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

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**Introduction: the Real Economy, and the Financial System**

Every modern economy -- developed, developing, and in transition -- has real assets, and financial assets. Let us remind ourselves of the distinction, of the differences and similarities, and how the two sides of the economy fit together.

Real assets (or capital) are the things we use 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, i.e. 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 their 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 are 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, i.e. about how the pie is divided up? No, well functioning financial markets are also directly productive. Consider a world *without* financial intermediation. Then investors must *first* defer sufficient consumption from today's output long enough to save the necessary resources *before* they make 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 be the savers. No longer is it 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 literature notes the central role financial intermediation plays in development. Much of this literature is international in character, for example Fry (1988) and works cited therein. But it certainly matters within a country and across small units as well. Studies such as those by Brito and Mello (1995), Fazzari, Hubbard and Peterson (1988), and Mayer (1990) illustrate the point using a variety of data sources and methodologies.

**Financial Systems and Housing /Real Estate Markets**

In this paper we focus on the relationships between the financial side and the real side of housing and real estate markets, in developing and transition economies. Among 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 the stock of real estate. Figure 1, from Ibbotson, Siegel and Love (1985) illustrates.[1] 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; and conversely, without a well functioning financial system, most households' housing consumption will be adversely affected.

- Housing in particular is a large proportion of most households' consumption. Empirically it is a larger share for lower income households, i.e. economists classify housing as a necessity.

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

It is perhaps especially fitting that we would have this discussion about international housing and housing finance markets here at the Department of Housing and Urban Development roughly 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 indirectly for the generation that followed. As that research program wound down in the 80s, many EHAP veterans began to focus more on housing and real estate finance at universities and at agencies like Fannie Mae and Freddie Mac, and of course at HUD. 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) gives a nice review of the role EHAP played as the intellectual "granddaddy of us all". Many of today's researchers, trained by an earlier generation trained in EHAP, are dimly or un-aware of the role this major research project played in their intellectual development.

The rest of the paper proceeds as follows. I will discuss nine propositions or areas of research on the "real side" of housing and/or real estate markets over the last decade. I will then try to draw out 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] Note the data from the Figure are 20 years old. Improving and updating comparative data on the real estate capital stock is an important topic for future research.

_ Low-income housing, housing, and real estate -- and their finance -- are interconnected.

_ Real estate and its finance are essential elements of economic development.

_ Real estate's durability and fixity matter.

_ Real estate is an important component of the business cycle.

_ Land use and development regulations and real estate taxation also affect finance.

_ Informal finance is often a second best solution.

_ Property rights and the "industrial organization" of housing, real estate, and finance markets matter.

_ Housing demand and housing finance are two sides of the same coin.

_ Well-functioning real estate markets are progressive institutions.

_ Housing subsidies should be partitioned from housing finance.

## 1. Low-Income Housing, Housing, and Real Estate -- and their Finance -- are Interconnected.

Real estate markets -- land, infrastructure, housing, office, industrial, retail, etc. -- are all interconnected. While there are good reasons for some market and policy specialization, e.g. by property type, in the aggregate finance and other policymakers must learn to view real estate markets in a unified way. We have studied this interconnectedness at least since the time of the classic urban models of William Alonso, Richard Muth, and Edwin Mills. 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 as well as other activities between D1 and D2, then industrial development wins out from D2 to the boundary of the city. The residual land surrounding the developed city is assumed for the moment in agricultural uses.

Now this very simple explanation abstracts from many things. Some important land uses (such as retail) are omitted for the moment for simplicity. 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 clusters in the city center. Make no mistake: the notion of different uses bidding for land, and that different uses are connected, is quite independent of the particular simplistic assumptions we made in Figure 2. It's

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), Anas and Arnott (1993) and others have shown how to adapt this process to much more complex urban forms.[2] Goetzmann, Spiegel and Wachter (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 shows which ones follow market processes broadly speaking and which are heavily distorted. In heavily distorted markets such as Moscow, or Johannesburg, or Brasilia, these models can be used to predict at least 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's 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 are any more 50 square meter pre-stressed 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, policy makers 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, such as World Bank (1993) and Malpezzi (1999), is that in those developing and transition economies where the entire market is distorted, and "not producing", it's completely unrealistic to imagine that one can improve the housing delivery system 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 market wide strategy. It is ambitious, and it is necessary. Well-functioning real estate markets are progressive institutions.

