

Low Income Housing Markets and Policy: Some International Perspectives

Stephen Malpezzi

May 16, 2005
Draft, Comments Appreciated

The Department of Real Estate and Urban Land Economics
The University of Wisconsin
975 University Avenue
Madison, WI USA 53706-1323
smalpezzi@bus.wisc.edu
<http://www.bus.wisc.edu/realestate>

Stephen Malpezzi is Professor, Wangard Faculty Scholar, and Department Chair, in the Department of Real Estate and Urban Land Economics, as well as an associate member of the Department of Urban and Regional Planning, of the University of Wisconsin-Madison

This paper was prepared for the Korea Development Institute's June 2005 International Conference on Residential Welfare and Housing Policies, held in Seoul. This is a first draft, and will be revised. Comments and criticisms are especially welcome.

Introduction

The housing and housing finance markets of Korea have undergone drastic changes during recent decades. In one sense this is completely unsurprising, as one would hardly expect housing markets in one of the world's most dynamic economies to remain static. But while some developments have been positive – for example, Korea's housing market was on balance a positive contributor to macroeconomic stability during the 1997 “Asia crisis” – in some respects Korea's housing markets have not quite kept up with other aspects of its economy.¹ For example, a flip side of Korea's dynamic economy is that Korean housing is expensive, and places particular burdens on low income households. Thus the recent review of Korean housing markets and policies edited by KDI's Dr. MoonJoong Tcha (2005) is especially welcome and timely. The purpose of this paper is to complement that effort, and to focus particularly on the supply of low-income housing, by surveying evidence from a range of countries on the pros and cons of alternative ways of delivering affordable housing.

The principal theme of this paper is that, when considering low income housing, there are important differences among housing subsidy alternatives, but that these are often dominated by, and always interact with, supply conditions in the market. Supply conditions in turn are determined partly by natural constraint – physical geography – but even more so by regulatory decisions and other public interventions. This paper is certainly not the first to make the argument. Quigley and Raphael (2004) is a concise and admirable statement of this theme, albeit a paper focused primarily on U.S. markets. Effects of regulations and other interventions are much discussed in Tcha's (2005) monograph, especially contributions by Hur; Kim, Park and Lim; Chung; Kim Jeong-Ho; and especially Lee and Sohn. The message is also consistent with such reviews as World Bank (1993), Buckley and Kalarickal (forthcoming 2005), and Zearley (1993).

The first section of the paper after this introduction presents an overall conceptual framework for the analysis of housing subsidies, reviewing selected issues related to efficiency, distribution, and other criteria. The second section reviews typologies of housing programs, in order to facilitate comparisons. The third section presents a very brief description of some relevant experience in several other countries. The fourth section discusses the effects supply constraints, especially excessively stringent regulation of housing development and management, have on housing conditions of low

¹ See Kim (2000) and other contributions to Mera and Renaud (2000) for a discussion of the different roles played by housing and real estate markets in the Asia crisis. See Kim (2004) for a broader discussion of the role housing plays in Korea's aggregate economy.

income households. The final section provides some concluding remarks, including possible lessons learned, and suggestions for future research.

A Conceptual Framework for the Analysis of Housing Subsidies

We can divide criteria for the analysis of housing subsidies into five major categories:

- Efficiency (cost-benefit);
- Distributional and fairness issues;
- Market effects
- Other external benefits (e.g. neighborhood effects, mobility, labor market effects)
- Administrative and other effectiveness measures

We now discuss each in turn.²

Efficiency

Housing and housing finance programs, like other social services, are traditionally evaluated in terms of efficiency and equity. A useful distinction is often made among *production* efficiency and *consumption* efficiency. Production efficiency refers to the economic value of the unit in relation to the cost of producing it. Consumption efficiency refers to the value the *tenant* places on the unit in relation to its market value.³ The concepts are equally applicable to housing and housing finance programs as well as other social programs.

Production inefficiency would not exist if public developer/landlords were as efficient as private, and market prices of inputs and outputs were not distorted. There may well be cases where hidden subsidies or hidden costs make careful analysis necessary to reveal true relative efficiencies. Past studies have suggested that while Korea's public developers are technically efficient, certainly in comparison to practices elsewhere, input distortions are considerable (Van Meurs 1986; Lim 1987).

Consumption inefficiency implies that the tenants value the housing less than the market, or that their consumption is constrained by the requirements of the program. This is a particular problem with public rental, since typically the product is very standardized while demand is not. Cash is, of course, the most efficient transfer in the

² Most if not all of these concepts will be familiar to economists, but the discussion is included for completeness. In this draft the discussion is very brief, and non-technical; additional discussion of these issues, including more technical treatments, can be found in Green and Malpezzi (2003) and Mayo *et al.* (1980 a, b).

³ Some treatments also refer to administrative efficiency as a third type of efficiency but we discuss this separately below.

sense that if the market works at all well most households would prefer the cash equivalent of a program to the program itself. *A priori* many housing economists would expect policies and programs which rely on private landlords to provide a wider range of options and to reduce consumption inefficiency.

