SHELTER STRATEGIES FOR THE URBAN POOR IN DEVELOPING COUNTRIES

Stephen K. Mayo
Stephen Malpezzi
David J. Gross

Cities in developing countries are growing at rates that are extremely fast by historical standards: from 2 to 10 percent a year. At such rates, by the year 2000, more than 2 billion people will be living in cities and towns in developing countries, three times the number in 1970. The United Nations projects that twenty of the world's twenty-five largest cities in 2000 will be in developing countries (United Nations 1984). The people in these cities are poor. In 1980, over 200 million city dwellers in developing countries were estimated to be living below an absolute poverty threshold; by 2000, this number is expected to double (World Bank 1980, p. 30).[1]

Coping with rapid urban growth and widespread poverty strains the resources and imagination of even the most accomplished governments. Yet governments often hinder their ability to deal with such problems because they misunderstand how the urban economy works and thus do not employ the right policies and programs. This is especially true of housing. Even the most casual empiricism can confirm that housing policies in many developing countries are inefficient and inequitable.

This article examines ways to improve strategic planning and project design in housing in developing countries. It starts by discussing some common perceptions of housing problems and the common, yet

This paper was prepared for the annual meetings of the American Real Estate and Urban Economics Association, New York, New York, 1985. The authors are grateful for helpful comments on an earlier draft of this paper which were received from Alain Bertaud, Jim Follain, and Bertrand Renaud.

often facile, solutions. The article reviews recent evidence on how housing markets in developing countries actually work and evaluates current public policies in urban land and housing markets. The final section suggests ways in which policy could be improved.

Common Problems, Common Solutions

Many housing problems can be stated simply, and their solutions may therefore appear simple; unfortunately, facile solutions often compound the problems.

Problem: There is a perceived shortage of housing.

Common solution: Government should build housing. This is usually the wrong solution. Housing shortages, when they exist, are the results of fast growth in demand and of impediments to the supply of housing. Governments do not, in general, respond to demand faster or more efficiently than private markets. But they can do much to mitigate or remove market imperfections.

Problem: The quality of housing is poor.

Common solution: Raise standards through stricter building codes and better enforcement. This, too, is often the wrong solution. Standards, where they are enforced, usually have little to do with basic structural soundness or hygiene. Even those standards that are related to safety and hygiene are relevant only if they are attainable by the bulk of the population. Most standards, derived from Western codes, are not. Standards and codes should focus on basic requirements for safety and health. Further improvements will come as development proceeds and incomes rise, provided regulations do not actually prevent upgrading.

Problem: There are too many squatters. Many poor people live on public or private land, contravening land use controls and similar laws.

Common solution: Clear the squatter areas. For many reasons this can be the wrong solution. When people are moved off land, they go somewhere else. Slum housing represents a large part of the poor's capital stock; destroying capital is not a good prescription for development. And informal housing is sometimes of surprisingly high quality. Policies can be adopted that improve conditions more cheaply and for more people than clearance programs, even when such programs include new public construction.

Problem: The price of housing is too high for many families.

Common solution: Control rents and the price of land and building materials. This is usually the wrong solution. When housing prices rise faster than prices in general, that is a signal to the market to produce more housing relative to other goods and services. Such price increases are transitory unless the market is prevented from adjusting because of shortages of inputs, excessive government regulation, and

similar restrictions. It is far better to deal directly with the causes of rising costs, rather than try to shift the burden of adjustment to landlords, who will then reduce the quantity of housing and land for rent, thereby exacerbating the very problem controls were supposed to solve.

How Housing Markets Work in Developing Countries

In developing countries, those who make housing policy are often planners by training. Planners tend to see housing in terms of "housing needs," defined as minimum acceptable physical standards of housing and infrastructure. "Needs assessments," based on such standards, are used to establish the basic requirements of a country's housing strategy—amount, quality, location, and cost.[2] In practice, such assessments are often inadequate guides to policy, because they do not include a realistic assessment of the resources available, nor consider people's ability and willingness to pay for housing.[3]

An alternative to planning on the basis of housing needs is to consider the effective demand for housing—essentially a needs assessment backed up by an analysis of people's willingness and ability to pay. In contrast to normative definitions of housing needs, the definition of effective demand is positively based on the behavior of individuals, as shown by surveys of how much they actually spend on housing and other goods and services. These are related to measurable influences on spending, such as income and family size, the price of housing compared with other goods and services, and the state of the housing market (including, for example, the general level of economic development, inflationary expectations, and the existence of government policies such as rent control, which might influence spending on housing). Policies derived in this way have an inherently greater chance of success than do those based on rather arbitrary normative standards.

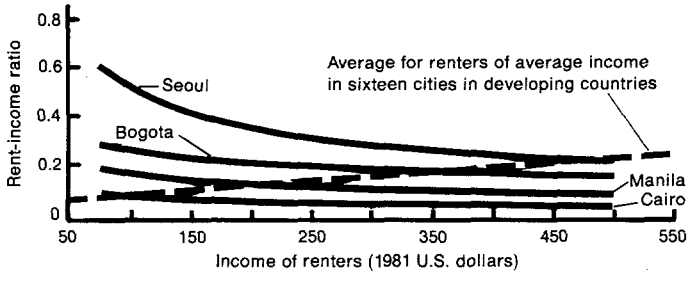
Less than a decade ago, there was only a handful of empirical analyses of housing demand in developing countries, and even fewer that tried to compare patterns of behavior across countries. As recently as 1977, for example, Burns and Grebler called their seminal cross-country study of housing consumption "a first effort to chart new territory" (p. 47). Since that time the pace of research has grown. Studies by Follain, Lim, and Renaud (1980), Ingram (1984), and Jimenez and Keare (1984) are notable for the care with which they were conducted and the conclusions they reached. Together with Burns and Grebler's work, these studies suggested certain patterns of housing demand which might be used to develop general explanations of housing demand and then to devise appropriate policies.

