. per month. A middle class flat of 1,000 square feet rents for 2,000 to 3,000 Rs. in today's market. The alternative—a slum unit—might cost on the order of 50 Rs. per month, plus a 3,000 key money payment to the slumlord.

7.49 How does this compare with today's income in Bangalore? Again, up to date survey data are unavailable. But according to national income accounts data, nominal income per capita has risen a factor of about 3.3 (prices today are about 2.5 mid 1970s prices, and real GDP per capita is about 1.35 the level in 1975). So the median household income in Bangalore is probably something on the order of 1,600 to 2,000 Rs. per month, and 4,000 Rs. per month would place a household in the top quintile of the income distribution.

7.50 While we would be the first to emphasize that anecdotal data on prices tells us little about their distribution, these numbers are consistent with a rapid runup in rents and prices for a limited number of units currently formally produced in a very unfavorable regulatory regime. Many new households are squeezed out, into slums or further doubling up. There appears to be an "omitted middle" of the market—choices for households not previously housed are either very high rents or slums.

7.51 Once again improving this situation requires concerted action on the regulatory front—and not just on rent control, but on land markets, tenure security, and finance as well. Let us explore how a new middle class unit might look from the point of view of investor and tenant today.

7.52 Consider a modest 500 square foot unit (perhaps half of a larger unit). At recent prices, such a unit might cost on the order of 200,000 Rs., of which about half would be land. If the land were provided by the Bangalore Municipal Development Authority its financial cost might be one-fifth to one-third of the market price (depending inter alia on the income of the land purchaser). Rents for such a unit might be 800 to 1000 Rs. per month.
Even assuming substantial growth in incomes since the mid 1970s, such rents are not "affordable" to even the upper middle class given our prior knowledge about the structure of demand (where typical rent-to-income ratios have been on the order of 10 percent in Indian markets). But recall that these numbers are measures of central tendency, and that some households will in fact pay more. The fact that we observe such rents also suggests that households may be devoting larger fractions of their income to housing than prior experience suggests; at least if they are recent movers and in the formal housing market. Even at 20 percent of income, such units would only be "affordable" to (roughly) households in the top quintile of the income distribution. New survey research is urgently needed to examine these issues.
7.54 Table 7.1 presents rates of return for several scenarios for such a unit, depending on whether land is purchased at market prices or from BMDA; on whether the unit is rent controlled or not; and on whether tenure security is enforced or not.

<table>
<thead>
<tr>
<th>Land Price</th>
<th>Rent Control</th>
<th>Tenure Security</th>
<th>Real Rate of Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidized</td>
<td>Yes</td>
<td>Yes</td>
<td>-1.5%</td>
</tr>
<tr>
<td>Market</td>
<td>Yes</td>
<td>Yes</td>
<td>-7.1%</td>
</tr>
<tr>
<td>Market</td>
<td>Yes</td>
<td>No</td>
<td>3.0%</td>
</tr>
<tr>
<td>Market</td>
<td>No</td>
<td>No</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

7.55 Once again, these numbers are illustrative; actual returns to real investments will vary. The key points from the table are as follows. First, even deep land subsidies do not make such an investment profitable in the presence of rent control and tenure security regulation. Second, in the absence of such a subsidy and with controls and tenure security, this investment is a real losing proposition. Third, with deregulation, such an investment yields a positive return even at market prices. Fourth, it's the tenure security provision that has the strongest effect on rate of return.

7.56 Of course at current market prices of land and structure and current rents units like this are beyond the reach of many households. But our point is that by designing an appropriate regulatory framework and adopting other elements of an "enabling" strategy for housing, costs and prices can be brought down (which is not the same thing as being controlled).

7.57 Markets always produce "affordable" housing for the poor, in the sense that, everyone will live somewhere. The market does so now, in Bangalore as in everywhere else. Our concern is that in the current market this housing is overcrowded, with inadequate services, and deteriorating faster than need be. Rent control contributes to this problem. The previous chapter demonstrated that

102/ 100,000 Rs. and 20,000 Rs., respectively.

103/ That is, if rents are held fixed after initial agreement between landlord and tenant. We are ignoring the possibility of strategic rent setting behavior, in other words, that initial rents are set higher if controlled. This could be studied as well.

104/ In extreme cases -- in developed countries as well as developing -- shelter can be as minimal as cardboard over a piece of pavement.
in Bangalore rent control reduces rents by a modest amount, and that controls and other problems in the market reduce housing consumption as much or more than it increases their welfare by reducing rents.121/

7.58 Rent control is not the only problem in rental or housing markets generally. Other problems—in land, infrastructure, finance, materials—adversely affect the market and drive costs up. They drive costs up higher for the poor than for others, as we will discuss next.

C. Effects of Other Regulations

7.59 Rental housing suffers from the same problems as the market overall—problems in the key input markets of land, finance, infrastructure and materials and problems in the regulatory framework. Many such problems, when addressed, are not tenure specific but will aid rental as well as owner occupied housing—for example, changes in the Urban Land Ceiling Act, and improvements in land titling, or in improvements in infrastructure provision. But other problems affect rental disproportionately. Building codes and land use regulations that discourage compound houses particularly affect rental housing. Rent controls and other rental regulations obviously discriminate against this form of housing supply. Less obviously, solutions to market wide problems—such as land and finance—need to be designed with both rental and owner occupied housing in mind.

7.60 Relaxation of rent control is necessary but not sufficient for expanding the supply of rental housing. Relaxation/decontrol must be accompanied by measures to ensure a rapid supply response to the demand for rental housing, or else rapidly rising rents could squeeze existing tenants and jeopardize decontrol. Political consensus is, after all, required for successful change.