Equity and Fairness

Of course efficiency is not the only consideration in the analysis of housing finance subsidies. We must also consider distributional issues. There are two main types of distributional or equity issues. The first, *horizontal equity*, is best phrased as “equal treatment of equals.” Most commonly in policy analysis we define equals as more or less those with equal or similar incomes, although there are important exceptions, e.g. when age or physical limitations are considered. This principle is violated if, for example, we have two families of a given income, one of whom receives a deeply subsidized mortgage while the other, equally deserving, receives no assistance.

The second equity principle, *vertical equity*, is more problematic. Vertical equity is about the treatment of unequals. It is about how society treats rich vs. poor, or for that matter poor vs. middle income, or moderately poor from the poorest. Much of politics is making choices about vertical (as well as horizontal) equity. While vertical equity often requires some political judgment, it could be argued that many citizens of Korea (and many other countries) would agree with some general propositions; for example that larger housing subsidies should go to lower income households, rather than higher. So while it is difficult (and for an outside commentator like the present author, impossible) to make precise and very detailed statements about the desired outcomes in the housing market in terms of vertical equity, we can presumably make general statements of the form “larger subsidies are going to richer households, and this violates generally held norms of vertical equity in society.”

To be sustainable and politically feasible, housing policy must be seen to be *fair*. Fairness is related to equity, as discussed above, but it is a somewhat more general concept. One way of thinking about fairness is that it is a set of rules to which most individuals would agree in advance of knowing their endowment or position (Rawls). In the current context, fair rules would be those that most individuals would agree to in advance of knowing whether they were to receive, say, a particular housing subsidy or not, indeed in advance of knowing whether they were a renter or a landlord, a recent mover or a long time tenant, or rich or poor.

Market Effects

The efficiency and equity issues discussed above are usually framed in terms of the effects of a program or policy on a typical participant household, or in some cases a typical housing unit or project. However, when undertaken at scale, housing programs and policies -- especially those related to finance -- have the potential to affect the housing entire market, or significant portions of it.

Consider first a prototypical supply side program. Suppose, for example, that the government decides to undertake a massive increase in the supply of subsidized housing finance in a certain market. Suppose further that this increase in supply is targeted at low income households. What are the effects of such a development on the rest of the market?

The answer depends critically on some assumptions regarding the overall responsiveness of the rest of the market, and on some assumptions about the behavior of households. The role of the market's responsiveness, i.e. the price elasticity of supply of housing, is well known. If the market is more or less unresponsive to changes in the availability of such finance (or anything else, such as an increase in incomes), and if the number of low income households is largely unaffected by the presence or absence of this additional subsidized housing finance, then the additional finance will have two effects, from the point of view of low income households. First, households who participate will presumably benefit from lower mortgage costs and possibly better housing conditions. Second, under these assumptions, the price of housing will rise, for the beneficiaries for the rest of the market, as demand for that fixed stock increases. Economists call such price spillovers "pecuniary externalities."

On the other hand, if the supply of housing is perfectly elastic (and the assumption of no change in number of households is maintained), the outcome is quite different. Under such conditions, an initial increase in the availability of housing finance will lead to an increase in the supply of housing. No adverse "pecuniary externalities" will be generated.

Examples of Other Potential External Benefits from Housing

The "classic" evaluations of housing programs and policies focus primarily on the notions of efficiency, equity, and market effects, discussed above (Bradbury and Downs 19xx; Olsen 200x). But there are other considerations that can be brought to bear. We discuss examples of these briefly in this section. Most of these are externalities of one kind or another. Of course market effects, discussed above, are external to a particular unit or household. But a wide range of other potential external benefits have been mooted.

For over 100 years, social reformers have held that housing quality affects health, and in turn this affects employability and income. Historical studies and analyses across countries have linked housing sanitation and water supply to health and morbidity, such as Austen and Levenson (1969), Bradley *et al.* (1991), Cohen (1989), and Hardoy *et al.* (1990). A recent example pointed out by Newman and Schnare are the deleterious effects of lead based paint on children.

Another category of externalities are labor market effects. One such effect that is of particular interest to those interested in low income housing are the links between housing's location and the availability of suitable employment. According to the spatial mismatch hypothesis unemployment, low incomes and high utilization of welfare occurs in inner cities because of the mismatch between the location between where the poor live and where entry level jobs are. This hypothesis was first advanced in a systematic way in Kain (1968). Several decades of research on this issue are summarized in Kain (1992) and Holzer (1991). Research by Ihlanfeldt (1991, 1992) generally supports the spatial mismatch hypothesis. Contrary views can be found, for example Case and Katz (1991).

Another category of externalities relates to security of tenure. A range of research suggests that households which have secure and stable tenure have better economic and social outcomes. Early evidence on this point was marshaled in Struyk (1977), and recent research by Green and White (1997) and Dietz and Haurin (2001) has reopened this question. Using several microlevel data sets, and controlling for both observed and unobservable correlates such as income and family status, White and Green find that children of homeowners are more likely to stay in school, have better test scores, etc.