When the housing finance system is not performing, consumer welfare suffers. One study of the welfare costs attributable to the existence of an inadequate mortgage financing system has been undertaken by Kim (1990) in the case of Seoul, Korea. Using a long run equilibrium model that compares returns to housing and non-housing capital, Kim found that Korea's housing finance system – or lack thereof – skewed investment away from housing sufficiently to engender significant welfare losses. Point estimates varied with assumptions, but his estimates of the equivalent variation of losses due to this inadequacy could be 10 percent of household income or more.

[2] See Ingram (1979) for a good review.

Much research remains to be done in these areas. 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 regulatory environment, and transportation infrastructure.

## 2. Real Estate and Its Finance are Essential Elements of Economic Development

Urbanization, economic growth and development, and capital formation -- notably real estate -- are entwined processes. Real estate capital formation is a quadratic function of per capita GDP. Demographic transitions accentuate the process. And "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. Among many analyses, see Fujita, Krugman, and Venables (1999), Glaeser (1994), and Henderson (1988). Recent research by Malpezzi and Lin (1999) analyzes the turning point for urbanization and GNP growth. Urbanization takes place fastest when the percentage of a country's population that is currently urbanized ranges between 10 and 30 percent. This is also 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.

Ever 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 generally least developed whenever they could in a sense make the greatest contribution to development.

How are recent technological changes affecting agglomeration economies and the nature of cities? This is the question that is on the mind of every real estate professional I talk to, and certainly on the radar screen of many 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. While there is no doubt that these technical changes and others on the horizon will have their effect, the "Death of Distance" argument is grossly overstated. It's worth contemplating that of all the places on earth where there's 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 more systematic study by Kolko (1999) shows that most Internet usage is long distance, engendering more contact across regions: it is much less used as a substitute for personal contact at short distances.

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

## 3. 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. We've already alluded to the problems observed where redevelopment is excessively inhibited (e.g. the Moscow case). Financial systems should be designed not only with new construction in mind. Resale and redevelopment are also critical. Real estate needs to be recycled on a regular basis.

A number of recent papers based on recently available firm-specific U.S. data have made it even more clear how much dynamism exists beneath the surface of a growing economy.[3] For U.S., for every 100 manufacturing jobs at the beginning of the year, 10 will disappear throughout the year given layoffs and plant closings and the like. But 9 new jobs will appear.[4] So far little analysis has been done of the specific 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 of 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.

These local economic dynamics are mirrored in real estate markets through the phenomenon of filtering (see Lowry 1960 and Weicher and Thibodeau 1988, among others). To my knowledge, very little research along these lines has been undertaken in countries other than the U.S., either on the underlying economy or the housing and real estate market (but see Ferchiou 1982). More work on these issues is particularly essential for the transition economies, since much of the transition involves plant closings and other painful restructurings. We need to carefully analyze impediments, financial as well as regulatory and institutional, to redevelopment and recycling.

## 4. Real Estate is an Important Component of the Business Cycle

Real estate is extremely cyclical. U.S. data and some theory suggest residential development leads the business cycle, while commercial lags it (Green 1997). By now everyone knows how badly designed financial systems can cause and exacerbate financial crises and cyclical downturns. Examples include the U.S. S&L crisis, Argentina in the 80s, Japan's long running problems and the Asia crisis.

Thailand was of course the first country to turn down and trigger the 97-98 "Asian Crisis". It's well known that this was due largely to a bubble in the property market that in turn

[3] See Davis, Haltiwanger and Schuh (1996).
[4] Manufacturing employment is slowly declining in the U.S., as in many other countries, as resources move into services.

had its roots in an enormous expansion of capital inflows 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 hard hit by the shocks, at least initially. Korea has also 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 that suffered most, like Thailand and Indonesia, had this in common: a financial system that had neither appropriate regulatory frameworks nor governance mechanisms that insured 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) develops 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's 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, Kennedy, and Prowse (1994) showed that asset price swings across a wide range of OECD countries were to a significant extent related to changes in financial markets and policy. These and other studies will help us study relationships between real estate and the business cycle more systematically across countries, including the effects of financial regulation on the 'real side.'

## 5. Land Use and Development Regulations and Real Estate Taxation Also Affect Finance

Excessive and inappropriate regulations "in-elasticize supply" and lead to rising and volatile real estate prices. Risk increases. 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 Pollakowski and Wachter (1990), Segal and Srinavisan (1985), Black and Hoben (1985), Rose (1989), Shilling, Sirmans and Guidry (1991), Malpezzi (1996), Malpezzi, Chun, and Green (1998) and Malpezzi (1999 a). International studies include Angel (2000), Evans (1999) and Monk and Whitehead (1995) as well as Bramley (1993), Angel and Mayo (1996), Malpezzi (1990) and Malpezzi and Ball (1991).