Two main speculative conclusions emerged from these studies, each of which has large implications for the design of housing projects and

policies. First, as Jimenez and Keare noted, the sensitivity of spending on housing to household income (the income elasticity of demand) appeared to be quite similar in several developing countries; within a given housing market, as income increases, housing expenditures generally increase less than proportionately—that is, the income elasticity of demand is less than one. As indicated by Burns and Grebler, however, when gross national product (GNP) per capita rises, the average fraction of income spent on housing also seems to rise: across cities, in other words, demand is income elastic. Were such observations to be confirmed in other cross-country studies, they would suggest that (a) there is no single rule of thumb for the fraction of income that can be earmarked for housing, and (b) despite this, regularities exist that can be used in devising housing strategies.

To increase the empirical analysis of housing demand in developing countries, a major comparative study was initiated in 1981 at the World Bank. It collected high-quality data for sixteen cities in eight countries (Colombia, Egypt, El Salvador, Ghana, India, Jamaica, Korea, and the Philippines) and used them to estimate housing demand relationships on a comparable basis. For comparative purposes identical econometric models were estimated for two U.S. cities. The results of this study are discussed extensively in Malpezzi and Mayo (1985, 1986a, and 1986b); some of the main findings are summarized in Figure 1. It shows the estimated relationship between the rent-income ratio and monthly household income in four developing-country cities (Bogota, Cairo, Manila, and Seoul). In each city, as household income increases, the observed ratio of rent to income declines—confirming that income elasticities of housing demand within cities consistently tend to be less than one. In fact, they clustered within a range of 0.4 to 0.6, indicating that spending on housing rises only 40 to 60 percent as fast as income. Results for the other twelve cities in the analysis present a similar picture, and are generally similar for owners and renters.[4]

Figure 1



When one compares results across cities, however, they show an entirely different picture of housing demand. Specifically, as the general level of development rises (as measured by average household income), the average fraction of income spent on housing also increases. This is shown by the upward shift in the curves relating the rent-income ratio to income (with average incomes in Seoul, for example, being higher than those in Cairo). While there is some evi-

dence that the upward sloping relationship eventually turns down at higher levels of development (see Malpezzi and Mayo 1985, p. 58 ff.), the relationship is a good approximation among countries with incomes of less than $2,000 per person, which are the focus of most international assistance.

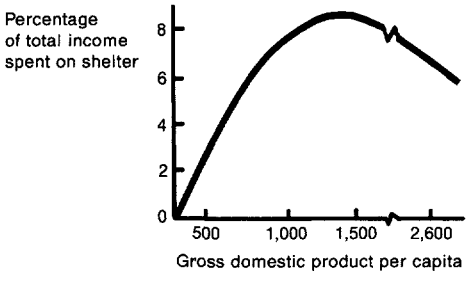
The two overall tendencies shown here are indicative of medium-run (within city) and long-run (across city) demand relationships. In the medium run, housing is treated as a necessity, so poor households are willing to spend a bigger fraction of their income on housing than are richer households. As economic development proceeds, however, the share of household budgets allocated to housing increases among households at all income levels.

The Supply of Housing Services

If in the long run the supply of housing is elastic in developing countries, the pattern of housing investment will mirror the long-run demand. Overall levels of housing investment relative to GNP are strongly related to the pattern of demand portrayed in Figure 1. Thus knowledge of underlying demand is also the key to understanding supply and can add some realism to countries' policy analysis and investment planning.

When countries plan their investment in housing, they often do so in terms of target fractions of GNP. Indeed, since Burns and Grebler's work, planners in many countries have set investment targets on the basis of that study's observed relationship between GNP per capita and the ratio of housing investment to GNP. This relationship (see Figure 2) indicates that the share of housing investment in GNP first rises with GNP per capita but then falls as countries pass about $1,600 per capita in 1970 dollars (or about $3,400 in 1981 dollars, the benchmark units used in Figure 1.)[5] To put this in perspective, upper-middle-income countries such as Argentina, Uruguay, South Africa, and Yugoslavia were approaching this estimated turning point in 1981; Venezuela, Greece, Israel, and Hong Kong had recently passed it.

Figure 2



Source: Burns and Grebler 1977.

It is important to note the microeconomic foundations of the Burns and Grebler finding in order to bolster its value as a planning tool. Its microeconomic basis treats housing investment as a derived demand—the result of a mismatch between effective demand and available supply. Three sources of housing demand stimulate housing investment: demand for housing by new households; replacement demand (for housing removed from the stock); and demand for better housing by existing households. Each source depends on prevailing housing

standards in a country and hence—since standards (implied by ratios of housing expenditure to income) are systematically related to the level of development—on a country's per capita income.

The simplest measure of housing investment is the average value of a new housing unit multiplied by the number of units built. Recent research (Annez and Wheaton 1984) has shown that the number of new units built in a country (relative to population) is largely insensitive to a country's income level, but varies proportionately with the rate of population increase. Housing value, in contrast, is very sensitive to a country's level of development; indeed, it follows directly from the sorts of demand relationships shown in Figure 1. The value of housing is simply equal to the capitalized value of rent; thus the relationship between value and income will follow from the relationship between rent and income. Just as the average ratio of rent to income rises with economic development, so too will the ratio of housing investment to GNP.[6] Planners who base their housing investment targets on the Burns and Grebler approach can be confident that the relationship is rooted in strong microeconomic patterns among countries.

Another implication of the Burns and Grebler relationship is that it represents as much a constraint on effective government intervention in housing as it does an opportunity. The powerful regularity between housing investment and GNP reflects pervasive behavioral differences among households in different markets. It cannot be easily transcended by governments that want to use housing investment to serve other goals, such as stimulating economic growth.