Administrative and other effectiveness measures

A very useful framework for the analysis of subsidies can be found in Myers (1986).⁴ The first consideration Myers discusses is that the subsidy has **Clear Objectives**. Most subsidy programs have more than one objective. In most cases, the first and overarching objective is, of course, to assist low or moderate-income households in the purchase of housing. Among many subsidiary goals or objectives are the support of the real estate development industry, and the provision of offsets to disincentives to development (such as occur through taxation and regulation). Another objective is increasing incentives to save. Other objectives, perhaps best viewed as constraints, include avoiding an implicit tax on the financial system.

⁴ Myers also discusses the **Effectiveness** of subsidy programs. Effectiveness comprises both efficiency and distributional considerations, which have already been discussed.

Another consideration discussed in Myers is the appropriate **Duration** of subsidy programs. This can be viewed as the duration of an individual subsidy to a particular individual or firm, but it can also mean the duration of the overall program. For example, subsidies that are a response to particular market conditions might be phased out or reduced, if not eliminated, when market conditions become more favorable.

The next important element is the **Transparency** of a subsidy program. To quote Myers, “transparency refers to the ease with which the size or financing requirements of a subsidy program can be identified and quantified. From an incentive point of view, transparency relates to the extent to which prices can be perceived to have been lowered or raised as the result of the subsidy and of the taxes needed to finance it ... [a] primary focus of the transparency concern is with budgetary clarity.”

The notion behind transparency, then is that the public at large should see clearly who benefits from the subsidy, as well as who pays for it. Those who benefit from the subsidy should clearly appreciate the extent to which they benefit. Better knowledge of the cost and benefit of subsidies aids their intelligent design and implementation.

Generally, on-budget subsidies are most transparent. Subsidies through the financial system or through taxation are generally the most opaque. For this reason, among others, the World Bank and many others generally recommend the curtailment of interest rate subsidies, directed credit programs, and similar implicit subsidies. The general recommendation is that subsidies be made explicit and on-budget. In fact, Chilean housing subsidies are one of the examples used by Myers to illustrate the principals of transparency. We will discuss the Chilean subsidy program, and its transparency below.

The next consideration is **How the Program will be Financed**. Clearly this is related to some of the earlier points. When program requirements exceed the resources available, the obvious choices are to reduce the size or scope of the subsidy, gain efficiency by improving administration or subsidy design, raise more public resources or redistribute resources from other public uses to the program. In many cases the first will be the most straightforward and the most powerful corrective.

Another consideration discussed in Myers is whether the **Policy Recommendations** accompanying the subsidy program **are Pragmatic**. A realistic view must be taken regarding the government's institutional and administrative capabilities, political realities, and the government's need to maintain credibility. Sometimes such a requirement is interpreted as a need for gradual change, but experience in Eastern and Central Europe and the countries of the former Soviet Union show that sometimes rapid change is best.

Political Feasibility is also important. Many economists and many housing activists will argue that scarce public resources need to be sharply targeted to those most in need, generally those with lowest income. The logic of this argument appears unassailable. Yet such a statement must be examined in the light of some hard facts. In many countries programs which focus only on the bottom of the income distribution become marginalized and their political support is often tenuous at best. Programs that cater to a wider range of the income distribution are less tainted and enjoy broader support. Consider as just one example the unassailable support for the U.S.'s gargantuan social security system, compared to the lack of political support for more targeted welfare programs, more than an order of magnitude smaller.

In our evaluation below we will comment on each of these areas, *pari passu*. However, we will focus most on the effectiveness of the subsidy programs examining in detail concepts of efficiency, equity and fairness.

A Typology of Housing Subsidies, and Other Programs and Policies

In general, there are five major ways governments intervene in housing markets:

- the definition and enforcement of property rights
- taxation
- regulation
- subsidy
- direct public provision

In this paper we focus on the latter two, subsidies and direct public provision, with some discussion of regulation. But of course it is important to consider the areas we temporarily neglect. See Fischel (1985), Jimenez (1984) and Friedman, Jimenez and Mayo (1988) for discussion of property rights; and see Green and Malpezzi (2003, pp. xxx) for discussion of principles of taxation. See Hannah et al. (1989), Kim (1991), Malpezzi and Mayo (1997) and Bertaud and Malpezzi (2001) for discussion of how all five types of intervention interact.

Of course the distinction between subsidies to private entities – households, landlords, developers – and direct public provision is not as neat in practice as it appears when we first make this list. Many real world housing programs have some elements of each. For the moment, then, we will use a slightly different typology, and divide programs up into supply side programs (“bricks and mortar” subsidies) and demand side subsidies (payments to households to be used for housing).

Supply Side Programs

The simplest working definition of supply side program is one in which the subsidy is tied to a particular housing unit. Within this broad category, there are many subcategories. For example, governments (or quasi-government agencies) may directly produce housing units for sale (as in Korea's or Singapore's public housing programs) or for rent (as in U.S. or Hong Kong public housing, or Britain's council housing, or Korea's public rental units; see Chung 2005).