Of course, it bears repeating, since 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, as any other private or public economic activity.

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

As our friend Steve Mayo used to say, 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 do 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 D1 to D2. Given this demand shock in a very inelastic short and medium run supply, little supply response is observed and prices increase substantially from P0 to P1. 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 P1 to P2.

Contrast this with Figure 5, 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 P0' to P1' and back down to P2'.

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 Kim (1993), Hannah, Kim and Mills (1990), and Green, Malpezzi, and Vandell (1992) have documented the 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 6 illustrates. After the crash from P1" to P2", the process starts over again. As demand grows further, prices rise again to P3".

Thus a world in which government responds to rising housing prices by one time programs to get the market moving, as in Korea's or 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, reducing the risk for financial institutions and other lenders.

Figures 7 and 8 present some 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" price changes (repeat sales from Fannie Mae, Freddie Mac), 1979-96. The independent variables are the standard deviation of annual changes in Bureau of Economic Analysis MA real income per capita, 1978-94, and the standard deviation of annual changes in Bureau of Economic Analysis MA employment, 1978-94. Our regulatory measure is from Malpezzi-Chun-Green (Real Estate Economics, 1998). Higher is more stringent. Both the plot and the regression show that regulation increases risk.

Of course, the underwriting of housing and real estate loans needs to take careful account of the volatility of asset prices. De Bondt (1995) presents an overview of real estate and housing cycles and Malpezzi (1999a) provides evidence that such boom-bust cycles can be greatly exacerbated by overly stringent regulatory environments. More direct evidence on the effects of housing market conditions on mortgage risk can be found in Lacour-Little and Malpezzi (forthcoming) who show that mortgage defaults are an increasing function of the house price-to-income ratio at time of origination. Other direct evidence is presented by Mattey and Wallace (1999), who demonstrate 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 U.S. to other countries.

## 6. 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.[5] But there are costs to informality.[6] Improving the affordability of housing finance is about extending the reach of the formal sector "downmarket."

How well is the housing and real estate finance system working in a 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, one observes wide spread 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 John F.C. Turner (1972) and Charles Abrams (1964). These progressive development models are important, underlay the sites-and-services paradigm, and have certainly 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

[5] "Informal" financial markets have many and varied definitions. See Renaud (1985), Chen and Fishe (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.
[6] An excellent discussion of these costs, including the difficulty of mortgaging housing when property rights are unsettled and regulatory systems far from optimal, can be found in De Soto (2000).

today versus consumption in the future (that is to say at all times and everywhere), a system where someone can build now and enjoy the fruits of her labor[7] is preferable to one where a house is not completed until all the funds are mobilized by the same household consuming the unit.

What does formal housing finance have to do with moderate-income households in developing countries? Rough and ready analysis by Malpezzi (1990) based on data from Buckley (1988) shows that, contrary to some expectations, markets that have the broadest financial markets also have the most affordable housing. One worldview would be one of inelastic supply generally where increases in credit availability tended to drive up prices. Another would be where markets are elastic, or where elasticity was correlated positively with credit availability, so that markets where finance was available were ones that generally working well on the development and regulatory fronts as well. The evidence of Figure 9 is much more consistent with the latter world.

## 7. Property Rights and the "Industrial Organization" of Housing, Real Estate, and Finance Markets Matter

Property rights are *sine qua non* of housing market development. Until recently property rights have been much neglected in the "developed" country housing literature, but were somewhat better represented in the "traditional" developing country housing literature.[8] Post Perestroyka (1989) the topic moved properly to the fore. Some property rights issues are common among countries, and some issues are specific (more or less) to Africa, Eastern Europe, or to some other specific region or country.

Property rights may be defined and assigned through a formal legal system, or by custom or tradition. Two areas of property rights that particularly affect the operation of housing and real estate markets are contract law and land use regulation. Contract law deals with the system that defines and facilitates the transfer of property and property rights, allocates those rights, and settles disputes. In formal systems these functions are associated with such instruments as contracts of sale, leases, easements and rights-of-way, operating agreements, mortgages and deeds of trust, etc. In all countries, rich and poor, some of these functions are also affected by less formal "mores and folkways of society." In many countries, including most of the transition countries and many African countries, these systems are in flux. Land use regulation includes the body of custom, law, regulation, and case law, which governs the rights to locate certain uses in certain locations, and provides standards of development and operation of those uses. Formal instruments include zoning ordinances, building and housing codes, subdivision regulations, private deed restrictions, environmental laws and regulations, and the like.