A shortcoming of the analysis so far is that statistics on housing investment are not broken down between new construction and spending on existing buidings. Most countries lack data on net investment in the existing stock, even though it is probably the great bulk of spending on housing. As a result, policymakers tend to neglect the largest part of the market. Little research has been done on the role of the existing stock. For example, to evaluate the impact of current housing strategies on the poor, it is important to know whether new construction for the middle-income market increases the supply of housing for the poor through filtering. The few studies that have been done suggest that filtering does *not* have much effect on low-income groups in developing countries (Ferchiou 1981).

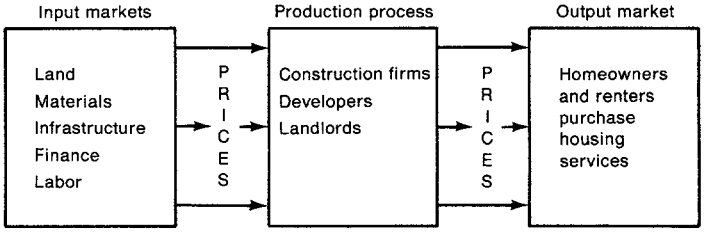
How Governments View Housing Markets

Figure 3 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, and the input suppliers about providing more or fewer inputs.

It is not a bad approximation to treat the market for housing services 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, except insofar as they also control inputs that are not competitive.

Figure 3



The market for many inputs is not competitive, however: (a) their ownership may be so concentrated that owners can fix prices, as in some land markets; (b) large economies of scale may make the production of some inputs a natural monopoly, as with some types of infrastructure; and (c) government regulations may restrict the competitive allocation of inputs, notably finance.

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—only distort the signals being sent to the market and may exacerbate the original problem.

Public Sector Interventions

Among the main ways that governments intervene in housing markets are direct measures to increase the number of houses (such as conventional public housing, sites and services, and squatter upgrading); actions to affect the supply of housing finance, land, infrastructure, materials, and other inputs; and regulations such as rent controls and building codes and standards. This section discusses these approaches in developing countries and suggests some of the problems and opportunities in their application.

Public Housing, Sites and Services, and Upgrading

Until the early 1970s housing policies in developing countries often followed the model of many industrial nations: relying on heavily

subsidized blocks of public housing with high standards of construction and infrastructure; zoning and building standards that discouraged housing with lower standards; and, in many cases, destruction of slum areas and squatter settlements in the name of either "law and order" or "urban renewal."

By and large, those policies did not work. Public housing did not reach most of the rapidly growing urban populations, because the programs were too expensive. Despite large subsidies, however, public housing often went unoccupied for long periods—a result of poor location, inadequate infrastructure, or rents that, even with subsidies, were higher than people could afford. At the same time, zoning and building standards were widely flouted, and squatter settlements proliferated. Informal, illegal, or unregistered housing became the main source of new housing in many cities (see Grimes 1976). Such is the vitality of this informal housing that in many cities the number of new houses has outstripped population increases in recent years (see Mayo and others 1982).

By the late 1960s and early 1970s many governments started to build on the success of informal housing. They introduced sites and services projects and slum upgrading, encouraged by the World Bank and other international organizations. These projects tried to set design standards on the basis of what people (particularly poor people) could and would pay, rather than on some arbitrary and inflated notion of "housing need." The new approach involved two important principles: "affordability" and full recovery of costs. This latter point was seen as necessary to ensure that projects could be replicated on a large scale, as the modest initial surpluses were used to finance new schemes. Governments also tried to encourage self-help, in building houses and community facilities and also in producing cheap building materials.[7]

These principles sometimes forced project planners to use rules of thumb for standards of affordability and design. It was common, for example, to assume that low- to moderate-income households could spend 20 to 25 percent of their incomes on housing and related services (see Mayo and Gross 1985, p. 37). Nearly three-quarters of World Bank sites and services projects financed between 1972 and 1984 were planned on that assumption. It was used regardless of a country's income level and of the incomes of the target population within a country.

A major point of this paper is that, despite the general validity of the sites and services concept, such rules of thumb are inconsistent with what people actually spend on housing and can have consequences that frustrate some of the most fundamental goals of low-cost housing projects. In particular, the intended beneficiaries may be excluded, or subsidies needed on such a scale that projects are not fully

replicable. If planners are to meet the housing needs of the poor, they must pay more attention to identifying the effective demand for housing and then planning in a way consistent with that demand. To some extent this is now happening, as the World Bank and other agencies' lending gradually shifts in relative terms from sites and services projects toward slum upgrading. As noted by Ayres (1983):

> Partly because some of the earlier sites and services projects proved too costly for the urban poor, partly because the number of beneficiaries in sites and services projects tended to be small, partly because it fit better with the Bank's emphasis on realism and lower standards, there was a tendency in later urban projects to include more components for slum renovation (p. 158).

Housing Finance

As 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 invest. Savings in housing finance institutions, while generally used to provide mortgages, can become a large part of a country's total savings, available for financing infrastructure and other nonhousing projects. The housing finance system can also help to ensure that housing projects are repeated, as repaid loans provide money for new mortgages.

Despite these potential benefits, few developing countries have widespread and successful systems of housing finance. Development planners often seem to treat housing more as a consumption good than an investment and fail to recognize either its potential for encouraging savings or the macroeconomic links between it and other sectors of the economy. It is also clear that the development of housing finance institutions is strongly related to the general sophistication of a country's financial system, which in turn is closely related to overall economic development (Renaud 1984). In addition, recent economic circumstances in many developing countries—rapid inflation, shifting terms of trade, and slow growth—have not been conducive to the development of housing finance institutions. Many have also had inappropriate lending and borrowing policies (often under the direction of governments) and have thus been seriously weakened within the past decade.

