
Tales From the Real Side: The Implications of Urban Research for Real Estate Finance in Developing and Transition Economies

Stephen Malpezzi

The Real Economy and the Financial System

Every modern economy—developed, developing, and in-transition—has real assets and financial assets. What is the distinction, what are the differences and similarities, and how do the two sides of the economy fit together? Real assets (or capital) are the things used to make other things. They comprise tangible capital (equipment and machinery, infrastructure, and real estate) and human capital. Financial assets (or capital) assign claims on the output of the tangible and human capital.

The assets of a firm comprise primarily its real estate, other tangible capital-like equipment, and of course its people and the knowledge they embody. The stocks and bonds of a firm assign the cash-flows from the firm's operations (that is, from its tangible/human capital), as revenues are used to make loan or bond payments and pay dividends.

Analogously, on the household side, household assets, including human capital, furniture, clothing, vehicles, owned real estate, and the like, produce income. Most income is used to trade for goods and services, although some household capital produces consumption goods (notably housing) directly.

Financial systems comprise many elements. There are banks, bond and other capital markets, markets for trading equity, and so on. In addition to these public markets, there is a wide range of important private markets, from the corner moneylender to venture capitalists and large institutional investors.

Why is financial capital important? Is it *only* about claims; that is, about how the pie is divided up? No, well-functioning financial markets also are directly productive. Consider a world *without* financial intermediation: Investors would be forced to *first*

defer sufficient consumption from today's output long enough to save the necessary resources *before* making the investment. This implies that investments will come later than they otherwise would. It also implies that investments will only be made if the same people who have the investment idea or opportunity can save sufficiently to finance the investment.

Thus, in a world *with* a well-developed financial system, it is no longer necessary that the same people who are investors also must be the savers. Also, it is no longer necessary that savers figure out how to invest each dollar of their savings productively. A well-running financial system does it for them and better than they could on their own.

A large body of literature notes the central role financial intermediation plays in development. Much of this literature is international in character; for example, Maxwell Fry (1988) and works cited therein. But financial intermediation certainly matters within a country and across small units as well. Studies such as those by Brito and Mello (1995), Fazzari et al. (1988), and Mayer (1990) illustrate the point using a variety of data sources and methodologies.

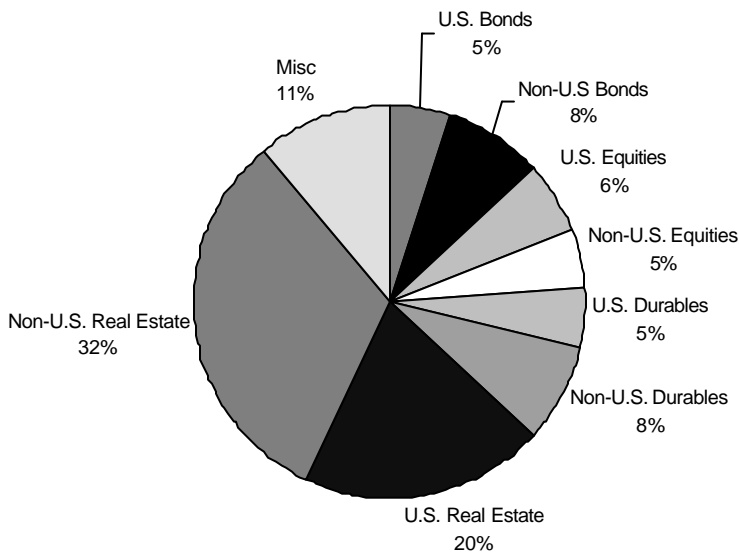
Financial Systems and Housing/Real Estate Markets

This paper focuses on the relationships between the financial side and the real side of housing and real estate markets in developing and transition economies. Among the many reasons for such a focus are the following:

- ‡ Real estate is the great majority of the tangible capital stock, and housing is the great majority of real estate stock (see figure 1, from Ibbotson et al., 1985.) Efficient and equitable deployment of this stock is an essential precondition of development.
- ‡ Because the cost and value of housing—and real estate more generally—are large relative to any period's income or production, real estate is inextricably bound up with the development of financial systems. Conversely, without a well-functioning financial system, most households' housing consumption would be adversely affected.
- ‡ Housing in particular is a large proportion of most households' consumption. It is a larger share for lower income households. Economists classify housing as a necessity.

! Housing generates many externalities on both the cost and benefit sides. Some evidence exists that the externalities on the benefit side are sufficient to classify housing as a merit good.

! Figure 1. Total World Wealth, 1980



Source: Ibbotson Associates.

It is especially fitting to have this discussion about international housing and housing finance markets at the U.S. Department of Housing and Urban Development (HUD) approximately 20 years after the completion of HUD's bellwether Experimental Housing Allowing Program (EHAP). EHAP was the training ground for a generation of housing, urban, and real estate economists—and an indirect training ground for the generation that followed. As it wound down in the 1980s, many EHAP veterans began to focus more on housing and real estate finance at universities and at agencies like Fannie Mae and Freddie Mac.¹ Others went on to apply the tools developed within EHAP to other countries. These researchers found, to the surprise of many including sometimes the researchers themselves, that these tools were highly applicable to a wide range of institutional and economic systems. Renaud (1999) reviews the role EHAP played as the intellectual “granddaddy of us

all.” Many of today’s researchers, taught by an earlier generation trained in EHAP, may not be aware of the role this major research project played in their intellectual development.