7.61 Of the major constraints on private rental housing, many—land, finance, infrastructure, materials, building codes and standards—were discussed briefly in Chapter 2. While detailed discussion of each is beyond the scope of this report, the following points should be noted. Rental markets suffer from the same constraints as housing markets generally, but there are also some that affect rental particularly (in addition to the obvious problem of rent controls). Among other collateral actions, it will be necessary to review regulations

105/ Again, over time the initial households receive larger benefits from reduced rent, partially offset by disequilibrium in consumption; newly formed households paying current high rents will not benefit. And again, the smaller number of households whose rents are set by the rent controller do receive net benefits from controls.
affecting the supply of urban land, including the Urban Land Ceiling and Registration Act, to pay particular attention to building codes, land use standards, and other regulations that discriminate against low cost housing.106/

7.62 Rental should not be discriminated against in regulatory rental in provision of serviced land. Do not require owner occupancy for access to land in any program designed to improve land availability (including sites and services). Finance for rental housing also needs to be considered. Ensure that rules for lending don’t discriminate (intentionally or unintentionally) against rental housing.

7.63 These and other actions need to be taken as complements to any decontrol program. Let us now turn to analysis of several alternatives for decontrol.

E. Analysis of Decontrol Policy Options

7.64 There are a number of options that could be considered for removing or relaxing controls. Arnott (1981) presents a clear taxonomy. The main options, with a few comments, are as follows:

(a) Blanket lifting: all rent controls are completely removed as of a certain date. This is the simplest method but is very difficult politically and may lead to short run dislocations.

(b) Decontrol new construction: an obvious option that is being undertaken in India, Brazil, and a number of other markets. But new construction can still be inhibited unless government credibly guarantees units will not come under controls later.

(c) Rents could also be immediately decontrolled for units that meet certain standards, either now or after upgrading (for units that provide acceptable water supply and sanitation). Standards would have to be carefully chosen, however, to meet requirements without imposing unnecessary costs.

(d) Floating up and out: controls are gradually relaxed, for example, rent rises are some multiple of CPI or wage index changes until controls are no longer binding on most units. Then controls can be abolished. This method can permit a smoother adjustment if potential landlords view the gradual program as credible.

106/ The kinds of models presented in this chapter can be extended to study the effects of other regulations, taxes, and subsidies on the housing delivery system; see Malpezzi (1989, and forthcoming) for examples from Malaysia.
(e) Vacancy decontrol: Units are decontrolled as they become vacant. This method has been tried in some North American markets but may keep mobility down, with possible adverse effects on housing and labor markets.

(f) Vacancy rate decontrol: particular markets are decontrolled as the vacancy rate rises above some threshold. But while controls (and other problems) remain, vacancy rates will probably remain extremely low. How can vacancy rates increase while controls remain?

(g) Rent level decontrol: decontrol by market segment. Rents could be decontrolled from the top down or the bottom up. The current system, with very low rent units exempted from the provisions of the Act, embodies this to a limited extent. But such a system can provide perverse incentives to raise rents above long run equilibrium levels in order to escape controls or can lead to higher increases for the lowest income units than would obtain in broader decontrol.

(h) Contracting out: landlord and tenant negotiate a payment to the tenant in return for his giving up the right to controls.

(i) Decontrol new construction: an obvious option that is already partly undertaken in India, as well as in Brazil and a number of other markets. But new construction can still be inhibited unless government credibly guarantees units will not come under controls later. Currently new units eventually do come under controls in India.

Of course these options are not all mutually exclusive. In many respects floating up and out has some a priori appeal because the market may take time to respond, particularly given the current problems in input markets, etc. Blanket lifting carries the danger of a sharp short run rise in rents that would be reduced over time. The present value model from above can be used to study scenarios derived from the above.

Do Nothing

7.65 This is the baseline case already described. Rents are frozen in nominal terms. Even if there are occasional revaluations, inflation would quickly erode its value. Households would continue to consume fewer housing services than they would consume in a well functioning market, even given their low incomes.

Blanket Decontrol

7.66 Conceptually this is the simplest decontrol option. This second option was studied above, under the assumption that rents for both "typical" strictly controlled and ordinary controlled units quickly adjusted to the comparative
static estimate of market rents from the cross country model of the previous chapter. High quality units typical of the strictly controlled segment would therefore be "affordable" (given the demand assumptions) to the top income quintile. Market rents for other typical units (PmQc) would be lower because these are more representative of the existing quality distribution in urban India (and more affordable). But we noted that other market imperfections could constrain the supply response. Let us then examine a "worst case" where rents for new rooms rise much higher initially due to inelastic supply.

7.67 In this option we are concerned more with the changes in rents for existing units than for new units. If a household is given a choice between remaining in an existing unit and moving to a new unit, however expensive, they cannot be made worse off because they have the option to remain. But they can be made worse off if rents rise for their current unit.

7.68 Blanket decontrol, where all controls are lifted at one time, is simplest administratively. While the data from 1974 show that most ordinary controlled housing had rents not too far removed from market price, over time this has presumably changed. Some rents in Bangalore have probably fallen so far behind market values that rises could result in major dislocations. Arnott (1981) indicates that the greater excess demand there is in a market, the greater will be the disruption caused by blanket decontrol. Disruption under this alternative could be large, especially if other housing market imperfections initially impede the supply response.

7.69 There is always a built in check on this process. Rents have to be paid by someone, so units' rent can only rise as high as the market will bear. Our crude estimates from the last chapter indicated that while market rents for typical rental units in existence in the mid 1970s would have risen from about 65 Rs. to around 160 Rs., willingness to pay would have risen to around 300 or more, depending on growth in real income. Yet it must be recognized that a system that has ossified the market for decades, mismatching households to units, and impeding supply, decontrol does imply short run costs that are not less real for being temporary.