The viability of housing finance institutions has often been jeopardized by governments which, in wanting to make housing more "affordable," have sought to keep down interest rates. Particularly during the 1970s, when inflation was rapid in most developing countries, many housing finance institutions lent at negative real rates of interest, which often led to considerable decapitalization by the early

1980s. A recent survey of World Bank housing projects initiated between 1973 and 1983 found that more than 60 percent involved mortgage lending at rates of interest below the prevailing rate of inflation (and even then, lending rates were higher than they had been before the World Bank projects).

The inevitable consequence of keeping mortgage rates below market rates is that loans are rationed. Usually, the rationing benefits those who are perceived to have the lowest risk of default—often, wealthier people or those favored by government policy such as civil servants, many of whom are also relatively well off. Subsidies to better-off households are not only unfair; they are also an inefficient way of achieving whatever housing goals they are believed to serve. Lump-sum subsidies—in the form of writing down the cost of land or materials—could achieve the same production goals with far less distortions in resource allocation and far less harm to the viability of housing finance institutions.

Institutional viability is not the only issue facing mortgage agencies in developing countries. They must also consider their menu of mortgage instruments; how to change the mix of mortgage instruments, terms, and conditions as economic circumstances change; and how to evaluate the impact of alternative instruments on profitability, demand for credit, repayment, or default. Other issues include the role of contractual savings schemes; who should get housing finance—lower- versus higher-income groups, construction versus long-term financing, first-time owners versus others, upgrading and renovation versus new construction; and the place of housing finance in the development of the financial system as a whole. These and other issues have seldom been considered in such a way as to yield prescriptions for rationalizing and developing viable housing finance institutions.

Land Markets and Tenure Security

An estimated 20 to 40 percent of all urban households in developing countries are living on land to which neither they nor their landlords have legal title. In many cities the figure is much higher. Squatter settlements are the most conspicuous sign of how land markets work in developing countries, but they do not define what is wrong with those markets.

The market for land in developing countries is often highly unorganized. Information about who owns what is poor; squatter settlements increase uncertainty about property rights; the legal and administrative systems for establishing, recording, and transferring title are inadequate. These failures have serious ramifications, many of which disproportionately affect the poor. Property transactions are slow or

stalled; incentives for new construction and upgrading are depressed; lenders are unwilling to extend credit to property holders without clear title; and property taxation is impeded, often with the result that infrastructure investments can neither be made nor maintained because costs are not recovered.

When cities in developing countries began to grow rapidly—and with them their slums, bustees, and bidonvilles—land policy often had a simplicity that was generally misguided: if squatter settlements are growing, evict the squatters. Such policies have rarely been effective. Usually they displaced rather than eradicated settlements, they were politically and economically costly, and, more fundamentally, they failed to deal with the root causes of squatting—low squatter incomes and insecure tenure.

Given the ineffectual and costly nature of squatter removal, governments have increasingly taken a more direct approach to dealing with squatter settlements and to improving the efficiency of urban land markets. They have tried to upgrade rather than remove squatter settlements and slums. Upgrading schemes have generally involved physical improvement of slum areas and increasing security of tenure by mapping, by cadastral registration, and by government's selling land to squatters (often at subsidized prices). The impact of such efforts has often been dramatic, prompting large additional spending by the residents (Keare 1983; Jimenez 1982).

Security of tenure has clearly had a major effect on behavior. It has been observed repeatedly (Jimenez 1984; Friedman, Jimenez, and Mayo 1985) that people are willing to pay a large premium for secure tenure. In the Philippines, for example, studies have shown that housing prices are systematically higher for otherwise similar dwellings with secure tenure. The premium averages 10 to 15 percent for renters and between 25 percent and almost 60 percent for owners (Jimenez 1984; Friedman, Jimenez, and Mayo 1985). Those figures demonstrate the benefits of urban land reform. They also explain why residents spend so much on their houses once their tenure is established: in response to higher land prices, households increase the ratio of capital to land, so as to equalize returns to each factor.

Tenure reform also has potential distributional consequences. The fact that premiums are greater for owners than renters is attributable to the relatively smaller effect of secure tenure on the contemporaneous flow of housing services than on the present value of that flow. By implication, owners tend to benefit more from tenure reform than do renters. Nonetheless, the increased investment incentives for owners appear often to produce more houses to rent. Closer examination indicates that benefits are proportionately greater for poor households, for larger families, and for households living in newer squatter areas, where de facto occupancy rights are small (Jimenez 1984).

Infrastructure

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 (Strassman 1980). Households also benefit indirectly from infrastructure investments, if these are seen as legitimizing previously illegal or informal settlements (discussed in the previous section).

Government policies on the supply and pricing of urban infrastructure are characterized by various conflicting tendencies. For example, governments have taken the view that (a) water and sanitation (and sometimes other types of infrastructure) are merit goods; (b) infrastructure has significant externalities; (c) low-income households may, out of ignorance, seriously underestimate the benefits of improved water and sanitation; and (d) some of these services involve large economies of scale—that is, they are "natural monopolies" or at least require investments too large for the private sector. These views have led to governments' taking the leading role in providing urban infrastructure, but often with underinvestment, and prices that are too low to recover costs. The result has been severe rationing and chronic problems in maintaining and expanding the stock of urban infrastructure. Cities are therefore both less efficient and more inequitable than they could be with alternative policies.