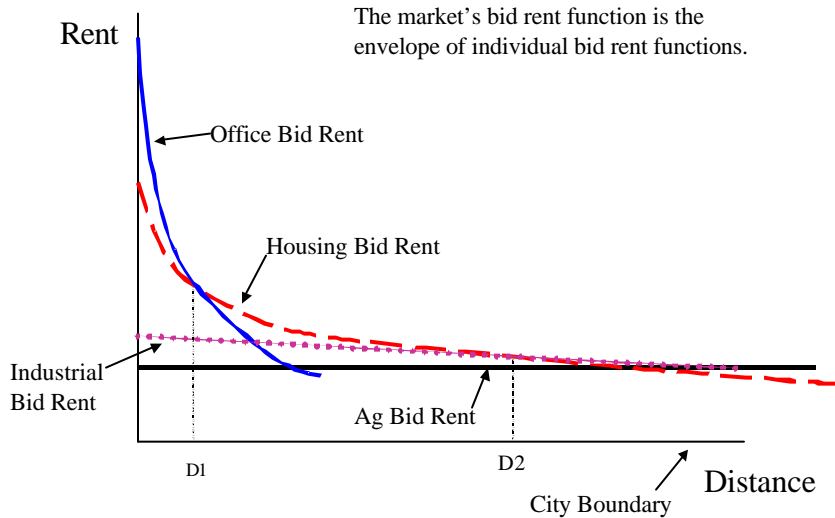
This paper addresses propositions or areas of research on the “real” side of housing and real estate markets over the past decade, along with some of the implications for real estate finance. Where relevant, possible research agendas over the next decade will be discussed. The propositions/topics to be considered are the following:

1. Low-income housing, housing, and real estate—and their finance—are interconnected.
2. Real estate and its finance are essential elements of economic development.
3. Real estate’s durability and fixity matter.
4. Real estate is an important component of the business cycle.
5. Land use and development regulations and real estate taxation affect finance.
6. Informal finance is often a second-best solution.
7. The “industrial organization” of housing, real estate, and finance markets.
8. Housing demand and housing finance are two sides of the same coin.
9. Well-functioning real estate markets are progressive institutions.
10. Housing subsidies should be partitioned from housing finance.

Low-Income Housing, Housing, and Real Estate^{3/4} and Their Finance^{3/4} Are Interconnected

All types of real estate markets—land, infrastructure, housing, office, industrial, retail, and so forth—are interconnected. Although there are good reasons for some market and policy specialization (for example, by property type), in the aggregate, finance and other policymakers must learn to view real estate markets in a unified way. This interconnectedness has been studied at least since the time of the classic urban models of Alonso (1964), Mills (1972), and Muth (1960, 1969). Figure 2 illustrates a very simple model of a prototypical monocentric city. In this simple version, office activities capture the central business district (out to D1), housing outbids business and other activities between D1 and D2, and industrial development wins out from D2 to the boundary of the city. The residual land surrounding the developed city is assumed to be engaged in agricultural uses.

Figure 2. Land Use in a Sample Urban Model



This simple explanation abstracts from many things. For simplicity this explanation omits some important land uses (such as retail). Some land uses are often analyzed in a more disaggregated fashion; for example it may be of great interest to study the housing markets of people of different income levels or household types. Perhaps most immediately noticeable to many readers is the assumption that employment and offices cluster in the city center. Make no mistake: the notion that different uses bid for land and different uses are connected, is independent of the particular simplistic assumptions made in figure 2. It is not the monocentricity or the particular choice of land use definitions that characterize the model, so much as the bid-rent process. Models by Kain and Apgar (1979) and others have shown how to adapt this process to much more complex urban forms (Ingram, 1979). Goetzmann et al. (1998) show that these linkages connect the fortunes of central cities and suburbs.

Many issues that arise in real estate and hence its finance can be characterized in terms of these kinds of models. For example, Bertaud and Renaud (1997) have

analyzed how Moscow's land use, which developed quite independently of such bid-rent processes, has been distorted at great cost to the then Soviet and now Russian economy. Furthermore, the model provides a benchmark to understand what kinds of price discovery processes may be observed in the future. Based on data painstakingly collected by the first author, Bertaud and Malpezzi (1998) have presented summary measures of population density across a range of world cities that show which ones follow market processes broadly speaking and which are heavily distorted. In heavily distorted markets such as Moscow, Johannesburg, or Brasilia, these models can be used to predict in a qualitative way how prices are likely to change over time with respect to location. Take a single and perhaps crude example: the model predicts that financial institutions will tend to find more opportunities in the redevelopment of close-in Moscow locations, rather than additional greenfield developments on an already heavily built periphery. That is not to say that no redevelopment on the periphery is unimportant or that some new uses will not be built out, especially given that the form of the real estate stock is far from optimal. But surely the last thing that Moscow needs is any more 50-square-meter prestressed concrete flats on the edge of the city. Financing the redevelopment of Moscow's huge stock of inefficiently located industrial space is a key opportunity.

In the past, policymakers and researchers concerned with low-income housing too often analyzed and viewed it in isolation from the rest of the real estate market. A common theme in much recent research (World Bank, 1991; Malpezzi, 1998) is that in those developing and transition economies where the entire market is distorted and "not producing," it is completely unrealistic to imagine that the housing delivery system can be improved significantly for the low-income population while the system continues to fail to produce for middle- and upper-income households. This is not a trickle-down strategy but rather a broad marketwide strategy. It is ambitious, and it is necessary. Well-functioning real estate markets are progressive institutions.