[7] Or more often the fruits of the person he or she hires, see Jimenez (1982, 1984).
[8] This neglect refers to the housing literature. Economists, political scientists, and of course lawyers have long studied property rights in other contexts.

Since Coase, it has been clear that clearly defined property rights systems are required for efficiency; Razazz (1993) examines alternative paths towards formal systems of rights. Substantial efficiency gains are possible when countries institute systems that create official property registers and associated systems of private insurance or public guarantee. Miceli and Sirmans (1995, 1997) discuss several such systems.

Bromley (1989) represents a strand of the literature that argues that many alternative bundles can "work," as long as rights are clearly defined and enforced; the thrust of these arguments is that fee-simple ownership is only one of many possibilities for secure tenure, and many examples exist of stable housing and real estate markets that rely on long-term leases. On the other hand, Heller (1998) has reminded us that the specifics of the available bundle of rights also matters, focusing especially on the problems of transition economies. Certainly a well-functioning system of mortgage finance requires a specific set of mortgagable rights and enforcement mechanisms for the mortgage contract.

One particularly essential aspect of the property rights system for real estate finance is a set of procedures that permit recovery of some funds lent when borrowers default. A large literature exists when the determinants of default in the United States with smaller literatures from other countries. Much of this literature suggests a strict comparison of the underlying housing asset to the value of the mortgage is an important starting point but insufficient for fully understanding default behavior. Debt service or "affordability" ratios also play a role, as do exogenous events such as changes in labor market conditions and individual events such as layoffs, major household dissolutions, and the like. The paradox is, of course, by making foreclosure difficult – on the face of it, a "borrower friendly" policy – governments actually increase risk to lenders which translates to smaller loan to value ratios and fewer loans approved, as demonstrated by Buckley and Gross (1985) and Pence (2000).

A number of authors such as Jaffe and Louziotis (1996), Jaffee and Renaud (1997) and Kaganova (1998) illustrate the difficulties involved in developing systems of private property ownership, the required institutions such as property registration and guarantee / insurance systems, and the professionalization of brokerage and sale that are required for a well-functioning property market (Colwell and Yavas 1993, Yavas and Colwell 1995). As institutions development, "price discovery" takes place, and markets become thicker (Barkham and Geltner 1996, Bertaud and Renaud 1997). Well-functioning property markets are those in which the process of price discovery is largely complete which reduce the risks involved in purchasing and financing housing and other real estate. Another particular property rights issue essential to many of the transition economies is the development of condominium laws and associated institutions given the fact that so much of the existing housing stock is multifamily.

At early stages of development and transition, the focus of property rights and institutional changes and of the financial system will naturally be towards developing the domestic market. As countries develop, it will become even more critical to also open the market to outside investors, both legally and informationally, as discussed in Gordon (2000).

Renaud (1991) explains why the industrial organization of real estate markets also matter greatly. 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.

Shleifer and Vishny (1997) survey a range of general corporate governance issues around the world. Sagalyn (1996) gives a good review of some of the governance issues that arise in a particular real estate 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 between management, outside advisors and shareholders, increased efficiency and rates of return. While the specifics of these latter papers are quite unique to U.S. markets, they provide good general examples of how to analyze various conflicts of interests and agency problems inherent in real estate developments.

## 8. 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 across developing countries by Malpezzi and Mayo (1987) established several stylized facts. Within markets, housing demand is generally inelastic with respect to income, with elasticity typically in a range of 0.5 to 0.8.[9] In the very long run, as countries and markets develop, and households as well as the supply side has more time to respond, the income elasticity is about 1 or a little greater.[10]

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 for project design. Over time the intensity of the debate has lessened, partly because of the convergence of views on the magnitudes and technical issues involved, but also partly on a new understanding that well-designed housing and real estate finance systems and other public housing projects don't need to rely as much as was once believed on knowing about demand in tremendous detail.

That's not to say that demand is unimportant, in general or for understanding public policies, including taxes and subsidies. It is. But if we find ourselves worried about whether target households spend 15 percent of their income on housing, or 18 percent, we're probably in the midst of designing an enclave project of some type, rather than a broad-based market reform.[11]

Also, it is important to keep in mind that the Malpezzi and Mayo studies and most other comparative work has 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 like

[9] Hence the rent-to-income ratio declines with income within the city, as in the city-specific lines of Figure 10.
[10] As in the upward-sloping line in Figure 10, which represents the average rent-to-income ratio at each city's average income.
[11] See Gross (1986) and Mayo and Gross (1987) for some of the evolution in thinking about the best uses of demand-side information.