Of the possible alternative policies, cost recovery must be of high priority. In some cases, better information about people's willingness to pay for improved water and sanitation could help. Poor households are widely assumed to be unable or unwilling to pay for improved services; often this is not so. For example, many urban households spend significant amounts of time collecting water from standpipes or wells; in cities with water vendors, people often pay high unit prices for water. Understanding the demand for water, sanitation, and other urban services also helps to indicate the correct type of technology. For example, the choice between a communal standpipe system and individual house connections depends on the demand for water and the value people place on the time spent in water collection.

Rent Controls

One of the most common of governmental controls on housing is rent control. The consensus among economists is that rent controls

reduce the quantity and quality of housing available. This consensus rests on the analysis of a simple price control imposed on a good with elastic supply. However, remarkably little research has been done on the size of these effects; the lags involved; the second-order effects on mobility, property taxes, and the like; or on how tenants and landlords adjust, for example, by paying key money or by accelerating the deterioration of housing.[8]

While the standard analytical model is simple, rent control is in practice a complicated phenomenon. In some cities, rent control has been accompanied by little or no new construction and deterioration of the existing stock (for example, Santa Monica, California; Kumasi, Ghana); in others, new construction has continued (Los Angeles, California; Cairo, Egypt). Research has shown that the net effect depends on the type of law, its enforcement, and market conditions.[9] Rent controls differ in the types of units covered; the extent to which rents can be changed over time or to cover maintenance costs; the treatment of new construction; the stringency of enforcement of the law; the legal provisions for tenant protection and the grounds for eviction; the characteristics of related laws such as land market regulations; and the requirements for maintenance of the property by tenants.

Tenants as well as landlords can lose from rent controls. First, rental housing usually becomes a rationed good. Some tenants will live in houses with bargain rents; others will have to pay *higher* rents than they would in an uncontrolled market (because controls can drive up rents in the uncontrolled part of the market, and not everyone lives in the controlled market). Other households will have to double up. Second, even tenants who manage to get controlled units usually sacrifice their mobility, staying in a house of a different size, quality, and location from what they would choose in an unconstrained market. Recent research on rent control in Cairo estimated that the net welfare cost to tenants in controlled units from this "disequilibrium in housing consumption" largely offsets the benefit of lower rents and that when other welfare losses connected with job mobility and commuting are considered, the costs of rent control to tenants may exceed its benefits.

While rent control is often a pressing issue, its mere existence should not be construed as a case for its removal. In some markets it is overshadowed by other housing problems. The present state of knowledge about the effects of different rent control regimes under varying market conditions, and of the effects of various methods of decontrol, is unsatisfactory. A forthcoming research project at the World Bank will involve a survey of rent controls in developing countries, an estimate of the size of their impact, and a framework for evaluating different types of decontrol.

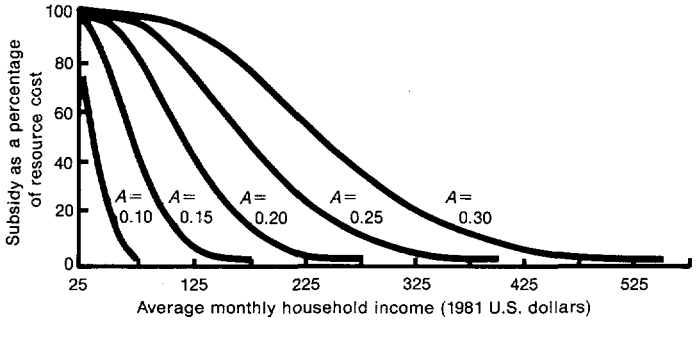
Building Codes and Standards

The potential problems created by choosing inappropriate design standards are illustrated in Figures 4 and 5. Respectively, they show estimates of the minimum subsidy needed to induce moderate-income households (defined as those in the thirty-fifth income percentile) to participate in sites and services projects with specific design standards; and of the income percentile of households that would be most likely to participate in a project in the absence of subsidies.[10] While the arguments in this section apply to the choice of design standards in sites and services projects, they could also apply to the setting of building codes and standards in urban areas.

Each figure has a family of curves showing how subsidies or participant incomes are related to the average incomes in a city (the horizontal axis) and the assumption of design affordability.[11] The latter is represented by *A*, which is the assumed proportion of income that target households will allocate to housing. Each figure is derived from the empirical evidence taken from our demand estimates cited above, so each represents a "best guess" about the actual behavior of people who might be the intended beneficiaries of sites and services projects.

Figure 4 demonstrates the effect that project standards have on the incentive of target groups to participate, and the need to provide subsidies to induce participation when standards are set too high. For example, suppose it were assumed that households in an African country with 1981 household income of roughly $100 per month would be willing to pay for a house designed to cost 20 percent of their income. According to Figure 4, a subsidy of roughly 60 perent of the market value of the house would have to be paid to induce households in the thirty-fifth percentile of the income distribution to participate, even if such households were willing to increase housing expenditures to 20 percent of income from a lower "typical" level. In Burundi, with monthly household income of only about $70 in 1981, a subsidy of over 90 percent would be needed to induce households in the thirty-fifth income percentile to participate if the design standard is based on an affordability assumption of 20 percent of income. Subsidies of this size are, of course, a reflection of the low average propensities to spend income on housing, which were derived from the cross-country expenditure functions described earlier.

Figure 4



In higher-income developing countries by contrast, a 20 percent affordability standard may be entirely appropriate. For example, when average household monthly incomes are above about $175, subsidies of less than 20 percent would be enough to induce target groups to participate. Required subsidies, it should be stressed, are extremely sensitive to the choice of design standards. While the difference between 20 percent and 25 percent of income may not sound much to a project planner, it represents a difference of 25 percent in monthly shelter costs—and thus can easily mean the difference between required subsidies in the 60 to 70 percent range rather than the 20 to 35 percent range. Depending on whether big enough subsidies are forthcoming or not, target income groups may not even participate; or, if they do, they may have strong incentives to sell out to higher income groups.