Much remains to be done in this area. Among other research priorities, it would be fruitful to extend recent research on the form of the city to direct estimation of bid-rents as well as density gradients. Key determinants that need to be studied more carefully include the effects of government regulations and transportation infrastructure.

Real Estate and Its Finance Are Essential Elements of Economic Development

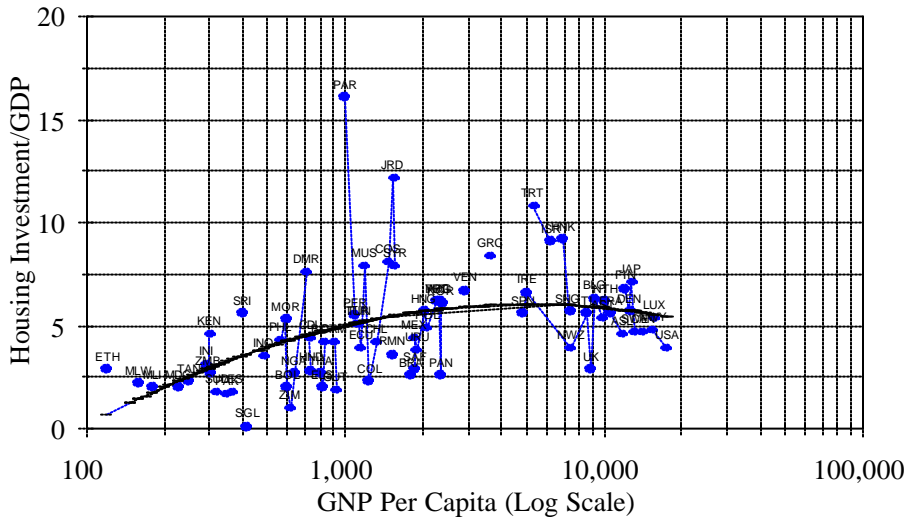
The processes of urbanization, economic growth and development, and capital formation—notably real estate—are entwined processes. Real estate capital formation is a function of per capita gross domestic product (GDP). Demographic transitions accentuate the process. “Cities are built the way they are financed” (Renaud, 1999).

Over the past decade there has been an explosion of research on these links between urbanization and development, including Fujita et al. (1999), Glaeser (1994), and Henderson (1989). Recent research by Malpezzi and Lin (1999) analyzes the turning point for urbanization and gross national product (GNP) growth. Urbanization takes place most quickly when the percentage of a country’s population that is currently urbanized ranges between 10 and 30 percent. This also is broadly the period over which the correlation between urban growth and GDP per capita growth is highest. Malpezzi and Lin (2000) find that the broad correlation between urbanization and GDP fades out at a GDP level of \$5,000 per capita.

Since the seminal work of Burns and Grebler (1977), urbanists have analyzed the relationship between housing investment and level of development. With data from many periods in both cross-section and time series, such studies as Renaud (1980), Buckley and Madhusudhan (1984), and Buckley and Mayo (1989) find that the quadratic relationship is robust with respect to a time period and data source (figure 3). It is perhaps ironic that real estate finance systems, including those for housing, are in their infancy whenever they could make the greatest contribution to real estate development.

How are recent technological changes affecting agglomeration economies and the nature of cities? This question is currently on the mind of many real estate professionals and researchers. Influential writings such as “The Death of Distance” by Cairncross (1997) argue that the rise of the Internet and changes in telecommunication are going to fundamentally change the value of location in cities. Although there is no doubt that these and other technological changes on the horizon will have their effect, the “death of distance” argument is grossly overstated. It is worth contemplating that of all the places on earth where there is a collection of people with the human and physical capital necessary to telecommute, Silicon Valley remains one of the most compact and expensive agglomerations on the planet. A

Figure 3. International Housing Investment



more systematic study by Kolko (1999) shows that most Internet usage is long distance, engendering more contact across regions: it is used much less as a substitute for personal contact at short distances.

Opportunities for future research include studying the relationships among financial development, urbanization, and housing investment, and studying the complementarities between real estate investment and other tangible capital.

Real Estate's Durability and Fixity Matter

Real estate's defining features are durability and locational fixity. Location matters, and recycling locations (redevelopment) is in the long run as critical as greenfield development. The problems observed where redevelopment is excessively inhibited have already been alluded to (for example, the Moscow case). Financial systems should be designed not only with new construction in mind; resale and redevelopment also are also critical. Real estate needs to be recycled on a regular basis.

A number of papers based on recently available firm-specific data have made it even more clear how much dynamism exists beneath the surface of a growing economy (Davis et al., 1996). For every 100 U.S. manufacturing jobs at the beginning of the year, 10 will disappear throughout the year due to layoffs, plant closings, and the like. But nine new jobs will appear.¹ Little analysis has been done of the real estate implications, but a study by Eberts and Stone (1992) demonstrates that in U.S. metropolitan areas, job growth is primarily related to new plant openings and expansions. Very little of the metropolitan area variation in employment growth is related to plant closings and the like. Public policies should focus on removing restrictions on firm births and expansions, rather than excessive concern with plant closings. Financial policy in particular should not focus on new construction to the exclusion of financing resale and redevelopment.