7.70 During any period of change, some households will inevitably incur higher rents and moving costs. While rents increasing from less than 10 percent of income may not seem extraordinary to an outside observer, especially when low income households typically spend large fractions of their income for housing elsewhere, the change from the current situation is substantial. One way to cushion the blow and ensure political sustainability of decontrol is to replace controls with better targeted housing subsidies for the poor. This is the approach that was used to relax postwar European controls.

7.71 But large scale subsidy schemes are probably not administratively or budgetarily feasible in India at this time. Are there any other alternatives that do not make such demands on the budget and on government's administrative capacity? Several decontrol alternatives should be considered in this light.
Decontrol New Construction and Upgraded Units

7.72 Completely freeing rents for newly constructed units for all time can only increase supply. As noted, if a household is given a choice between remaining in an existing unit and moving to an expensive new unit, they can not be made worse off because they have the option to remain.

7.73 Permanent exemption of new construction from rent controls is most attractive to the authors in the short term on the grounds that it encourages new construction. Similar exemption could be applied to improvement of existing housing, to encourage improvements in conditions without adversely affecting many existing low-income tenancies. It must be recognized that revaluing the upgraded units may be very complex to administer. However, given that there is quite a sophisticated rent control administration in place in Bangalore, this may be worth considering.

7.74 In addition to removal of controls on newly constructed units, revaluation or decontrol of units that have undergone upgrading could also increase supply. In India as in other countries, most housing services are produced from the existing stock; preserving and upgrading this stock is a critical but oft-neglected part of any housing strategy. It would be important to choose the threshold at which decontrol occurs carefully; for example, requiring (say) flush toilets would simply make the regulation irrelevant for much of the population.

Decontrol for New Tenants

7.75 This option has been considered in a number of developed and developing markets, including Los Angeles. Cities like Cairo, with functioning key market systems, have systems that function de facto in a similar way, since key money can usually be collected from new tenants but not from old. But these systems result in several perverse incentives. Landlords have incentives to undermaintain units or even harass tenants in order to reclaim the unit and increase their rental income. Tenants have incentives to avoid moving to units more in line with their current needs because they would give up existing rent discounts. Such systems have the potential to reduce mobility and decrease the efficiency of use of the existing stock.

7.76 Revaluation for new tenancies could be harmful as it would continue the problems caused at present by the demands of advance payments and result in an even less mobile rental sector. As renters in compound houses live in closer proximity to other households than most tenancy groups in other countries, vastly different rents are being paid by neighboring households according to their length of tenancy is likely to be socially unacceptable.

Floating Up and Out

7.77 The most effective method for encouraging new investment while protecting low income renters may involve a combination of indexation of increases with a "floating up and out" of controls. The latter involves the transition from controlled rents to market rents over a period of years. It is
preferable to have an end date when controls are withdrawn completely in order to maintain landlord confidence in the reality of the end of the controls that have cost them so much. Indexation could provide a formula for determining the intermediate rent levels. For example, rents could be increased annually by, say, the Consumer Price Index plus a percentage of the previous year's rent until a set date when the final increase to market levels would be implemented. Any units reaching their market level before this date would, of course, remain there. This phasing would smooth the path of adjustment giving tenants who could not afford their current room at the market rent time to find suitable alternatives.

7.78 Since the ordinary controlled sector is already close to what it might be in the absence of controls (at least for the typical unit), phasing in makes less difference there than in the strictly controlled submarket.

7.79 Consider such a unit typical of the 1974 sample as viewed by the owner today. While the unit might be worth 100,000 Rs. or more in alternative use, given that it rents for Rs. 45 per month and the tenant has virtual complete security, the current opportunity cost to the owner might be more on the order of 10,000 Rs. Suppose the market rent was about 250 Rs. (in other words, market rents had just kept pace with inflation).

7.80 Immediate decontrol and movement to equilibrium at 250 Rs. would increase the rate of return from -6 percent to 28 percent. The large increase is based on the assumption that the current owner views the opportunity cost of holding the unit as low, given controls (in other words, as 10,000). This is equivalent to treating decontrol as completely unanticipated, and does not count for the loss presumed in the past (given that today's opportunity cost is so low).

7.81 If instead we took the market valuation of 100,000 as the opportunity cost, the rates of return are -29 percent and -6 percent respectively. The shift is similar, but the levels are quite different. If security of tenure is removed so that conversion to other uses is permitted, returns rise to positive 1 percent even if today's equity is valued at market prices rather than the present value of controlled rents.

7.82 Again, the focus should not be so much on specific numbers as the qualitative results--the powerful reduction in incentives to even hold existing rental housing--given controls and complete tenure security.
What about affordability? Figure 7.14 presents the 10 year pattern of affordability if the unit moves immediately to the new equilibrium rents, if initially rents overshoot, and if rents are decontrolled gradually (floating up and out). Landlord profitability is roughly the same in all three scenarios as well as affordability.

But a phase-in approach could prove less disruptive in tenants' minds. The latter may seem a strange point, but no system of decontrol is worth attempting that is not politically feasible and sustainable. Decontrol followed by recontrol does not do the market nor any participant any good. Only if relaxation is perceived as fair by a substantial number of both landlords and tenants will it succeed. Only if the government's commitment to the announced schedule is firm will landlords supply more housing.

Other Options

Other systems that differentiate between tenants and or units (such as vacancy rate decontrol) are unlikely to be workable in Bangalore. Data requirements and administrative capacity are simply too high. Any decontrol measures suggested should be simple to administer and as fair to all parties as possible.