While Figure 4 portrays the estimated subsidies needed to induce low-income households to take part in projects with different design standards, it is also useful to estimate how the incomes of households that would participate without subsidies would vary in response to varying design standards. To do so, the information on housing demand in Figure 1 can be used to infer the income level that would typically be associated with the spending on housing implied by a given design standard; this is the estimated income of project participants in the absence of any subsidy.

Figure 5

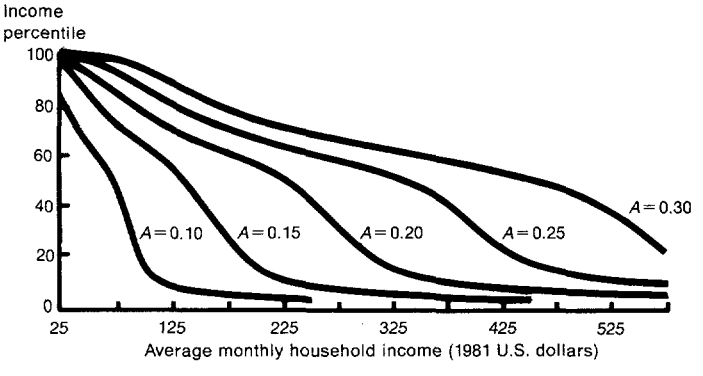


Figure 5 illustrates the effect of alternative design standards of unsubsidized projects on the income of probable participants. Not only does a higher design affordability ratio raise the income level of likely participants, but it does so with dramatic effect at various thresholds. For example, for households in low-income countries (that is, countries in which average household income is less than $100 per month), setting the design standards on the assumption that households are willing to spend 20 percent of their income on housing implies that households in approximately the eightieth percentile of the income distribution could afford to participate without subsidies. Dropping the standard to one based on 15 percent of income has only a modest effect, inducing participation down to the sixty-fifth percentile in the absence of subsidies. By dropping the standard to just 10 percent of income, however, groups all the way down to the fifteenth percentile would be reached. Similar

thresholds exist at each income level, which suggests that dramatic improvements can be made in the ability to reach the poor through sites and services projects by finding the "correct" design standard—the one that reflects the true willingness-to-pay of poor people.

Improving Housing Strategies in Developing Countries

An integrated housing strategy requires a clear statement of objectives, an understanding of local conditions, a sense of how policy and program features are linked to outcomes, and a plan for generating and applying the resources needed to implement the strategy. Even though local political and other conditions will have a strong influence on the content of a strategy in any given place, enough is known about developing-country housing markets to suggest some general strategic guidelines. Two points in particular are worth emphasizing:

- Economic development is the most effective way of improving housing conditions in developing countries.
- To ensure the maximum benefits, governments should promote the efficiency of the housing sector and should avoid policies that cause significant market distortions and produce counterproductive results.

Economic Development

Research suggests that, as development proceeds, housing conditions improve more rapidly than incomes. Housing investment as a share of GNP increases rapidly, as does the fraction of income that people spend on housing. In low-income countries, housing investment relative to GNP is only 2 percent; in middle-income developing countries, the fraction is from 6 to 8 percent. Households in low-income countries spend only 5 to 10 percent of their income on housing; in middle-income developing countries the fraction may be 25 to 30 percent. To a considerable degree, what is good for the economy is better for housing.

While this is an encouraging long-run prescription, it does little to solve immediate housing problems. Nor does it show how the gains from economic development are most effectively channeled into improving housing conditions. These questions require a careful choice of policies and programs by governments.

Government Policies

The governmental activities that deserve emphasis include:

- *The provision of infrastructure with appropriate and affordable*

standards. The benefits of infrastructure investments are considerable: rates of return to investment are high (often higher than in housing alone), household spending on housing is often spurred, and de facto security of tenure is established for many informal households.

- *The recovery of the costs of providing and maintaining infrastructure through efficient systems of taxes and user charges.* Otherwise, enormous social and private economic costs result, as with the private provision of water and electricity in Lagos, for example.
- *The development of systems of land information and a legal and administrative framework that promotes efficiency in land markets.* The costs of developing land are unnecessarily high in most developing countries, largely because of poor land information, backward systems of titling and property rights, and a cumbersome legal and administrative structure.
- *The reform of land tenure systems in order to promote private spending on housing.* Most cities in developing countries are being built by the informal sector, with houses that are often illegal and with insecure tenure. Research shows that even very poor households place significant monetary premiums on security of tenure and that incentives to improve property are often dramatically increased when tenure in illegal or squatter settlements is legalized.
- *The development of financial markets and institutions.* Development or reform of housing finance institutions should be part of the overall process of financial reform and thus of promoting savings, financial intermediation, and the free movement of capital throughout the economy. Housing finance institutions should not be excessively concerned with providing housing subsidies, but should instead be seen as facilitating capital to move into a sector that is growing rapidly as development proceeds.
- *The critical review of housing subsidies, with the goals of increasing their effectiveness, avoiding unintended side effects, minimizing costs to the public and private sectors, and distributing benefits fairly in relation to need.* In most developing countries, subsidy policies suffer from an almost total lack of strategic planning. The scale, distribution, and impact of subsidies are not known.
- *The pursuit of sites and services and slum upgrading projects as solutions for the housing problems of low- to moderate-income households.* The best of such projects provide appropriate and affordable housing and services to low- and moderate-income groups, recover costs and minimize subsidies, target such subsidies as there are to those in greatest need, have high economic rates of return, and improve the ability to replicate projects on a broad scale. Many such projects, however, often fall short of these potential benefits in practice. Research indicates that planning

assumptions are frequently incorrect, which leads to problems as the projects develop.