It appears that very little research along these lines has been undertaken in countries other than the United States. More work on these issues is particularly essential for transition economies because much of the transition involves plant closings and other painful restructurings. Financial as well as regulatory and institutional impediments to redevelopment and recycling must be carefully analyzed.

Real Estate Is an Important Component of the Business Cycle

Real estate is extremely cyclical. U.S. data and some theories suggest residential development leads the business cycle, while commercial development follows it (Green, 2000). By now everyone knows how badly designed financial systems can cause and exacerbate financial crises and cyclical downturns. Examples include the U.S. savings and loan crisis, Argentina in the 1980s, Japan's long-running problems, and the Asian crisis.

Thailand's economy was the first to falter and trigger the 1997–98 Asian crisis. It is well known that this was due largely to a bubble in the property market that in turn had its roots in an enormous inflow of capital into the country and vents to the property market, without sufficient (or even reasonable) regulatory oversight or incentive systems. Not all countries that experienced a problem had property at the core; for example, Fu (2000) points out that even though Hong Kong's real estate market has been volatile, it has not spilled over to the exchange rate or other macroeconomic activities. Hong Kong banks, in contrast to Thai banks, were more reasonably regulated, as Fu illustrates. Korea, on the other hand, was hit hard by the

shocks, at least initially. Korea also has had highly volatile real estate markets, as noted above and pointed out particularly by Kim (2000). But Korea's financial system was not as heavily involved in the property market (at least directly as in Thailand). The countries who suffered most, such as Thailand and Indonesia, had this in common: a financial system that had neither appropriate regulatory frameworks nor governance mechanisms that ensured that property lending was an arms-length transaction. An excellent overview of the crisis and the role real estate played in it can be found in Mera and Renaud (2000).

Incentive problems that exacerbate cycles appear on the real side as well as the financial side. For example, why do developers so often overbuild? Grenadier (1995) created an option theoretic model that shows how construction bursts or cascades occur, even when the underlying demand for space may be falling.

What are the implications of these cycles for housing finance? Most obviously, administrative guidance and annual quantitative lending targets are passé. Financial regulation should aim to dampen, not accentuate, these cycles.

There has been a recent explosion of research on cycles. In addition to references cited in the previous paragraphs, see, for example, Chang and Lai's (1993) study of Taiwan. A Bank of International Settlements study by Borio et al. (1994) showed that asset-price swings across a wide range of Organization for Economic Cooperation and Development countries were to a significant extent related to changes in financial markets and policy. These and other studies will help explain relationships between real estate and the business cycle more systematically across countries, including the effects of financial regulation on the real side.

Land Use and Development Regulations and Real Estate Taxation Also Affect Finance

Excessive and inappropriate regulations limit supply and lead to rising and volatile real estate prices. Risk increases because volatile prices increase defaults.

A number of papers have demonstrated the strength of the relationship between the regulatory environment and housing and real estate prices. Studies of the U.S. include those by Pollakowski and Wachter (1990), Segal and Srinavisan (1985), Black and Hobin (1985), Rose (1989), Shilling et al. (1991), Malpezzi (1996), Malpezzi et al. (1998), and Malpezzi (1999a). International studies include those by Evans (1999),

Monk and Whitehead (1995), Bramley (1993), Renaud (1988), Angel and Mayo (1996), Malpezzi (1990), and Malpezzi and Ball (1991).

Because the thrust of some of this research is often misinterpreted, the 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, similar to any other private or public economic activity.

The fact that excessive regulation leads to high prices is well documented and unassailable. What is less widely appreciated is the effect regulations have on second moments and risk. Consider the following proposition: excessively stringent regulation drives up housing prices; higher prices lower default risk, other things stay the same; therefore, higher regulations are better for mortgage lenders.

As Steve Mayo has said, it would be a good story if it were true. In fact, the price increases caused by regulation can last for some time but eventually markets adjust. Markets that have stringent regulatory environments are characterized by large boom-and-bust cycles. We can illustrate the process in a simple fashion with figures 4 and 5. In figure 4, 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 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 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 5, which is more or less the same except that the markets are more elastic. The initial increase in supply gives rise to a price increase over the medium term, as expected, but the increase 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. Take the example of Korea, a country with an extremely stringent regulatory environment that has greatly inelasticized supply. Many studies such as those by Kim (1988), Hannah et al. (1993) and Green et al. (1994) have documented the Korean regulatory system, and Malpezzi and Mayo (1997) have shown that this leads to a very inelastic housing supply.