The contracting out option, where landlords are permitted to pay tenants a compensatory sum in order to either change their lease or to let the room to someone else is most relevant in cities where the scale of rent is closely tied to date of occupation. Thus, in a city where newer tenancies are uncontrolled, landlords can negotiate to buy out their existing tenants. Existing rents in Bangalore are unaffected, in law, by the date of occupation; thus, contracting out is unlikely to be a useful mode of decontrol.

Decontrol by market segment could be useful for the self-contained units especially as many of them are employer housing in which the tenant would be cushioned from rent increases at least in the short term. Furthermore, this sub-market has been excluded from controls on previous occasions. However, rents in self-contained premises are currently heavily affected by those of shared accommodation and would have to rise very considerably to represent market values. If further segments of the market were required to spread control
gradually to the whole stock, division of the remainder would be very complex. Thus, what is intended to be a gradual process, may need to be implemented in only two stages.

F. Summary

7.88 This chapter showed that while housing quality in Bangalore is quite low, at least the number of rooms seems to have kept pace with population growth in recent years. Everyone lives somewhere, but often in overcrowded, unsanitary conditions.

7.89 Simple present value models were used to explore alternative methods of relaxing controls. If rents rose to the levels suggested by the results of the previous chapter, landlords could obtain positive real returns and households would still pay reasonable fractions of their income for rents. However, it cannot be denied that many households would be shocked to see their rent burdens double for existing units.

7.90 Yet the present system is clearly not working. Government can choose between:

(a) Low rents accompanied by continuing overcrowding, unsanitary conditions and reduced labor mobility, which will probably worsen as adjustment provides other investment opportunities to landlords and

(b) Increases in rents, which are not popular with tenants, but that can mitigate the problems above if combined with action on other impediments to the supply of housing.

7.91 Alternatives for decontrol exist. While there is certainly room for discussion of other alternatives, results presented above suggest decontrolling new construction, indexing rents for existing units to general prices, and letting real rents for existing units rise gradually have some appeal.

7.92 Once again, it cannot be overemphasized that whatever option is chosen, actions must be taken to ensure elasticity of housing supply so that increases in rents are accompanied by an increase in production. This requires that rent control is seen as one part of a housing strategy that also aims to release resources on the supply side--land, infrastructure, materials, and finance--so that supply and demand can reach equilibrium through increases in both the scale and the variety of the housing stock rather than through greatly increased prices.
VIII. POLICY IMPLICATIONS

A. **Answers to the Key Questions**

8.1 The introductory chapter set out a list of questions that needed to be answered. We hope that careful readers found the blend of theory, past research, and new empirical work above illuminated some of these questions. Here we give some brief answers.

1. **What are controls like in urban India? What variation exists in laws, enforcement, and effects among the various states and among cities? What related regulations exist?**

8.2 Details of rent controls, their enforcement, and related regulations are largely in the purview of the states. A number of states have adopted exemptions for new construction for a period of 5 or 10 years (Andra Pradesh, Goa, Haryana, Karnataka, Madyha Pradesh, Orissa, Tamil Nadu and Uttar Pradesh), and there is some variation in how fair rents are set and other details of regulation. Perhaps the most important regulation related directly to rental housing is tenure security. Other important regulations include the Urban Land (Ceiling and Registration) Act and the Town Planning Act. Initial empirical analysis of statewise differences in rent control provisions could not uncover any correlation between housing market outcomes and the limited statewise variation in Indian rental regulations.

8.3 An important feature of controls that is underappreciated is that Bangalore (and other large cities) have different classes of controls depending inter alia on characteristics of the unit and the household. In Bangalore, units that are newly constructed or below a ceiling are "uncontrolled." Units that have been allotted by the rent controller to government servants or other priority households, or which have otherwise had "fair rents" formally set, are "strictly controlled." Other rental units are "ordinary controlled."

2. **What are the static costs and benefits of controls from the point of view of tenants and landlords? How do changes in rents and housing consumption affect the welfare of typical individuals?**

8.4 These costs and benefits differ significantly between "strictly controlled" and "ordinary controlled" units.

8.5 Normalizing the market price per unit of housing services at one, we estimate that the typical "ordinary controlled" household would consume 133 units of housing services in the absence of controls and other market imperfections. In fact we observe households consuming 65 units but spending only 60 (in other words, the price per unit of housing services is 60/65 = .92 of the market price). Depending on assumptions about the price elasticity of demand curve we use, we estimate they would like to consume around 150 units of housing services at controlled prices. But they are constrained by a shortage of appropriate units at the lower price, and they end up consuming less, in other words, 65 units for 60. They benefit from the lower rent (a 5 Rs. per month subsidy from landlords in 1974), but they also lose from consuming less housing than they
would consume in the absence of controls. According to our estimates, the loss is greater than the gain from lower rent, and the tenant is worse off than he or she would be in equilibrium at market prices. The loss is greater the lower the price elasticity in absolute value.

8.6 Strictly controlled renters are in a quite different situation according to the "representative" calculations. For the typical strictly controlled household, we estimate that 97 units of housing services would be demanded in the absence of controls and other market imperfections. The typical household actually consumes 107 units, actually a little more than demand at market prices, but spends only 45 (in other words, the price per unit of housing services is about .42 of the market price). Strictly controlled households are (compared to "ordinary" controlled) receiving a bigger transfer from a lower price and are closer to their demand curve. These favored households are better off under controls because they receive a bigger transfer and they also value the transfer at close to its cost to landlords.