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). Until recently studies of transition economies have been hamstrung by the lack of data. Furthermore, as data became available one had to grapple with the fact that at least the initial transition period the market was still in a position of price discovery and household adjustment to the development of housing markets is still far from complete in many countries.[12] As Buckley and Gurenko document, data from the first decade of transition usually finds virtually no systematic relationship between housing expenditures and income; Diamond (1998) suggests this translates into a highly idiosyncratic demand for mortgage finance, albeit one we can expect to begin to parallel demand in market economies as households become adjusted to market prices and adjustments in consumption and investment. Thus, whether today's consumption patters 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 (LSMS).[13] These datasets have as yet been largely unexploited regarding housing research.

## 9. Housing Subsidies Should Be Segregated from Housing Finance

There are many ways to subsidize housing; the most common ways, 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 arguments that the financial system is a very inefficient and inequitable vehicle for delivering subsidies. Further, as U.S. experiences well as those of many other countries demonstrate, it 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 is often more sustainable over a fairly long period. Studies by Follain, Hendershott, and Ling (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 tells us 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 studies following demonstrate that both production and consumption efficiency are greater in demand side programs than in supply side programs.[14]

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[12] Bertaud and Renaud (1997) discuss this process and its spatial implications.

[13] 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.

[14] Production efficiency is the relationship between the value of the housing unit and the resources used to produce

Of course, not all demand side programs are alike, and not all supply side programs are alike. It is certainly possible to design a supply-side program more production-efficient than old style public housing; and it is certainly possible to design a housing allowance which 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 have found that both production and consumption efficiency are higher in demand side programs. Mayo *et al*. (1980a, b) and Sa-Aadu (1984a,b), as well as Bradbury and Downs (1981), Lowry (1983), and Cronin (1982) are representative studies for the U.S. 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, of course, in highly elastic markets, supply side programs would simply crowd out unsubsidized investment; and demand side subsidies would result 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, we do know less about the supply side of the market than the demand side. The EHAP Supply Experiment in Brown and St. Joseph counties 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, so some researchers have questioned how much the Supply Experiment tells us about the long run.

More direct estimates of the price elasticity of supply of housing are mixed. Ozanne and Struyk's well known (1978) 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 here. 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) present evidence that many of the differences across studies can apparently be explained by the fact that the cycle in prices is a long one and that different researchers have examined different parts of the cycle. Topel and Rosen and Poterba happen to choose years where much of the data were in the rising part of the cycle while Muth and Follain were in the

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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.

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, Malpezzi, and Mayo (2000) show that the supply elasticity varies significantly from market to market. Further, consistent with our previous discussion of regulation, excessive land use and development regulation is one of the strongest determinants of this elasticity. At one level this brings us back to the Apgar-Struyk argument for localized policies related to what the elasticity is. At another level it brings us back to a different argument: if a market is inelastic because of regulation and other policy "mistakes," do we want to adopt a second best solution, leaving inappropriate regulations in place while increasing public production; or do we want to correct the root cause of the problem?

**Summary**

In this paper, we reviewed recent research on the "real side" of housing and real estate markets, and the economy in general, and draw out their implications for housing and real estate finance in developing and transition economies. Among the points discussed are the following:

- Real estate markets -- land, infrastructure, housing, office, industrial, retail, etc. -- are all interconnected. While there are good reasons for some market and policy specialization, e.g. 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 the process. Well-developed real estate finance systems can make a particularly strong contribution at the earlier 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 theory suggest residential development leads the business cycle, while commercial development lags it. Financial systems should be designed to minimize procyclical boom and bust behavior.

- Excessive and inappropriate regulations "in-elasticize supply" and lead to rising and volatile real estate prices. Volatile prices increase defaults. Underwriting should take account of these effects.

- Given real estate's volatility, and role as a leading indicator, forecasting is difficult despite its serial correlation. Forecasting may be less useful than

understanding how developers play the "game." Herd behavior by financial institutions may increase volatility and default losses.