Figure 4. Demand Shocks with Elastic Supply: Boom and Bust

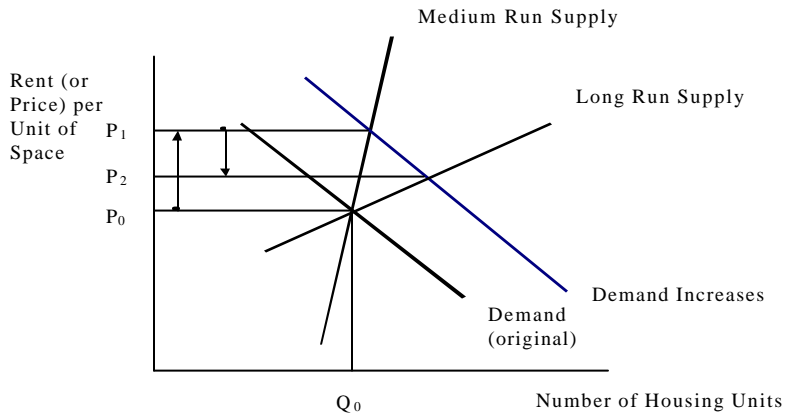
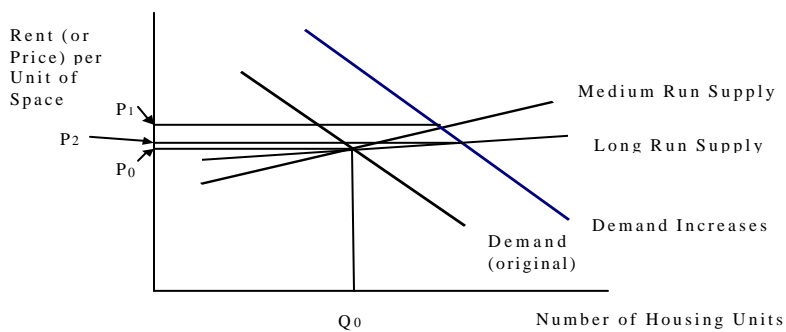
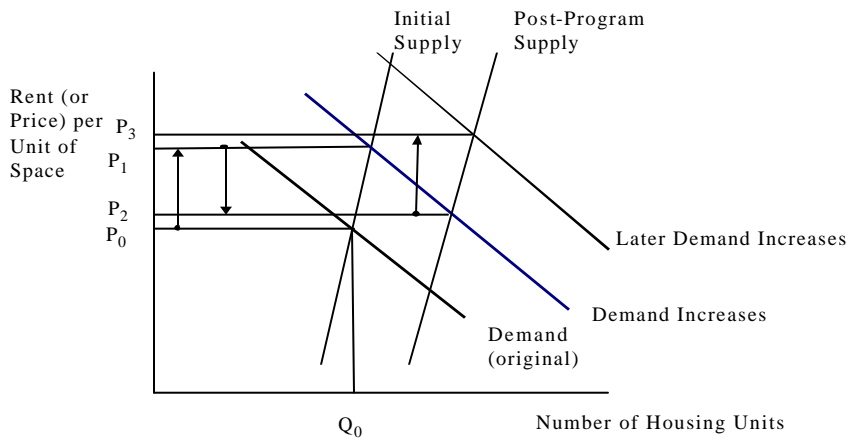


Figure 5. Demand Shocks with Elastic Supply: Lower Price Shocks, Less Volatility



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 (see figure 6). After the crash from P_1'' to P_2'' , the process starts over again. As demand grows further, prices rise again to P_3'' .

Figure 6. Demand Shocks With Inelastic Supply, Followed by a “Million Houses Program”



Thus, a world in which government responds to rising housing prices by one-time programs to get the market moving, as in Korea’s and Sri Lanka’s Two Million Houses Program, can be characterized as occasionally *shifting* an inelastic supply curve to the right. This leads perforce 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 and reducing the risk for financial institutions and other lenders.

Figure 7 presents evidence on the relationship between regulation and second moments of housing prices using U.S. metropolitan area data. The dependent variable is the standard deviation of annual changes in agency prices? (repeat sales from Fannie Mae and Freddie Mac) from 1979 to 1996. The independent variables are the standard deviation of annual changes in real income per capita from 1978 to 1994 and the standard deviation of annual changes in employment from 1978 to 1994. The regulatory measure is from Malpezzi et al. 1998). Higher is more stringent. Both the plot and the regression show that regulation increases risk.

Figure 7. Exploratory Regression, Explaining Standard Deviation of Annual Agency Housing Price Changes, U.S. Metro Areas

	Standardized Coefficient	t-Statistic	Prob > t
Std Dev of Real Changes in Income Per Capita	-0.10	-1.1	.2877
Std Dev of Annual Changes in Employment	0.26	2.7	.0073
M-C-G Regulatory Index	0.42	5.3	.0001
Intercept	-0.00	-2.9	.0046

Adjusted R-squared: 0.21
Degrees of freedom: 125

More direct evidence of the effects of housing market conditions on mortgage risk can be found in a work by Lacour-Little and Malpezzi (forthcoming), who show that mortgage defaults are increasing function of the house price-to-income ratio at time of origination. Other direct evidence is presented by Matthey and Wallace (1999), who demonstrate that housing price conditions are strongly related to mortgage prepayments and, at times, associated loan losses.

As yet, few such studies have been carried out in developing or transition economies. Future work should extend studies of price dynamics and their determinants from the United States to other countries.

Informal Finance Is Often a Second-Best Solution

Nature abhors a vacuum, and informal financial mechanisms tend to fill the gaps of insufficiently developed formal financial markets.² But there are costs to informality. Improving the affordability of housing finance extends the reach of the formal sector downward.

How well is the housing and real estate finance system working in a given country? A simple walking-around diagnostic is to observe whether houses are generally completed as functional units or whether they are built incrementally. In countries where financial systems are distorted and implicit taxes are heavy and where housing finance is unavailable to all but the favored few, there is widespread stockpiling of materials and incremental construction, such as Ghana in the 1970s or Egypt in the 1980s.