8.7 The bottom line is that rent control reduces the rents households pay, but for the typical "ordinary" controlled household the benefit of this rent reduction is small and is more than offset by the welfare loss from underconsumption of housing. Households under "strict" controls benefit substantially at the expense of landlords. However, gains and losses to "average" households can mask large differences in the outcomes to individual tenants in either group.

3. What are the distributional implications of controls?

8.8 There are three distributional considerations: (i) How do controlled renters compare to uncontrolled households? (ii) Within the group of controlled renters, who gets the largest benefits? (iii) How do renters compare as a class to landlords?

8.9 Ordinary controlled renters are higher income than uncontrolled renters, and strictly controlled renters are lower income. But there is a great deal of overlap in their distributions. Controlled renters are more or less like other renters and like the general population; they are not, as a class, greatly more or less disadvantaged. Rent control is not an efficient redistributive device on this account.

8.10 There is no discernible relationship between income and benefits within the controlled samples. We disaggregated by strict versus loose controls and estimated simple multivariate models with the same result: within the sample of controlled households, benefits are largely unrelated to income, household size, or length of tenure.

8.11 Finally, landlords have higher incomes than tenants who are not landlords, on average median incomes for the landlord groups are some 70 percent higher than non-landlord tenants. But also note the following:
(a) Almost one quarter of the landlords have incomes below the median (non-landlord) renter income; almost one quarter of the non-landlord renters have incomes greater than the median landlord income.

(b) More than 10 percent of renters (110 out of 1,045) are also landlords; and as a class, they are as rich as homeowning landlords.

(c) Most landlords hold relatively few units; the ratio of occupied rental units to number of landlords is about 4.

8.12 Thus it does not appear that rent control does very much redistribution of income from rich to poor, and almost certainly does some redistribution in the wrong direction. Of course, richer tenants own more units. Income distribution figures were roughly weighted by income from property for comparison. About half of landlords own one or two units; examining the distribution of rental income and using the rough rule of thumb of 50 Rs. per unit suggest that around two thirds own three or fewer. Less than 3 percent of landlords receive more than 1,000 Rs. per month from their property. When the data are so weighted, the income disparities between landlords and tenants who do not own other property are accentuated, but there is still overlap and the fact that renters who themselves own property are actually the richer class remains unaltered.

4. What are the dynamic costs? Are there measurable losses to tenants from reduced mobility and to landlords from inability to convert units to their highest and best use? What are the losses to society from foregone investment and inefficient use of the existing stock?

8.13 Unfortunately, little data on supply and its components are available over time. Hardly any information is disaggregated by sector or tenure. Analysis of the growth in households, permits, and completions from the time of the household survey to the 1980s showed that in the mid 1970s there were roughly four new households for every new housing permit; at the end of the decade, the ratio had deteriorated to about five.

8.14 Taking a longer view with census data presented a different picture. While population grew by about 3.3 percent per annum during the 1960s and 6 percent per annum during the 1970s, the number of census houses grew by 6.8 percent and 6.3 percent in each of the two decades. The ratio of persons per census house declined from 8.4 in 1960 to 6.3 in 1980. But, in comparing growth rates in the two decades, it does appear that population growth has picked up while growth of census houses has tailed off.

8.15 Starts and completions data only count formally registered dwellings and thus undercount actual changes in supply. Census house data include data for shops and certain structures that may be only partly used as dwellings or not currently used as dwellings at all. None of these data sources tell us much about the intensity with which the stock is used. The data are not disaggregated
by tenure. And little insight is given into the supply of rental and other housing from the existing stock, which in any given year is the vast majority of supply.

8.16 Rent control creates an incentive for landlords to allow existing properties to deteriorate. Many renters live in housing that, structurally, has been allowed to fall into disrepair. Strictly controlled rents are often insufficient to cover maintenance costs. The hedonic models show that, while these units would rent for more than the controlled price in the open market, their price is still low and sometimes less than what tenants would be willing to pay for a better unit. Good data are lacking on maintenance behavior in Indian cities. However, anecdotal evidence indicates that at least some renters spend their own resources on maintaining and improving their rooms, probably encouraged by their perceived security of tenure.

5. What are the effects of controls on government revenue, including property and income taxes?

8.17 Demand in the strictly controlled sector is related to household size, length of tenure, and education but is unrelated to income, the direct measure of ability to pay taxes, and to fair rent (the basis of taxes). In effect, we cannot reject the hypothesis that there is no systematic relationship between fair rents and income, and the point estimate is perverse: richer households would pay lower taxes. If the standard of comparison is income, taxation based on fair rents is essentially random.

8.18 Median fair rents are about 42 percent of median estimated market rents. If Bangalore's market had been in equilibrium at our estimate of long run market prices, (i) property tax collections would have been about 2.4 times their actual collection, assuming no change in mill rates or improvements in collection procedures, and (ii) the incidence of the tax would be more equitable, if we adopt the standard that ability to pay is related to characteristics of the unit and/or income of the household.

6. What are the effects of rent control on the profitability of rental housing? What are the implications for housing supply?

8.19 Several "representative cases" were studied, and a model built that will permit additional simulations in future work; but for one central case the internal rate of return for a controlled unit was estimated at -10 percent. In other words, landlords under controls lose about 10 percent per year, "on average." Without controls, such rental housing units could compete for capital with investments yielding real returns of up to 3 or 4 percent. Controls reduce the rate of profit by about 14 percent overall. Perhaps surprisingly, tenure security depressed returns as much or more than controls themselves.

8.20 Rates of return based on the 1974 prices and current rates of return are qualitatively similar. Other analysis showed that even deep land subsidies
don't make such an investment profitable in the presence of rent control and tenure security regulation.