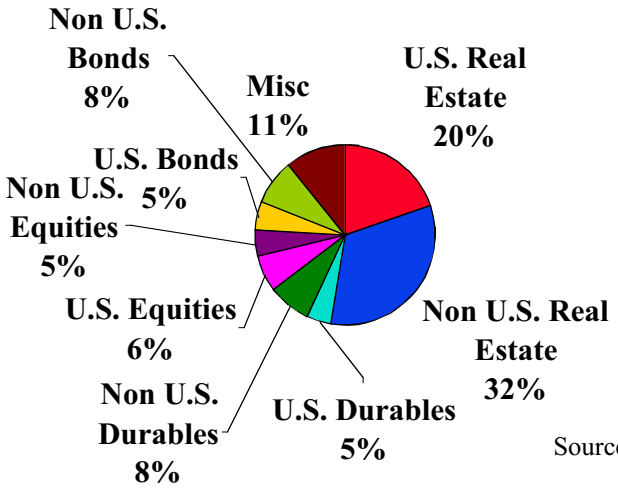
- Nature abhors a vacuum, and informal financial mechanisms tend to fill the gaps of insufficiently developed formal financial markets. But there are costs to informality. Policymakers should take account of, but not romanticize, informal markets.

- Household demand for real estate varies with income within and across countries in predictable ways. This can be useful for financial product design and underwriting. But avoid micromanaging the loan product-household match.

- 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. Separate subsidies from finance. If you're worried about the physical design of the houses you finance, you're 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.