Incremental building or “progressive development” practices were studied years ago by scholars and activists such as Turner (1972) and Abrams (1964). These important progressive development models underlay the sites-and-services paradigm and have made their contribution to the development of many a city. But let us not romanticize: They are second-best solutions. As long as there is a preference for consumption today versus consumption in the future (that is to say at all times and everywhere), a system where households can build now and enjoy the fruits of their labor³ is preferable to one where houses are not completed until all the funds are mobilized by the households consuming the units.

What does formal housing finance have to do with moderate-income households in developing countries? A rough analysis by Malpezzi (1990) based on data from Buckley (1988) shows that, contrary to some expectations, nations’ markets that have the broadest financial markets also have the most affordable housing. One worldview is that of inelastic supply generally where increases in credit availability tend to drive up prices. Another view is that of elastic markets, where elasticity is correlated positively with credit availability, so that markets where finance is available are ones

that generally work well also on the development and regulatory fronts. The evidence of figure 8 is much more consistent with the latter world.

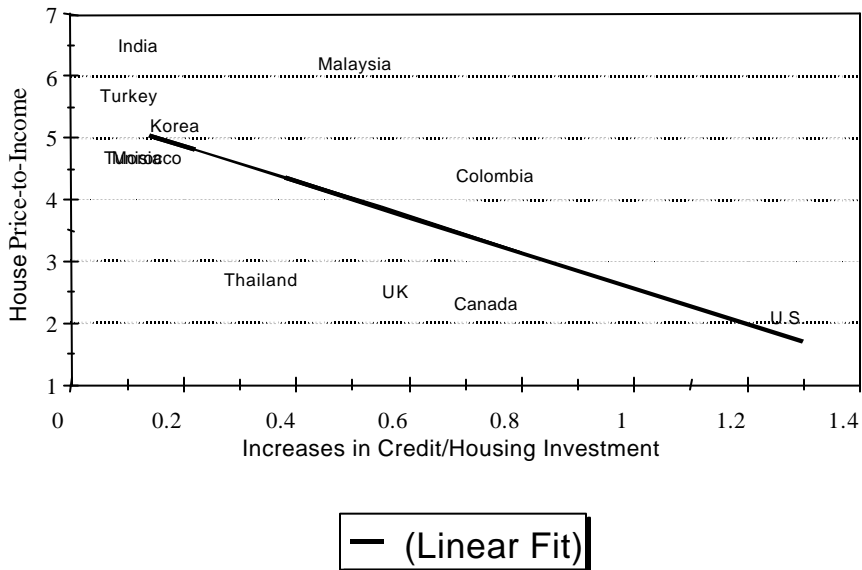


Figure 8. Housing Credit and Housing Prices

The “Industrial Organization” of Housing, Real Estate, and Finance Markets

The industrial organization of real estate markets matters greatly, as discussed in Renaud (1991). In many developing and transition economies, institutional development is very incomplete; incentive and agency problems are rife. In many countries—developing, transition, *and* developed—there is scope for further measures to keep appraisal and finance arms-length from development and property management.

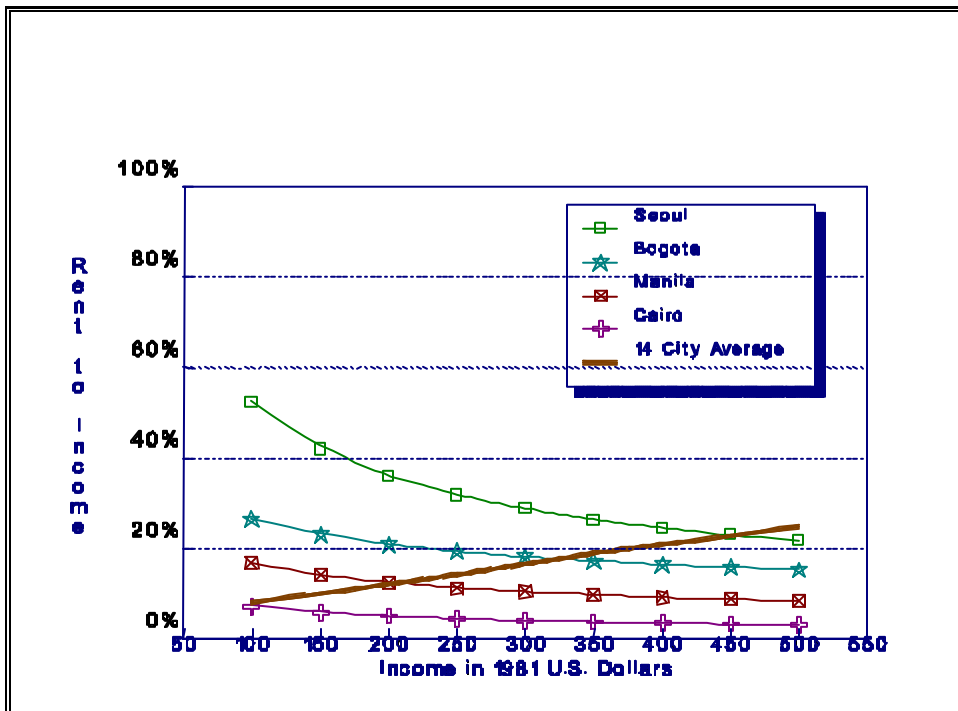
Schleifer and Vishny (1997) survey a range of corporate governance issues around the world. Sagalyn (1996) reviews governance issues that arise in a particular investment form: namely, U.S. real estate investment trusts. Studies such as Howe and Shilling (1990) demonstrated that improved corporate structures—in particular structures that minimized conflicts of interest among management, outside advisors, and

shareholders—increased efficiency and rates of return. Although the specifics of these papers are unique to U.S. markets, they provide examples of how to analyze various conflicts of interest and agency problems inherent in real estate developments generally.