Increasingly, though, such supply side programs are more complicated partnerships between the public and private sector. For example, in the U.S. there is a range of programs in which the government subsidizes particular housing units that are privately developed and managed, and rented to households that meet income and other criteria, in return for either up front development subsidies (Section 236, Section 42 Low Income Housing Tax Credits), or recurrent subsidies on rents (Section 8 New Construction). In practice, many units have elements of both due to "layering" of subsidies, e.g. many low income tenants in Section 42 units also receive housing vouchers, described below. Korea, of course, has long used private construction firms in partnership with public land development, and other forms of these partnerships.

Demand Side Programs

The simplest working definition of a demand side program is one in which the subsidy is tied to a particular household, and at least partly portable across housing units. Often called housing allowances or housing vouchers, these increase households' purchasing power for housing (and usually for other goods and services as well).

These may also be upfront one-time subsidies, as in Chile's best known housing assistance program (discussed below), or recurrent, as in U.S. housing vouchers. They may be designed to be tenure-neutral, usable for rental or owner-occupied units, but more often are designed to work with one form of tenure or another. For example, Chile's best known program is a voucher for house purchase, but to date most U.S. vouchers are restricted to rental units (though moves are afoot to permit more voucher use for house purchase in the U.S. as well).

It should be pointed out that even this apparent simple bifurcated demand-side/supply side taxonomy can be more complicated than it seems. In addition to the possible layering or combining of different subsidy schemes, one can design a demand side scheme that writes checks to tenants that is effectively a supply side program, at least in large part; and one can also do the converse. For example, U.S. Section 8 Existing Certificates, the main housing program of the 1980s, paid the difference between 30

percent of a participant's income, and the so-called Fair Market Rent, a rent ceiling that was roughly based on the median rent for a metropolitan area. But evidence from Drury et al. (19xx) and Gillen (200x) shows that in fact the ceiling was also a floor – many landlords of units that rented for less than the FMR simply raised their rent to the FMR when a Section 8 tenant moved in. (Note that this was legal under program rules). In effect then the benefit of the certificate was split between landlord and tenant, and to the extent the landlord was able to raise the rent, these allowances were partly a supply-side program.

Selected International Experience With Housing Subsidies

In this section we will examine selected international experience with housing subsidies. We draw from a number of sources, but we rely particularly on an excellent review by Diamond (1997).⁵

In this first draft, much of the discussion in this section focuses on experience from the United States and Chile, although other countries are also discussed. The United States is discussed because it has many different kinds of housing subsidy programs, which have been extensively analyzed. Chile is discussed because its program of up-front housing vouchers has been widely discussed as a model, e.g. in xxx, so lessons learned from the Chilean case may be particularly valuable. The next draft will broaden the geographic coverage of this discussion.

Housing Subsidies in the United States

Over its history, the U.S. has undertaken many kinds of housing subsidies, supply side and demand side, direct public provision and through the private market, and through the financial system. One heavily researched topic of interest to many other countries is the efficiency – production and consumption efficiency, see above – of different generic types of housing subsidies.

Perhaps the most careful analysis of production efficiency to date remains Mayo *et al.* (1980), summarized in Mayo (1986). While Mayo and his colleagues, and others such as Muth (1971, 1973), develop formal models of production and efficiency, at its heart the arguments can be summarized as follows. First, it is argued that public supply side agents make incorrect decisions about housing factor inputs because they act based

⁵ Other relevant reviews include Hoek-Smit, Bovet and Diamond (1997) for Suriname, and Hoek-Smit (1997) for Indonesia, and Llanto, Orbeta, Sanchez and Tang (1997) for the Philippines. These other reviews are broadly consistent with the material in this section.

on the “wrong” prices of these inputs. U.S. public housing location decisions have not generally been based on market considerations; in early years of the program units had to be built on cleared slum land, which may have not been optimal for the location of such units. Public housing has also had a “capital intensity bias” because capital costs were subsidized more heavily than maintenance and repair costs. Additional source of production inefficiency comes from the different set of incentives that face public supply side agents (and private agents acting at public behest). Private agents maximize the difference between value and cost. Public agents generally have a quite different objective, for example maximizing the number of units built for a given budget, subject to political constraints on location. In market transactions, developers who produce projects that are worth less than they cost go out of business. In public projects such market discipline is absent.

In the most complete study to date, Mayo (1986) reported that the production efficiency of U.S. public housing is about 43 percent (ratio of value to costs). Another study by Olsen and Barton (1983) that took a more narrow view of production efficiency reported that U.S. public housing costs 14 percent more than it was worth. Green and Malpezzi (1998) review findings on production efficiency from a range of studies, and find similar results.