7. How, on balance, do landlords and tenants adjust to controls?

8.21 There are at least seven alternative adjustment mechanisms that can equilibrate a notionally controlled market. Markets must adjust in some fashion in a long run, given alternative opportunities for landlords and a housing stock of limited durability. Four of the adjustments can be embodied in rent control laws: (i) indexing (keeping real rents constant), (ii) reassessment for new tenants, (iii) differential pricing of new and existing units, and (iv) differential pricing for upgraded units. Three are market responses that policymakers would generally consider undesirable outcomes, namely (v) outright evasion (vi) side payments such as key money and (vii) adoption by tenants of maintenance expenditures, and (viii) accelerated depreciation and abandonment, (ix) distortions in consumption, not only in the composite housing services but also crowding, length of stay, mobility, and tenure choice.

8.22 Of the first four adjustment mechanisms, only differential pricing for new and existing units is very significant in India, and it is the states that have some exemption; all except Uttar Pradesh limit it to 5 or 10 years. Only limited data exist on the next three. Anecdotal evidence suggests that outright evasion in the sense of ignoring the existence of the acts is not widespread, at least among the educated classes who know how to "work the system." Key money or pugree appears to becoming more widespread, at least in the larger cities, again based on anecdotal evidence. In Bangalore, the practice of landlords collecting an advance amount equal to ten months' rent is becoming very common. Several housing market analysts have pointed to rent controls as a cause of declining maintenance in India; while we cannot yet specify how much maintenance would increase if controls were removed, analysis of how controls affect incentives for maintenance make the qualitative link clear. This paper does present detailed evidence on how controls and associated regulations distort consumption decisions, as discussed above.

8. Many alternatives for change present themselves. What can we infer about the effects of different changes on profitability and supply? On affordability, and on the distribution of income and welfare? What other constraints must be addressed for the housing market to respond to changes with increased output rather than increased prices?

8.23 Alternatives for reform exist. Blanket lifting, permanent decontrol of new construction, decontrolling units that meet certain standards, either now or after upgrading, vacancy decontrol, vacancy rate decontrol, rent level or market segment decontrol, contracting out, and floating up and out are among the options discussed. While there is certainly room for discussion of other alternatives, results presented above suggest decontrolling new construction, indexing rents for existing units to general prices, and letting real rents for existing units rise gradually have some appeal.
8.24 The most effective method for encouraging new investment while protecting low income renters may involve a combination of indexation of increases with a "floating up and out" of controls. The latter involves the transition from controlled rents to market rents over a period of years. It is preferable to have an end date when controls are withdrawn completely in order to maintain landlord confidence in the reality of the end of the controls that have cost them so much. Indexation could provide a formula for determining the intermediate rent levels. For example, rents could be increased annually by, say, the Consumer Price Index plus a percentage of the previous year's rent until a set date when the final increase to market levels would be implemented. Any units reaching their market level before this date would, of course, remain there. This phasing would smooth the path of adjustment, giving tenants who could not afford their current room at the market rent time to find suitable alternatives.

8.25 Since the ordinary controlled sector is already close to what it might be in the absence of controls, (at least for the typical unit), phasing in makes less difference there than in the strictly controlled submarket.

8.26 Once again, it cannot be overemphasized that whatever option is chosen, actions must be taken to ensure elasticity of housing supply so that increases in rents are accompanied by an increase in production. This requires that rent control is seen as one part of a housing strategy which also aims to release resources on the supply side—such as land, infrastructure, materials, and finance—so that supply and demand can reach equilibrium through increases in both the scale and the variety of the housing stock rather than through greatly increased prices.

8.27 Rental housing suffers from the same problems as the market overall—problems in the key input markets of land, finance, infrastructure and materials and problems in the regulatory framework. Many such problems, when addressed, are not tenure specific but will aid rental as well as owner occupied housing—for example, changes in the Urban Land Ceiling Act, and improvements in land titling, or in infrastructure provision. But other problems affect rental disproportionately. Building codes and land use regulations that discourage compound houses particularly affect rental housing. Rent controls and other rental regulation obviously discriminate against this form of housing supply. Less obviously, solutions to marketwide problems—such as land and finance—need to be designed with both rental and owner occupied housing in mind. Relaxation/reform must be accompanied by measures to ensure a rapid supply response to the demand for rental housing, or else rapidly rising rents could squeeze existing tenants and jeopardize reform. Political consensus is, after all, required for successful change.

8.28 Of the major constraints on private rental housing, many—land, finance, infrastructure, materials, building codes, and standards—were discussed briefly in Chapter 2. While detailed discussion of each is beyond the scope of this report, the following points should be noted. Rental markets suffer from the same constraints as housing markets generally, but there are also some affect rental particularly (in addition to the obvious problem of rent controls). Among other collateral actions, it will be necessary to review regulations affecting
the supply of urban land, including the Urban Land Ceiling and Registration Act, to pay particular attention to building codes, land use standards, and other regulations that discriminate against low cost housing.  

8.29 Rental should not be discriminated against in regulatory rental in provision of serviced land. Do not require owner occupancy for access to land in any program designed to improve land availability (including sites and services). Finance for rental housing also needs to be considered. Ensure that rules for lending don’t discriminate (intentionally or unintentionally) against rental housing. These and other actions need to be taken as complements to any reform program.

9. The comparative static cost benefit analysis carried out above used data from 1974. Can we make some conjectures about what the cost-benefit results might look like today, at least qualitatively?