Housing Demand and Housing Finance Are Two Sides of the Same Coin

Household demand for real estate varies with income within and across countries in predictable ways. Research on housing demand in developing countries by Malpezzi and Mayo (1987) established that (1) within markets, housing demand is generally inelastic with respect to income, with elasticity typically in a range of 0.5 to 0.8,⁴ (see figure 9) and (2) in the very long run, as countries and markets develop and households and the supply side have more time to respond, income elasticity is approximately 1 or slightly greater.⁵

Figure 9. Housing Demand in Developing Countries



Source: Malpezzi and Mayo

In the past perhaps more heat than light was shed in debates about how to interpret these demand results and what implications they have for mortgage finance and project design. Over time the intensity of the debate has lessened, partly because of converging views on the magnitudes and technical issues involved, but also partly because of a new understanding that well-designed real estate finance systems and other housing projects financed from public sources do not need to rely on knowing about demand in tremendous detail.

Demand *is* important—in general and for understanding public policies, including taxes and subsidies. But if researchers find themselves worried about whether target households spend 15 percent or 18 percent of their income on housing, they are probably in the midst of designing an enclave project of some type, rather than a broad-based market reform.⁶

Also, it is important to keep in mind that the Malpezzi and Mayo studies and most other comparative work have been focused on developing countries—albeit with a wide range of incomes (from very low-income economies in sub-Saharan Africa to middle income economies such as Korea). But very few careful studies have been done on the transition economies. Exceptions include papers done by Alexeev (1988) and Buckley and Gurenko (1998) on Russian housing. Until recently, studies of transition economies have been hamstrung by the lack of data. Furthermore, in at least the initial transition period, the market is in a position of price discovery, and household adjustment to the development of housing markets is far from complete in many countries.⁷ As Buckley and Gurenko document, data from the first decade of transition usually find virtually no relationship between housing expenditures and income; Diamond (1998) translates this into a highly idiosyncratic demand for mortgage finance, albeit one that begins to parallel demand in market economies, as households adjust to market prices and changes in consumption and investment. Thus, whether today's consumption patterns reveal much about long-run demand remains an open question in many of the transition economies.

Despite these caveats about expecting too much from the data, it is clear that demand information can be useful for financial product design and underwriting, as well as many other purposes. Much research remains to be done, especially in the transition economies. A number of developing and transition countries have implemented large household-level data collection efforts, such as the Living Standards Measurement

Studies.⁸ These datasets have as yet been largely unexploited regarding housing research.

Housing Subsidies Should Be Segregated From Housing Finance

There are many ways to subsidize housing; the most common, off-budget through the tax code and the financial system, are the worst. On budget, demand side subsidies (vouchers or some form of housing allowance) are generally superior to supply side subsidies.

A number of studies, including many by Renaud (1999), Diamond (1997), and Buckley (1996), have marshaled the argument that the financial system is a very inefficient and inequitable vehicle for delivering subsidies. Further, U.S. experiences, as well as those of many other countries, demonstrate that this method is fraught with risks for lenders. Wachter (1990) demonstrates in particular the shortcomings of the housing finance system as a mechanism to reach a broad stratum of potential beneficiaries. Many other scholars have shown that subsidizing housing through the tax code has qualitatively similar problems although, for better or for worse, it is often sustainable over a fairly long period. Studies by Follain et al. (1992), Brueggeman (1985), and De Leeuw and Ozanne (1981) are good examples of this literature.

What of subsidies that are on budget and clearly labeled as such? An enormous body of research documents that demand-side subsidies—subsidies to people—are generally superior to supply-side subsidies—subsidies to “bricks and mortar.” In particular, much of the EHAP evidence and many subsequent studies demonstrate that both production and consumption efficiency are greater in demand-side than in supply-side programs.⁹

Of course, not all demandside programs are alike, and not all supply-side programs are alike. It is possible to design a supply-side program that is more production-efficient than old-style public housing; and it is possible to design a housing allowance that is inefficient by hamstringing the subsidy with a convoluted set of standards and rules. But virtually every study that has been done of roughly comparable programs using roughly comparable methodologies has found that both production and consumption efficiency are higher in demandside programs. Mayo et al. (1980b), Sa-Aadu (1984a and b), Bradbury and Downs (1981), Lowry (1983), and

Cronin (1982) are representative studies for the United States. Other studies such as Mayo and Gross (1985) demonstrate similar results for other countries.

At the level of the individual household and producer, these results are strong and robust. However, Apgar (1990) has cogently marshaled arguments for supply-side subsidies based on prevailing-market provisions. Building on intellectual antecedents such as Struyk (1977), Apgar points out that in markets where supply is inelastic, large increases in demand-side subsidies can bid up the price of housing, generating negative pecuniary externalities for low-income households not in the program. Also, in inelastic markets, it is conceivable that a supply-side program could result in a net addition to the existing stock.

Conversely, in highly elastic markets, supply-side programs simply crowd out unsubsidized investment; demand-side subsidies, in increased production and an unchanged price per unit of housing services.