More is known about consumption efficiency than about production efficiency. Green and Malpezzi (1998) reviewed empirical studies of U.S. housing programs that computed this consumption efficiency using consumers surplus techniques. In light of the discussion above, we would expect to find that unconstrained housing allowances would have the highest consumption or transfer efficiency, while the more directly involved the government was in the supply side, the lower the transfer efficiency. In fact, study after study -- Mayo (1986), Clemmer (1984), and Sa-Aadu (1984) to name just three -- found that consumption efficiency is generally higher for allowances and other demand side subsidies, as expected.

Evidence on the market effects of housing programs is of two kinds: direct and indirect. Direct evidence stems primarily from the Experimental Housing Allowance Program’s Supply Experiment. Indirect evidence stems from several research papers on the price elasticity of supply, or the overall responsiveness of the housing market.

The key issue for understanding market effects of housing programs is, of course, the market’s supply elasticity or responsiveness. If the market is generally unresponsive, supply side programs could, in theory, be a net addition to the stock, and could, in principle, have price effects, lowering housing prices generally. If the market is unresponsive, spending on large demand side programs will be at least partly dissipated

in higher prices. On the other hand if the market is highly responsive, supply side programs will produce units which will merely substitute for units that would otherwise be privately produced. There would be no significant price effect from supply side programs in an elastic market. And finally, in an elastic market, large demand side programs will increase the purchasing power of low-income households without having significant price effects.

The weight of the evidence suggest the U.S. market is fairly elastic in the long run, and that therefore well designed demand side programs will not have undesirable price effects. Lowry (1983), Follain (1979), and Malpezzi and Maclennan (2001) are among studies, and Green and Malpezzi (2003) provide a more detailed review. But it must be emphasized that this finding hinges on the existence of an elastic, responsive market, with a well functioning mortgage market and an appropriate regulatory environment.

So far our discussion, and most of the published literature, focuses on well-known rental assistance programs. While less known today than it might be, the U.S. has in past had a low-income homeownership program, but one with a flawed design that provides a cautionary tale. The Section 235 home ownership assistance program was established in 1968. The Section 235 Program is basically an interest rate subsidy tied to a new (or substantially rehabilitated) housing unit. Specifically, the Section 235 subsidy is lesser of either

- (1) the difference between 20% of monthly income and the total monthly payment for the mortgage, mortgage insurance, taxes and hazard insurance; or
- (2) the difference between monthly mortgage payments and mortgage interest premia, and the payment to principle and interest at a 1% interest rate.

The key problems with Section 235 turned out not to be with the form of the subsidy, but with its overall depth, and with the moral hazard and adverse incentives built into the program. The subsidy was quite deep, and allocated through developers and financial institutions who had no direct stake in the outcome of a loan after allocation since repayment is guaranteed by the government.

Severe problems with this program led to a moratorium in 1973. U.S. Department of Housing and Urban Development (1974) reviewed the Section 235 Program and found developers/redevelopers had strong demand for units given the deep mortgage subsidies available (see also Mitchell 1985). However, only about 1 out of 50 income eligible households were ever assisted by the program, and those tended to be more lower middle income than households near the bottom of the income.

The government evaluation of Section 235 noted that there were strong incentives for units under the program to be priced higher than market price, in order to capture part of the subsidy for the developer, although no empirical evidence was presented. For a typical participating household, the subsidy is typically about 1/8th of the average family's income. Since there is no household equity in the unit, it is not surprising that the default rates for Section 235 units often hit 30 or 40% in selected metropolitan areas. In the words of the government evaluation, "abuses and fraud are an inherent and demonstrable danger of such an incentive structure."

Among other findings of the government's evaluation of the Section 235 Program, we note that most participating households were lower middle income rather than low income. The evaluation found subsidies received by recipients increased as family income went up. Taking transfer and production efficiency together (see discussion above), the government evaluation found Section 235 resulted in only about \$.82 of benefit to the recipient per dollar spent by the government. However, this calculation did not incorporate the high costs of default, some of which became more apparent after the evaluation was completed. Other issues raised were the actuarial soundness of the insurance fund for Section 235, which became insolvent as foreclosures rose in the 70s. On balance, given this experience, it is not surprising that the Section 235 Program was closed down in 1973, after less than five years of operation.

Chile's Housing Subsidy Program

In international circles, Chile's system of lump sum grants for housing is perhaps the best known housing subsidy system in the world, and one of the most imitated. However, as we shall see, the exact system that Chile has implemented has pros and cons. Mexico and other countries considering the design of the subsidy programs can and have learned from Chile. Our discussion of Chile is based mainly on Diamond (1997), and partly on Ferguson *et al.* (1996).

Chile's government has had a strong presence in the housing market for many years. However, by 1980 the limitations of programs based on large-scale direct public provision of housing have become very clear. Such housing was often high cost, low quality, poorly located, and associated with political corruption. In addition, the government-sponsored system of subsidized lending for housing was effectively bankrupt. The centerpiece of the Chilean system is the partial replacement of subsidized loans and direct public production with lump sum grants to consumers.