8.30 Rent controls that are not indexed to inflation (as Bangalore’s is not indexed) become more binding over time. Consider an "ordinary controlled" household that in 1974 had the typical values of income, $P_{CQc}$, $P_{mQc}$, and $P_{mQm}$ for its category. Starting from a typical rent of about Rs. 60, such a unit would rent for about 160 Rs., had rents increased in line with general price changes. Had rental demand increased with changes in prices (abstracting for the moment from real income growth), demand for those typical "ordinary" controlled households would be about 320 Rs. So over time, with controlled rents largely fixed, the subsidy to these units has been increasing. This suggests that any period's static estimate is an underestimate of the stock value of controls to a sitting tenant. The annual subsidy rises over time from 31 to about 89, and presumably it is still rising.

8.31 For strictly controlled units, typical estimated market rents would rise from about 45 Rs. to about 260 Rs. Households would demand about 210 Rs. Again subsidies would approximate benefits.

8.32 These results are not surprising but illustrate straightforwardly how controls become "more binding" over time, exacting higher costs of landlords, and conferring larger benefits on tenants. Note that for the "ordinary" controlled tenant, eventually the benefit of the subsidy outweighs the cost of disequilibrium in consumption, and in both cases costs and benefits increase monotonically with time.

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107/ The kinds of models presented in this chapter can be extended to study the effects of other regulations, taxes, and subsidies on the housing delivery system; see Malpezzi (1989 and forthcoming) for examples from Malaysia.
10. What additional work is required to analyze controls?

8.33 First, despite our attempts to update as much of the data as possible (given budget and time constraints), this paper is primarily of one city at one time. If readers find the analysis contained herein worthwhile, consider how much better we could do with new survey data especially designed for the purpose.\textsuperscript{108} In addition to more up-to-date static cost-benefit analysis, there could be much more work on the dynamics of supply in general. More detailed analysis of other constraints on land and housing markets and comparisons to rental regulation could be carried out.\textsuperscript{109} Models that predict the time path of rents, rather than merely explore the qualitative implications of assumed time paths, would be difficult to calibrate precisely but could be constructed.\textsuperscript{110}

B. Current Proposals for Reform

8.34 At the time of this writing, reform of rent regulation and of housing markets generally is a topic of intense interest in India. Here we discuss some of the proposals for reform in light of the findings of this paper, especially material from the previous chapter.

Immediate Decontrol

8.35 Immediate decontrol is usually recommended for those markets that have little excess housing demand. As noted in Chapter 7, in a estimation of high excess demand blanket lifting of rent control will lead to a sudden and steep increase in rents causing great hardships to tenants. This may have serious social and political repercussions.

Gradual Relaxation

8.36 In a housing market with high excess demand, rent control provisions need to be released in a phased manner. A strategy that allows for a gradual relaxation which makes controls minimal over a period of time is the most desirable. Such a strategy should include, as a first step, reducing the scope of rent control and restricting it to protect only those sections of society that really need to be protected. To achieve this, the following reforms should be considered.


\textsuperscript{109} See Bertaud, Bertaud and Wright (1988) and Malpezzi (1988, forthcoming).

\textsuperscript{110} DeLeeuw and Ekanem (1973) present a simple model; Rydell \textit{et al.} (1981) a more complex one.
Exempting New Construction

8.37 In the case of new construction for rental housing, commonly suggested reforms are: (i) to allow a rent control holiday for a limited initial period, (ii) to decontrol dwelling units above a particular level of rent/floor space, and (iii) to exempt all new construction forever. The merit of the first reform is that it allows landlords to receive market rent for their units for the first few years and this is seen as an incentive for new construction of rental housing. However, after the rent holiday period the unit comes under the preview of rent control and faces all the problems associated with the control.

8.38 The second reform of decontrolling housing units above a particular rent/floor space level is based on the justification that rent control is meant to protect the poor and lower middle class tenants. The main drawbacks of this reform are: (i) it is difficult to implement, (ii) it may lead to further deterioration in the supply of housing units below the cut-off level, and (iii) if a fixed rent level is selected as cut-off point than in an inflationary environment, it would also mean including successively lower quality units under rent control.

8.39 In view of the problems associated with limited exemption to new units, it is desirable that all new construction is exempted forever from rent control. However, as noted several times, this reform must be supported by other policy measures that ensure an adequate supply response. Land supply, finance, and other regulatory reforms would require reform.

Existing Units

8.40 Gradual relaxation of control on existing units commonly suggested reforms for this segment of rental housing are: (i) to decontrol units as and when they become vacant to give rights to tenants to purchase the premises at some reasonable price and (ii) to provide a mechanisms for updating the historical frozen rents and their subsequent periodic revision.

8.41 Vacancy decontrol strategy in which housing units are exempted from the provisions of the Rent Act, as and where they become vacant, is considered as a straightforward method of gradual decontrol of existing controlled units. Under this scheme no tenant, enjoying the benefits of control, experiences rapid rise in rent on his current unit. However, it would discourage tenants from leaving controlled units. And, even if they have to move out due to other reasons, they would try to circumvent decontrol by subletting the unit.

8.42 The scheme of providing tenants rights to purchase the premises from landlord at some reasonable cost is based on the argument that in a situation where the landlord has no hope of getting back his unit from the sitting tenant he would be better off by selling the unit to landlords. This puts the landlord and tenant in a bilateral bargaining situation in which the landlord is, obviously, not in a bargaining position.

8.43 The strategy in which controlled rents are updated to compensate landlords for the erosion of income suffered because of frozen rents, and then,
revised periodically to neutralize the effect of inflation, is probably the most appropriate strategy to bring the rents of controlled units up to a realistic level.