## Total World Wealth, 1980




Source: Ibbotson Associates

Figure 1

## Land Use in a Simple Urban Model

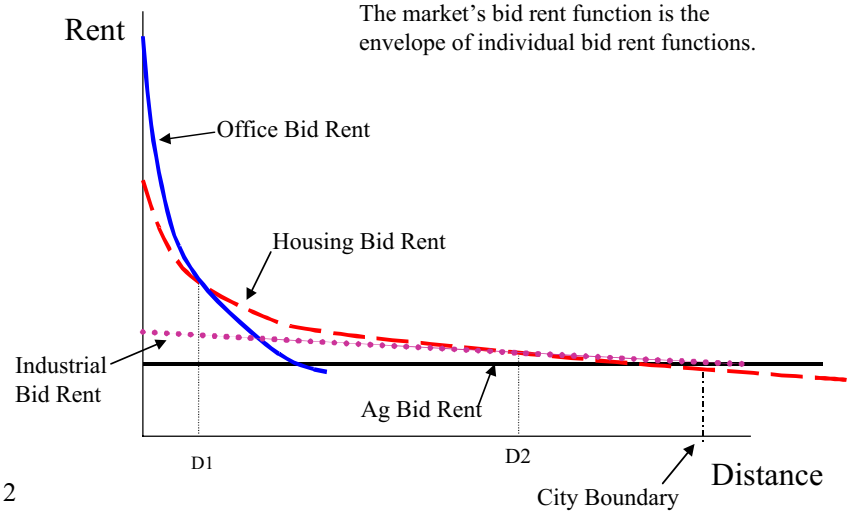



Figure 2

# International Housing Investment

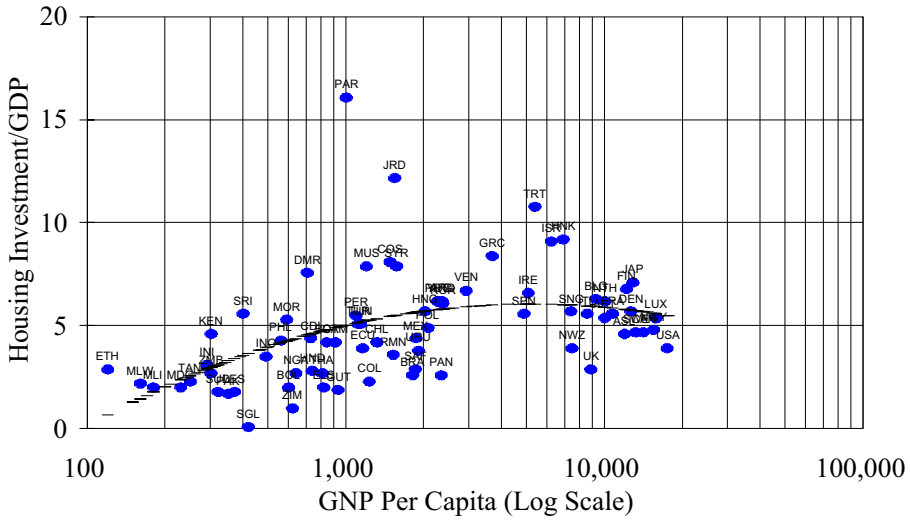



Figure 3

## Demand Shocks with Inelastic Supply: Boom and Bust

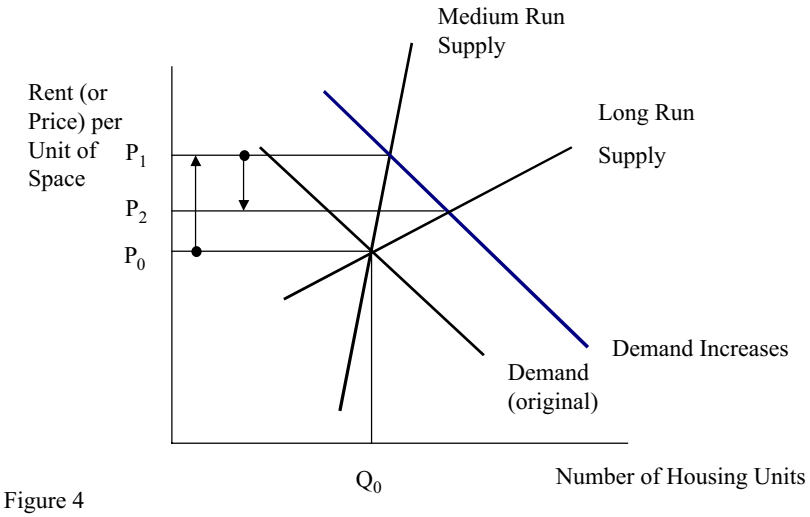



Figure 4

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

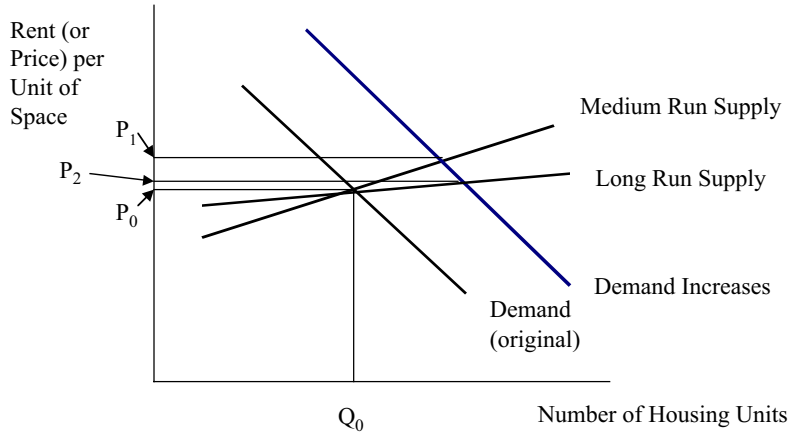



Figure 5