Internationally, the general nature of Chile's up-front grants is well known, and much admired for its transparency and for the apparent divorce of subsidy from the

financial system. But in fact, the divorce is only partial. When up to tier three households are considered, the majority of Chilean households are eligible for these programs. Generally, as incomes increase, the grant element declines but the mortgage loan increases. Evidence reviewed by Diamond (1997) suggest that these mortgages remain problematic. First, while interest rates are indexed, the rates are still somewhat below what market rates would be for such lending, and in particular, rates do not cover servicing costs or credit risk. But the biggest problem is that many borrowers are delinquent. The delinquency rate on these loans is over 70%. Diamond reports that local analysts believe that because beneficiaries have received a grant of up to 60% of the cost of the house, they tie the subsidy to the remaining loan in their minds, and do not truly believe that the loan needs to be repaid. In other words, borrowers view the loan as something else they have received from the government, rather than as a commercial financial transaction, i.e., a contract that must be honored. Compounding the problem is the implementing agency's poor collection performance and their decision not to foreclose on borrowers in default. As Diamond puts it, "the larger mystery is why anyone pays on these loans."

A lesson that might be drawn from this experience is that if the same agency delivers a large subsidy and a loan, households will have a tendency to view the loan as part of the government handout rather than a normal business transaction. This has obvious implications for the design of the subsidy that we will return to below.

In a given year, only about 20% of Chilean households eligible for housing subsidies receive them. Chile has introduced a point score system based on household need and savings behavior. Another feature of the Chilean program is that the voucher is portable among developments (Ferguson *et al.* 1996). This is in contrast to practice in a number of countries where (in practice) finance will be tied to specific developments.

Another problem is that while the direct subsidy component decreases as income increases, this is more than offset by the larger implicit subsidies in loans associated with the program, since loan size increases with income. (Diamond, Ferguson *et al.*)

Housing Subsidies in Other Selected Countries

A number of other countries have adopted subsidy programs that are somewhat similar to the Chilean model. Uruguay adopted a direct subsidy program in 1992 (Ferguson *et al.* 1996). Uruguay is a smaller country with a much less severe housing problem. While the number of housing subsidies delivered equal about 10% of the housing deficit, supply side problems make it difficult for developers to lower costs to the point envisioned by the program. Among these problems are local government approvals.

Ferguson *et al.* also report housing prices have been rising at least partly due to this subsidy program, and the program has not proven immune to political influence. Beneficiaries are selected by formula. The formula has not been tampered with, but large numbers of vouchers are typically produced at election time, exacerbating the boom and bust cycle of the Uruguayan housing market.

Costa Rica is another country that has recent experience with a Chilean style program. Ferguson *et al.* report that Costa Rica has had more success than other countries in getting developers to move down market. The Costa Rican model sometimes makes use of progressive construction and household labor.

Colombia has also adopted some subsidy programs on the Chilean model. In fact, Columbia has a confusing plethora of housing programs of every type, and to some extent direct subsidies get lost in the shuffle. The Colombian system of direct subsidies is shallower than many other countries; the subsidy works out to be about 1/4 of the value of the unit. Ferguson *et al.* argue that this is in some sense too low, but we will argue otherwise below. The Colombia system also suffers somewhat from political manipulation of beneficiary selection and administrative delays in developers receiving cash for vouchers.

[Next draft: this discussion will be extended to include examples from several countries, including the UK, Sweden, the Netherlands, and Australia, among others]

The Regulatory Environment and the Supply of Housing to Low Income Households

To repeat, the principal theme of this paper is that, when considering low income housing, there are important differences among housing subsidy alternatives, but that these are often dominated by, and always interact with, supply conditions in the market. Excessive and inappropriate regulations "in-elasticize supply" so that demand increases from population and income growth lead to rising real estate prices, rather than increased supply.

Of course many things besides regulations affect supply, notably natural constraints. Hong Kong, Honolulu and San Francisco would likely be expensive markets even in the absence of stringent regulatory regimes. That said, many studies have demonstrated the strength of the relationship between the regulatory environment and housing and real estate prices. Studies of the U.S. include Pollakowski and Wachter

(1990), Segal and Srinivasan (1985), Black and Hoben (1985), Rose (1989), Shilling, Sirmans and Guidry (1991), Malpezzi (1996), Malpezzi, Chun, and Green (1998), Malpezzi (1999) and Riddiough (1997). International studies include Angel (2000), Cho (1997), Evans (1999) and Monk and Whitehead (1995) as well as Bramley (1993), Angel and Mayo (1996), and Malpezzi (1990).

A decade and a half ago, in his careful review of housing supply and demand studies, Olsen (1987) wrote

Empirical studies of the supply of housing service are as scarce as studies of its demand are abundant. Indeed, there are not enough studies of any parameter to make it worthwhile to discuss the central tendency of the estimates. [I]t is abundantly clear that the marginal benefit from studying housing supply is much greater than the marginal benefit from studying housing demand.