- *The promotion of private housing, especially rental housing.* The rental sector in most developing-country cities is large and growing, usually comprising at least 50 percent and sometimes as much as 90 percent of the housing stock. The sector is often hampered, however, by favorable treatment for owner-occupied housing.

Of the policies that governments should avoid, these deserve special mention:

- *The creation of unrealistic and costly building codes and zoning regulations.* These increase costs, often without corresponding benefits, and may encourage development of illegal, informal areas.
- *The destruction of squatter settlements.* Slum removal and urban renewal programs that simply displace the slums to other areas may encourage the development of larger and more militant squatter settlements.
- *The displacement of private investment by public activities.* One study in the United States recently found that each 100 new units of publicly subsidized housing caused a drop of almost 85 units in private construction; other studies indicate that public housing actually has a negative economic rate of return (it is worth less than what it cost to build it) (Murray 1983, Mayo and others 1980). Similar displacement effects and inefficiencies undoubtedly exist in many developing countries and are to be avoided at all cost.

These general guidelines are the basis for development and improvement of housing strategies in most developing countries. Detailed formulation of housing strategies must, of course, be informed by data collection, research, planning, and monitoring and evaluation of the program involved.

Abstract

Rapid growth in many developing-country cities is straining the capacity of their shelter delivery systems. Governments have chosen a variety of implicit and explicit policies to ameliorate these strains. However, these policies are not always consistent with their objectives, often because of a lack of knowledge of how housing markets actually work and how policies affect and are constrained by market behavior. This paper reviews recent research on housing market behavior in developing countries, including the demand for housing and the pattern of housing investment across countries, the financing of housing by low-income households, and the willingness to pay for secure tenure. Common housing policies are then examined, including public housing, sites and services projects, and slum clearance versus upgrading. Rent controls, measures to improve the supply of finance and infrastructure, and building codes and standards are also discussed.

Notes

1. World Bank (1980). Without doubt, absolute poverty is difficult to define opera-

tionally and to measure, but for the purposes of this paper orders of magnitude are sufficient.

2. For a review of two recently developed housing needs assessment methodologies see Gray and Richardson (1985).

3. One recently developed approach to housing needs assessment, Rourk, Fay, and Struyk (1984) pays more attention to willingness to pay.

4. Median-income elasticities estimated for renters (0.49) moderately exceeded those for owners (0.46), but average propensities to consume were almost invariably higher among owners than renters in the same city, at similar income levels.

5. At the peak, housing investment is about 8 percent of GNP; at very low GNP levels, the ratio is between 2 and 3 percent.

6. This assumes that population growth rates are relatively constant over the relevant range; if they decline rapidly with development, then the tendency toward the inverted-U type of relationship indicated by Burns and Grebler will be enhanced. This is discussed at greater length in Mayo and Malpezzi (1985).

7. It should be emphasized that while sites and services projects produce housing, and thus constitute interventions in the production process, they constitute a package of interventions in input markets (land, finance, infrastructure, etc.) at the same time. In most such projects it is hoped that reforms in input market features initiated as part of sites and services projects will be extended more broadly.

8. See Malpezzi (1984a, 1984b, 1986). A research project focusing on comparative rent control in developing countries is now being designed at the World Bank.

9. Malpezzi (1984b), and the references cited therein.

10. For an extended discussion of how these are derived see Mayo and Gross (1985).

11. For reference, estimated monthly household incomes in 1981 U.S. dollars in most African countries and countries on the Indian subcontinent were below $100; some of the countries with incomes between $100 and $200 were Botswana, Cameroon, Egypt, El Salvador, Indonesia, the Philippines, and Thailand; countries between $200 and $400 included a number of Latin and Central American countries, Nigeria, and Zambia; and countries above $400 included Caribbean, Latin American, and East Asian countries such as Jamaica, Bahamas, Brazil, Mexico, Panama, and Korea.

The basis for each figure is the estimated demand functions for renters rather than for owners. The main reasons for this are (a) that often it is "homeless" or renter households that represent the designated sites and services project target group; (b) owners' current consumption relative to current income reflects an average greater longevity and hence more chance to have upgraded housing relative to renters; and (c) in some markets, owners' current housing consumption reflects both windfall price appreciation and possibly overconsumption because of high transactions costs of moving. While it is probably the case that renter and owner demand functions may be thought of as bounds for the "true" affordability ratio in sites and services projects or other housing schemes, the costs of overestimating willingness to pay are far higher than the costs of underestimating. In the former case problems may occur such as not reaching the target population (or only being able to reach them with large subsidies) or high rates of arrearage default; in the latter case, "progressive development" of projects from initial design standards to those more closely reflecting effective demand would be expected to occur.

References

Annez, Philippe, and William Wheaton. 1984. "Economic Development and the Housing Sector: A Cross-National Model." *Economic Development and Cultural Change* 32, no. 4 (July): 749–66.

Ayres, Robert L. 1983. *Banking on the Poor.* Cambridge, Mass.: MIT Press.

Burns, Leland S., and Leo Grebler. 1977. *The Housing of Nations: Analysis and Policy in a Comparative Framework*. London: MacMillan.

Ferchiou, Ridha. 1982. "The Indirect Effects of New Housing Construction in Developing Countries." *Urban Studies*, 19: 167–76.

Follain, James, and E. Jimenez. 1986a. "Estimating the Demand from Housing Characteristics: A Survey and Critique." *Regional Science and Urban Economics*, forthcoming.

_____. 1986b. "The Demand for Housing Characteristics in Developing Countries." *Urban Studies*, forthcoming.

Follain, James, Gill-Chin Lim, and Bertrand Renaud. 1980. "The Demand for Housing in Developing Countries: The Case of Korea." *Journal of Urban Economics* 7, no. 3 (May): 315–36.