## Demand Shocks with Inelastic Supply, Followed by a "Million Houses Program"

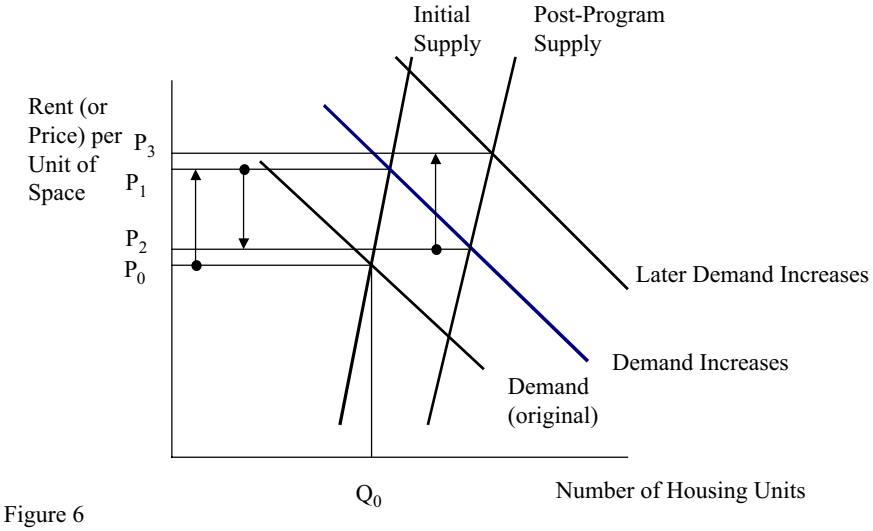



Figure 6

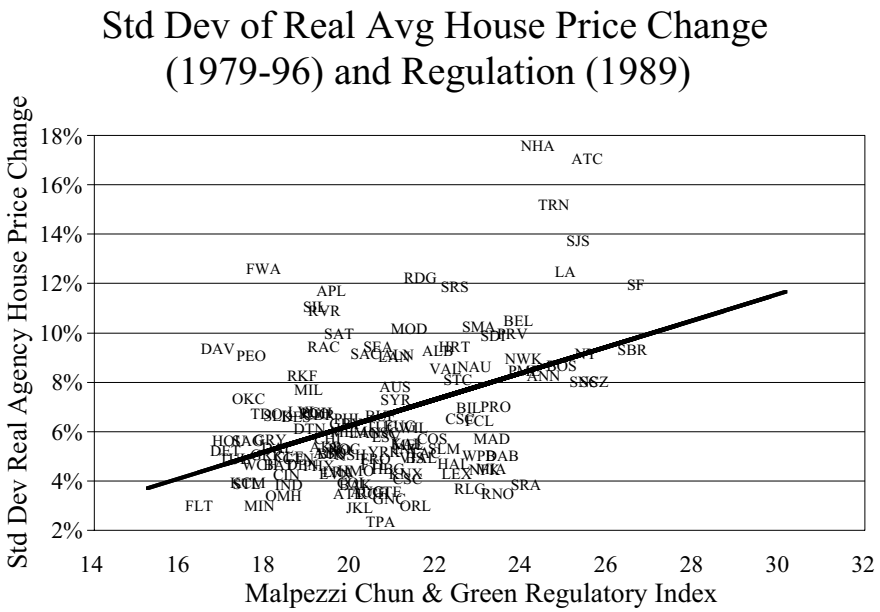



Figure 7

## 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

Figure 8

# Housing Credit and Housing Prices

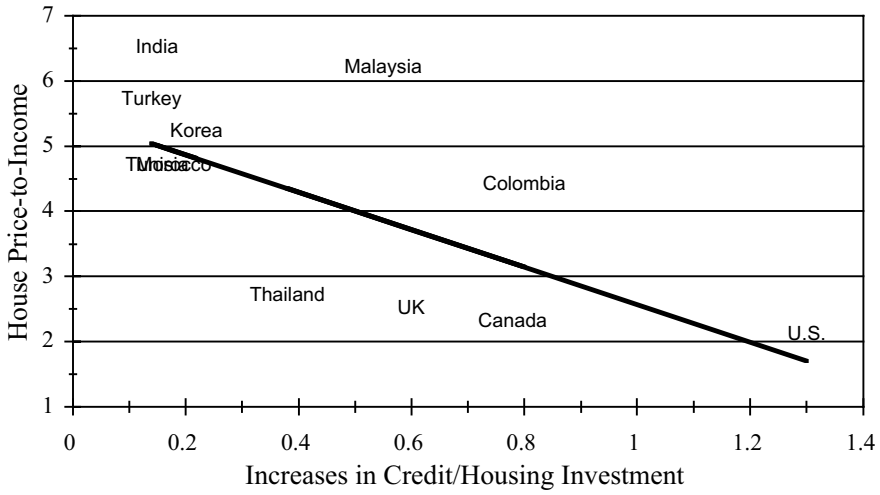



Figure 9

# Housing Demand in Developing Countries

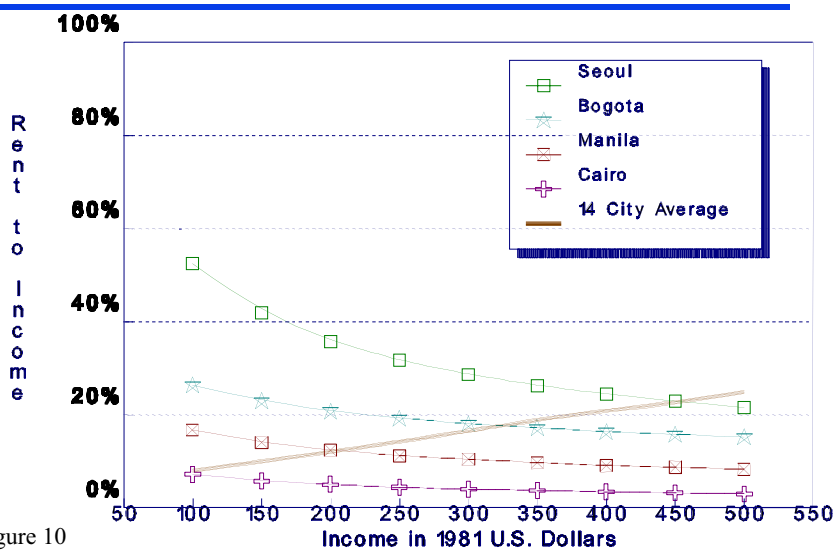



Figure 10

Source: Malpezzi & Mayo

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