Of course at the time Olsen wrote, there were already several important studies of the supply side of the real estate market, such as Muth (1960), Ozanne and Struyk (1978) and Follain (1979). But in the past decade or so the number of empirical studies of housing supply, including estimates of that key parameter, the price elasticity of supply (β), have greatly increased. As noted by Malpezzi and Mayo (1997), housing demand parameters are remarkably stable and predictable across countries and places; supply parameters vary much more. More detailed surveys can be found in Bartlett (1989), DiPasquale (1999), and Malpezzi and Maclennan (2001). Here we briefly summarize a few key points that will be important for our modeling effort below.

First, several studies of the U.S. housing market, such as Follain (1979), Muth (1960), Stover (1986), Smith (1976), and Malpezzi and Maclennan (2001) suggest that long run supply elasticities in the U.S. are high; in fact, Muth and Follain cannot reject the hypothesis that long-run U.S. supply curves are perfectly flat. Other studies cited here find supply elasticities on the order of 10 or higher.

Second, a number of other studies, such as Topel and Rosen (1988) and Poterba (1991) find positive but distinctly lower elasticities, on the order of 2-3. Malpezzi and Maclennan present some evidence that both (a) the very high elasticities of Follain and of Muth and (b) the low elasticities of Topel and Rosen and of Poterba may be due to the particular time period chosen for analysis. Malpezzi and Maclennan show that there is no long run trend in housing prices post-World War II, but there are long cycles. The low elasticity studies tend to use data that begin in a trough and end near a peak, while the high elasticity studies pick periods of declining prices or of a more complete cycle. Thus,

Malpezzi and MacLennan argue (and present estimates consistent with) high long run supply responsiveness, but they also point out that full adjustment can take a decade or more.⁶

By now the fact that excessive regulation leads to high prices is well documented. What is less widely appreciated is the effect regulations have on second moments and risk. Malpezzi and Wachter (forthcoming) demonstrates that more stringently regulated markets are also more volatile. Following Malpezzi and Wachter (forthcoming) we can illustrate the process in a simple comparative static fashion with Figures 1 and 2. In Figure 1, a heavily regulated market with fairly inelastic supply has an initial demand shock characterized by the demand curve moving from D_1 to D_2 . Given this demand shock in a very inelastic short and medium run supply, little supply response is observed and prices increase substantially from P_0 to P_1 . But over the very long run, there is some elasticity even in the most convoluted markets. Eventually, markets and governments do respond to extraordinary price increases and supply shifts out. This results in a housing price crash from P_1 to P_2 .

Contrast this with Figure 2, which is more or less the same except that the markets are more elastic. The initial increase does give rise to a price run up over the medium term, as one would expect, but the run up is much less. Therefore the boom and bust cycle is moderated. These are indicated by shifts from P_0' to P_1' and back down to P_2' .

These processes are not merely a theoretical curiosity. Many observers have suggested that Korea is a country with an extremely stringent regulatory environment that has greatly inelasticized supply. Many studies such as Kim (1993), Hannah, Kim and Mills (1990), and Green, Malpezzi, and Vandell (1992) have documented the especially convoluted Korean regulatory system and Malpezzi and Mayo (1997) have shown that this leads to a very inelastic housing supply.

But at some point, as prices skyrocket and shortages become more apparent, the Korean government responds as it did with the Two Million Houses Program in 1990. This has the effect of shifting an inelastic supply curve to the right in a series of discrete jumps. Figure 3 illustrates. After the crash from P_1'' to P_2'' , the process starts over again. As demand grows further, prices rise again to P_3'' .

Thus a world in which government responds to rising housing prices by one time programs to get the market moving, as in Korea's Two Million Houses Program, can be

⁶ Of course, it bears repeating, since the thrust of some of this research is often misinterpreted, that regulation *per se* is neither good nor bad. What matters is the cost and benefits of particular regulations under specific market conditions. Regulations need to be put to the cost-benefit test, as any other private or public economic activity.

characterized as occasionally *shifting* an inelastic supply curve to the right. This leads to a boom and bust cycle. Reform measures that tackle the root causes of inelastic supply have the effect of *flattening* the supply curve and moderating the boom and bust cycle, reducing risk for homeowners and investors.

Some of the Lessons Learned from International Experience

There seems to be a bias held by many housing activists towards programs that deliver new and countable housing units. This is understandable – it is a simple and obvious response to a perceived housing shortage. However this view neglects how housing markets work, in particular that it is a market, or in De Leeuw and Struyk's informative phrase, a *web* of urban housing.

Many – not all – housing economists argue for the general superiority of demand side programs, i.e. housing allowances or vouchers, over supply side. While most studies find greater micro-efficiency of demand side programs, some observers argue that market effects can outweigh these. Apgar (1991) Susin (2002) and Yates and Whitehead (1997) are the most prominent examples of arguments based on market effects; see Galster (1997) Green and Malpezzi (2003) and especially Olsen (2002) for the alternative perspective. One difference in perspective is based on what we believe about the long run price elasticity of supply. But to the extent one accepts the argument that inelastic supply could result in adverse market effects of a widespread housing allowance, the latter authors tend to argue that it is better to attack the cause of inelastic supply – and high costs for low and moderate income households – rather than simply try to treat its effects. Regulations, taxes and subsidies matter – in the long run, probably more than most direct provision programs. Work to flatten supply curves, not merely shift an inelastic supply curve every few years.