Friedman, Joseph, E. Jimenez, and S. Mayo. 1985. "The Demand for Secure Tenure in Developing Countries." Washington, D.C.: World Bank, Water Supply and Urban Development Department. Processed.

Gray, Gary, and Eric Richardson. 1985. "Users and Their Needs: A Review of Two Housing Needs Assessment Methodologies." *Third World Planning Review* 7, no. 3 (July): 193–202.

Grimes, Orville F., Jr. 1976. *Housing for Low-Income Urban Families: Economics and Policy in the Developing World*. Washington, D.C.: World Bank.

Gross, David J. 1984. "Designing a Suitable Housing Project: Integration of a Demand Module into a Supply Side Planning Model." Washington, D.C.: World Bank, Water Supply and Urban Development Department. Processed.

Ha, Seong-Kyu, and Stephen Merret. 1984. "Assessing Housing Consumption Requirements: The Case of Seoul." *Third World Planning Review* 6, no. 4 (November): 331–37.

Ingram, Gregory. 1984. *Housing Demand in the Developing Metropolis: Estimates from Bogota and Cali, Colombia*. World Bank Staff Working Paper 663. Washington, D.C.

Jimenez, Emmanuel. 1982. "The Economics of Self-Help Housing: Theory and Some Evidence from a Developing Country." *Journal of Urban Economics* 11: 205–28.

_____. 1984. "Tenure Security and Urban Squatting." *Review of Economics and Statistics* 66, no. 4 (November): 556–67.

Jimenez, Emmanuel, and Douglas Keare. 1984. "Housing Consumption and Permanent Income in Developing Countries: Estimates from Panel Data in El Salvador." *Journal of Urban Economics* 15: 172–94.

Keare, Douglas. 1983. "Affordable Shelter and Urban Development: 1972–82." *Research News* 4, no. 2 (Summer): 3–14.

Keare, Douglas, and Emmanuel Jimenez. 1983. *Progressive Development and Affordability in the Design of Urban Shelter Projects*. World Bank Staff Working Paper 560. Washington, D.C.

Malpezzi, Stephen. 1984a. *Analyzing an Urban Housing Survey: Economic Models and Statistical Techniques*. Urban Development Department Discussion Paper 52. Washington, D.C.: World Bank.

_____. 1984b. "Economic Analysis of Alternative Rent Control Policies, with an Application to Cairo, Egypt." Paper presented to the Regional Science Association, Denver, Colorado, November 1984.

_____. 1984c. "Rent Controls: An International Comparison." Paper presented to the American Real Estate and Urban Economics Association, Dallas, Texas, December 1984.

_____. 1986. "Rent Control and Housing Market Equilibrium: Theory and Evidence from Cairo, Egypt." Ph.D. dissertation, George Washington University, Washington, D.C.

Malpezzi, Stephen, Michael Bamberger, and Stephen Mayo. 1982. *Planning an Urban Housing Survey: Key Issues for Researchers and Program Managers in Developing Countries.* Water Supply and Urban Development Discussion Paper 44. Washington, D.C.: World Bank.

Malpezzi, Stephen, and Stephen K. Mayo. 1986a. "User Cost and Housing Tenure in Developing Countries." *Journal of Development Economics,* forthcoming.

_____. 1986b. "The Demand for Housing in Developing Countries: Empirical Estimates from Household Data." *Economic Development and Cultural Change,* forthcoming.

Malpezzi, Stephen, and Stephen Mayo, with David J. Gross. 1985. *Housing Demand in Developing Countries.* World Bank Staff Working Paper 733. Washington, D.C.

Mayo, Stephen K. 1986. "Effective Demand and Effective Housing Policy." In Lloyd Rodwin, ed. *Shelter, Settlements, and Development.* New York: United Nations Commission on Human Settlements, forthcoming.

Mayo, Stephen K., and others. 1980. *Housing Allowances and Other Rental Housing Assistance Programs—A Comparison Based on the Housing Allowance Demand Experiment,* Part 2: *Costs and Efficiency.* Cambridge, Mass.: Abt Associates, Inc.

_____ 1982. *Informal Housing in Egypt.* Cambridge, Mass.: Abt Associates, Inc.

Mayo, Stephen K., and Stephen Malpezzi. 1985. "Cross-Country Models of Housing Demand." Washington, D.C.: World Bank, Water Supply and Urban Development Department.

Mayo, Stephen K., with David J. Gross. 1985. "Sites and Services—and Subsidies: The Economics of Low-Cost Housing in Developing Countries." Washington, D.C.: World Bank, Water Supply and Urban Development Department.

Merrett, Stephen. 1984. "The Assessment of Housing Consumption Requirements in Developing Countries." *Third World Planning Review* 6, no. 4 (October): 319–29.

Murray, Michael. 1983. "Subsidized and Unsubsidized Housing Starts." *Review of Economics and Statistics* 65 (November): 590–97.

Renaud, Bertrand. 1984. *Housing and Financial Institutions in Developing Countries.* World Bank Staff Working Paper 658. Washington, D.C.

Rourk, Phillip W., James W. Fay, and Raymond J. Struyk. 1984. *Preparing a National Housing Needs Assessment.* Washington, D.C.: U.S. Agency for International Development.

Strassman, W. Paul. 1980. "Housing Improvement in an Opportune Setting: Cartagena, Colombia." *Land Economics* 6, no. 2 (May): 155–68.

United Nations. 1984. *Urbanization and Components of Urban and City Population Growth.* New York: United Nations Secretariat, Population Division of the Department of International Economic and Social Affairs.

Weicher, John C., Lorene Yap, and Mary Streitweiser Jones. 1982. *Metropolitan Housing Needs for the 1980s.* Washington, D.C.: Urban Institute Press.

World Bank. 1980. *Shelter.* Washington, D.C.