Recent Specific Proposals

8.44 The government of Karnataka has been considering the question of amending the Karnataka Rent Control Act of 1961 "to ensure its more effective and purposeful implementation." The government appointed a committee to go into the various issues related to the act and to suggest amendments to the act. The report of the committee was then examined by the government and accepted with some modifications. With the intention to implement the recommendations of the committee with suitable modifications, a bill has been prepared by the government. The bill is yet to be discussed in the State Legislature. Only after it is passed by the state legislature will the amendments be incorporated in the Rent Control Act.

8.45 The Karnataka Rent Control Amendment Bill (1986) proposes to bring about the following major changes in the Rent Act (Government of Karnataka, 1986).

(a) The act is to be made permanent to avoid frequent statutory extensions of the act.

(b) New construction is to be exempted from the provisions of fair rent and intimation of vacancy for a period of seven years as against the present five years.

(c) Residential buildings fetching rents above 5,000 Rs. per month and non-residential buildings fetching rents above 2,000 Rs. per month are to be exempted from the operation of the Act.

(d) A statutory duty is cast on the tenant to report vacancy of the premises at the time of vacating the premises.

(e) The provision requiring intimation of vacancy will not be applicable to residential buildings of monthly rent not exceeding 100 Rs. and nonresidential buildings of monthly rent not exceeding 200 Rs. per month as against the existing limits of 15 Rs. and 25 Rs. respectively.

(f) Rate of return on investment for the computation of fair rent to be increased from 6 percent to 8 percent in the case of residential buildings and 10 percent in the case of non-residential buildings.

(g) Provisions are incorporated for immediate and automatic escalation and then periodic escalation of the fair rent according to certain scale subject to maximum limits, in the case of those existing tenancies the fair rents of which have already
been fixed. The scale is related to the year of construction of the building. For example, for a building constructed before January 1, 1961, the scale suggested is 5 percent to 25 percent and for a building constructed after January 1, 1982, the scale is 15 percent to 75 percent.

(h) The tenant of a premises is to be given the fixed option to purchase it at a reasonable price, if the landlord intends to sell the premises. If there is any dispute about the reasonable price it is to be determined by the rent controller and shall not be less than fifty times and not more than one hundred and fifty times the aggregate of the fair rent and permissible increases.

(i) One time provision is to be incorporated in the act to regularize unauthorized occupation of premises.

8.46 Besides the above major proposed amendments, the bill also seeks to incorporate/revise certain other provisions in the act relating to punishments for various offenses, exemption to government buildings, relief against eviction, appeals against order passed by rent controller, paying guests/lodgers, etc.

8.47 Although some of the reforms proposed in the Karnataka Rent Control Amendment Bill are aimed toward rationalizing certain main provisions of the Act and improving its implementation, the total package of reforms is not likely to be of much help in improving the housing situation.

8.48 The principal objectives of rent control reforms should be:

(a) To attract investment in new rental housing,

(b) To promote better repairs and maintenance of housing stock,

(c) To improve the tax base of local authorities by allowing realistic valuation of properties,

(d) To ensure continued protection to tenants against indiscriminate eviction,

(e) To ensure fair rate of return to landlords on their investment in the building,

(f) To avoid unnecessary harassment to landlords and tenants in the implementation of the act, and

(g) To eliminate/minimize the possibilities of mal-practices in the implementation of the act.

8.49 To achieve the above objectives the Rent Control Act should be modified as suggested in the beginning of this section. Provisions that are impractical
to implement, such as reporting of vacancy, allotment by rent controller, fixation of fair rent based on a prescribed rate of return on investment should be deleted from the legislation. Such provisions are obviously a source of corruption and malpractices. The fixation of fair rent often becomes a matter of dispute between the landlord and the Rent Control Administration. Therefore, it is desirable that some other simplified measure of fair rent, such as the first agreed rent of the premises, should be evolved.

C. A Final Summing Up

8.50 Clear policy analysis of rent control has been hindered by the lack of empirical estimates of the impacts of controls and can be greatly improved by (i) additional estimates of gains and losses from different types of regimes in different markets and (ii) consistent accounting of the gains and losses to different agents (landlords, tenants, government, deadweight losses) from different sources (changes in prices and the quantity of housing services and changes in tax revenue).

8.51 Research on Bangalore has shown that (i) the rent control regime extracts a welfare cost from tenants as well as landlords because their housing consumption and mobility are constrained; (ii) that the strictly controlled subsector for which fair rents have been set is in many respects quite different from the "ordinary" controlled sector; (iii) that these aggregated results mask large welfare gains and losses to individual tenants; (iv) that while landlords are richer than tenants, there is much overlap in their income distributions; (v) that property taxes based on fair rents are largely unrelated to income or other commonly accepted measures of ability to pay; and (vi) that controls depress returns to rental investment.

8.52 The empirical part of this study is a good guide to the costs and benefits of rent control in the mid 1970s. What can it tell us about 1990? A large number of renters in place in 1974 are still in place; nominal market rents would have risen; controlled rents remained fixed, so real rents fell. On the other hand, their units have deteriorated since then, mitigating the increase in benefits. Evidence from the small survey suggests that renters who have moved in recently have paid large amounts of key money, so it is not clear that they have benefitted on balance.

8.53 Another contribution of the paper is to discuss the set of alternative reforms to controls more completely. While current data are not sufficient to calibrate a model that can predict the time path of rents under different changes in control regimes, a very simple dynamic analysis carried out with the present value model suggested how to think about some of these changes.

8.54 Finally, we hope the shortcomings of the paper motivate researchers and policy analysts to take on more such empirical work. Improving the coverage and bifurcation of aggregate data can improve analysis of supply side issues, and carrying out and analyzing new household surveys can have large payoffs in understanding Indian housing markets.
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