Thus, the market effects of housing policies and how one views this aspect of the demand-side versus supply-side debate boil down to an empirical question about how elastic the housing market is. As a number of authors such as Olsen (1987) have pointed out, less is known about the supply side of the market than the demand side. The EHAP Supply Experiment in Brown and St. Joseph counties in Missouri found no evidence of price effects from a large-scale housing allowance, but participation rates were not as high as expected and the program was of limited duration. Some researchers, therefore, have questioned how much the Supply Experiment reveals about the long run.

More direct estimates of the price elasticity of housing supply are mixed. Ozanne and Struyk's (1978) well-known study finds that the supply elasticity from the existing stock is extremely low—so low that in their paper the authors themselves stated why their results were unlikely to be numerically correct. More studies have been done of supply from new construction, although there is still debate. Several studies such as Muth (1960) and Follain (1979) suggest that U.S. housing markets are fairly elastic. Other research by Poterba (1991) and Topel and Rosen (1988) find a positive but much lower supply elasticity. Malpezzi and Maclennan (1996) explain many of the differences across studies with the fact that the cycle in prices is long and different researchers have examined different parts of the cycle. Topel and Rosen and Poterba chose years where much of the data were in the rising part of the cycle, while Muth

and Follain chose years in the declining portion. Malpezzi and Maclennan find that, over the very long run, supply is fairly elastic.

On the other hand, as alluded to earlier, Green et al. (2000) show that the supply elasticity varies significantly from market to market. Further, consistent with the previous discussion of regulation, regulation of excessive land use and development is one of the strongest determinants of this elasticity. At one level, the discussion is brought back to the Apgar-Struyk argument for localized policies related to the elasticity. At another level, it is brought back to a different argument: If a market is inelastic because of regulation and other policy “mistakes,” should a second-best solution be adopted, leaving inappropriate regulations in place while increasing public production? Or, should the root cause of the problem be corrected?

Summary

This paper reviews recent research on the “real side” of housing and real estate markets and the economy in general and presents their implications for housing and real estate finance in developing and transition economies. Among the points discussed are the following:

- | All types of real estate markets—land, infrastructure, housing, office, industrial, retail, and so forth—are interconnected. Although there are good reasons for some market and policy specialization (for example, by property type), in the aggregate, policymakers as well as financiers must learn to view real estate markets in a unified way.
- | Urbanization, economic growth and development, and capital formation— notably real estate—are entwined processes. Demographic transitions accentuate their interactions. Well-developed real estate finance systems can make a particularly strong contribution at the early stages of development.
- | Real estate’s defining features are durability and locational fixity. Location matters, and recycling locations (redevelopment) is in the long run as critical as greenfield development. Financial systems should accommodate redevelopment as well as new investment.
- | Real estate is extremely cyclical. U.S. data and some theories suggest residential development leads the business cycle, while commercial development follows it. Financial systems should be designed to minimize procyclical boom-and-bust behavior.

- | Excessive and inappropriate regulations inelasticize supply and lead to rising and volatile real estate prices. Volatile prices increase defaults. Underwriting should take these effects into account.
- | Given real estate's volatility and role as a leading indicator, forecasting is difficult. Forecasting may be less useful than understanding how developers play the game. "Herd behavior" by financial institutions may increase volatility and default losses.
- | Nature abhors a vacuum, and informal financial mechanisms tend to fill the gaps of insufficiently developed formal financial markets. But there are costs to informality. Policymakers should take account of, but not romanticize, informal markets.
- | Household demand for real estate varies with income within and across countries in predictable ways. This can be useful for designing and underwriting financial products. But micromanaging the loan product-household match should be avoided.
- | There are many ways to subsidize housing; the most common ways, through the tax code and the financial system, are the worst. Demand-side subsidies are generally superior to supply-side subsidies. Supply-side subsidies are often capitalized. Subsidies should be separated from finance. If those who finance the houses are worried about their physical design, they are in the wrong business.
- | The industrial organization of real estate markets matter; incentive and agency problems are rife. Appraisal and finance must be arms-length from development and property management.

Endnotes

¹ Manufacturing employment is slowly declining in the United States, as in many other countries, as resources move into services.

² "Informal" financial markets have many and varied definitions. See Renaud (1985), Chen and Fische (1993) and Hamman (1983). For our purposes, consider informal finance as lending that is largely unregulated, at least directly, and small in scale. Examples would include small-scale moneylenders, rotating credit associations, and the like.

³ Or more often the fruits of the person he or she hires, see Jimenez (1988).

⁴ Hence the rent-to-income ratio declines with income within the city, as in the city-specific lines of figure 9.

⁵ As in the upward-sloping line in figure 9, which represents the average rent-to-income ratio at each city's average income.

⁶ See Gross (1986) and Mayo and Gross (1987) for some of the evolution in thinking about the best uses of demand-side information.

⁷ Bertaud and Renaud (1997) discuss this process and its spatial implications.

⁸ See Grosh and Glewwe (2000) for a broad view of the LSMS and its components. See Malpezzi (2000) for a discussion of the kinds of housing market analysis that could be carried out with LSMS data.

⁹ Production efficiency is the relationship between the value of the housing unit and the resources used to produce it. Consumption efficiency is the ratio between the value the recipient household places on the housing unit consumed and the market value of the housing.

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