Worldwide, the trend is towards vouchers and housing allowances and away from bricks and mortar subsidies. While of course there are exceptions to the trend, the advantages of demand side subsidies in most markets are telling. This is not to imply that there is no work to be done on the supply side – far from it. Improving the efficiency of land development, while safeguarding environmental outcomes, financing and developing appropriate infrastructure, re-tuning the regulatory environment for housing development and management, and improving housing finance are among the many actions that can be taken to improve housing supply in general and low income housing in particular.

There exist well-tested techniques for evaluating housing programs and policies. Such evaluation is hard work, and ongoing.

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Demand Shocks with Inelastic Supply: Boom and Bust

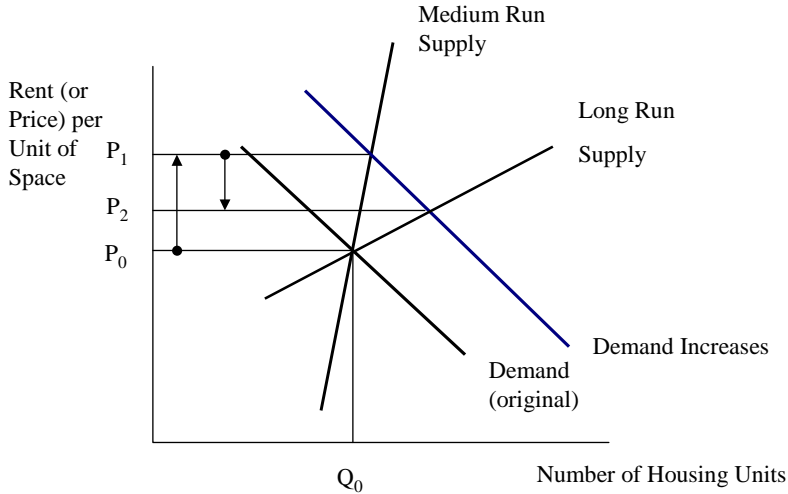


Figure 1

Demand Shocks with Elastic Supply: Lower Price Shocks, Less Volatility

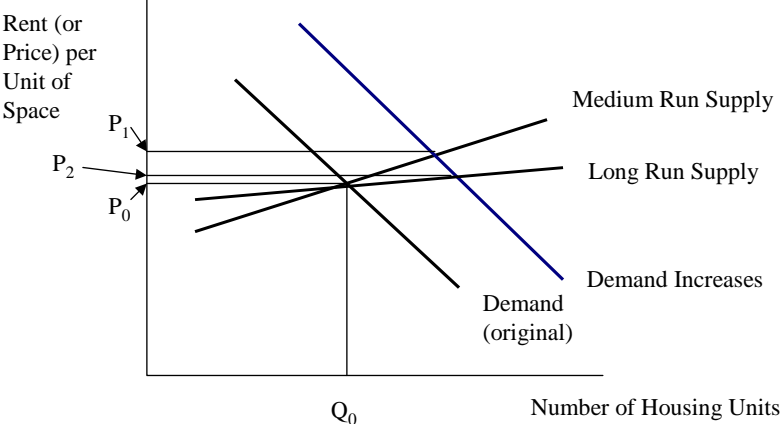


Figure 2

Demand Shocks with Inelastic Supply, Followed by a “Million Houses Program”

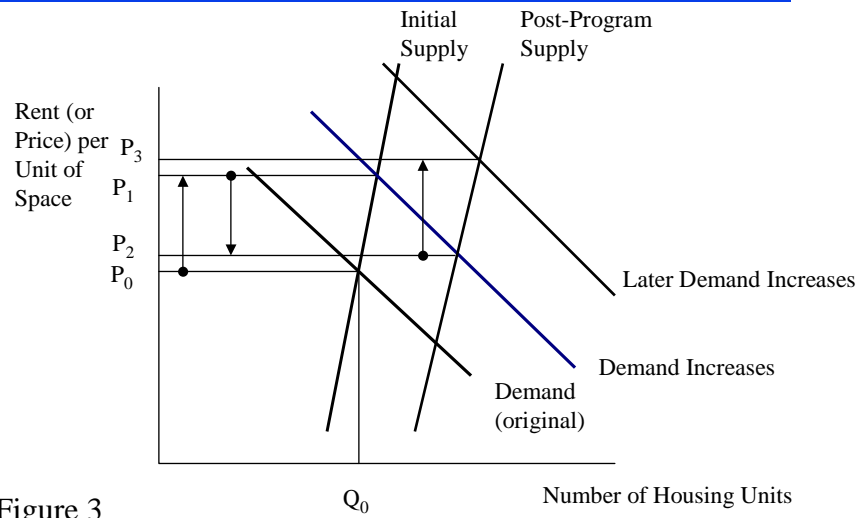


Figure 3