ADB

ADB Economics
Working Paper Series

Housing and Housing Finance—A Review of the Links to Economic Development and Poverty Reduction

John Doling, Paul Vandenberg, and Jade Tolentino

No. 362 | August 2013

Asian Development Bank

ADB Economics Working Paper Series

Housing and Housing Finance—A Review of the Links to Economic Development and Poverty Reduction

John Doling, Paul Vandenberg, and Jade Tolentino

No. 362 August 2013

John Doling is Professor of Housing Studies at the University of Birmingham, United Kingdom.
Paul Vandenberg is Senior Economist at the Economics and Research Department, Asian Development Bank.
Jade C. Tolentino is Executive Director, Institute for Development and Econometric Analysis, Inc. (IDEA).

Asian Development Bank

Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org

August 2013
ISSN 1655-5252
Publication Stock No. WPS135940

Note: In this publication, "$" refers to US dollars.

The ADB Economics Working Paper Series is a forum for stimulating discussion and eliciting feedback on ongoing and recently completed research and policy studies undertaken by the Asian Development Bank (ADB) staff, consultants, or resource persons. The series deals with key economic and development problems, particularly those facing the Asia and Pacific region; as well as conceptual, analytical, or methodological issues relating to project/program economic analysis, and statistical data and measurement. The series aims to enhance the knowledge on Asia's development and policy challenges; strengthen analytical rigor and quality of ADB's country partnership strategies, and its subregional and country operations; and improve the quality and availability of statistical data and development indicators for monitoring development effectiveness.

The ADB Economics Working Paper Series is a quick-disseminating, informal publication whose titles could subsequently be revised for publication as articles in professional journals or chapters in books. The series is maintained by the Economics and Research Department.

CONTENTS

ABSTRACT

The paper provides a review of the literature that links housing, housing finance, and economic development. The housing sector may support poverty reduction and inclusive growth in two general ways. First, housing construction contributes to economic output, creates employment, and generates a demand for materials and related services. Second, improved housing raises the standard of living of occupants. At the same time, housing purchases are costly for individuals, constituting the most valuable asset owned by most households and often requiring housing finance (mortgages) to allow for purchase. These links—between housing and the economy and between housing and housing finance—are explored in this review paper. It finds that the benefits of housing for individuals accrue in large part indirectly through better health, based on improved water and sanitation. Housing also generates large multiplier effects in terms of employment and output. Employment is created for both skilled and poorer, unskilled workers. The evidence also suggests that there is a symbiotic relationship between housing finance and financial sector development. Housing finance helps to develop the financial sector (contributing to economic growth) and is also helped by financial sector development.

Keywords: housing, finance, mortgages, inclusive growth

JEL Classifications: G21, O40, R21

I. INTRODUCTION

The global financial crisis of 2008–2009 demonstrated the powerful links between the housing sector, finance, and the economy. In the United States (US), lax underwriting standards and aggressive selling of mortgages to sub-prime and other borrowers and their packaging into complex financial products plunged the economy into deep crisis. Problems in the world's largest economy then spilled over to countries throughout the world. Subsequent efforts to revive the US economy have required, in part, a revival of the housing and construction sectors.

Problems in the housing sector upset the global economy through the important connection to the financial sector. A house (or apartment) is the most expensive asset that most families possess. Its purchase usually requires external financing in the form of a mortgage. The mortgage market, in turn, accounts for a significant portion of the funds intermediated by financial institutions. Crisis notwithstanding, mortgages provide a key source of stable income for the financial sector. Moreover, housing is an important part of the real economy through its direct and multiplier effects. Construction creates demand for labor and building materials and housing is connected to the land market and a range of professional services from real estate brokers, lawyers, and engineers, to assessors and advertisers.

Housing also has a direct impact on human welfare. Decent housing is fundamental to maintaining an adequate standard of living and social inclusion. People need a place to protect themselves from the elements, secure their belongings, and create a space to share with family. Those who live in sub-standard housing—in slums, shanty towns, and poor neighbourhoods—may suffer from overcrowding, poor protection from heat, cold and rain, and inadequate access to water, sanitation, and other services. Such conditions often lead to health problem issues, particularly for children. For these reasons, housing is recognized in the Universal Declaration of Human Rights as part of the right to an adequate standard of living, along with food, clothing, medical care, and social services. Likewise, housing is included in the Millennium Development Goals, which target a "significant improvement in the lives of at least 100 million slum dwellers by the year 2020."

A. Purpose and Nature of the Study

This paper provides a review of the literature connecting housing, housing finance and the broader economy. It draws together work in these areas that are seldom part of the mainstream literature of economic development. It provides the basis for addressing a number of key questions such as: Does the development of the housing sector and housing finance contribute to the achievement of inclusive growth? Is support to housing finance pro-poor? Is support to the mortgage sector an important channel through which to support the housing sector? What are the ancillary impacts and multiplier effects from housing and housing finance in terms of increased human welfare, employment, and other issues? The paper reviews the empirical literature that addresses directly or indirectly these questions. It is a focused review that is similar to broader reviews that have sought to assess the overall contribution of the financial sector to economic growth and development (Zhuang et al. 2009).

The paper is divided into three main sections. The first section reviews the benefits of housing—and in particular the benefits of better quality housing—on the population and the economy. These benefits range from those that accrue to the occupants of housing units, such as better health, to the benefits for the economy, such as employment and output demand. The benefits and drawbacks of higher rates of homeownership are also reviewed. The second section focuses on housing finance, with a review of the evidence on how the financial sector is

a critical, necessary adjunct to the housing market, making housing purchases possible. We also review evidence on the importance of housing finance to financial sector development.

II. CONTEXT: POPULATION, INCOME, FAMILY STRUCTURE, AND URBANIZATION

The global population continues to grow and with it the number of people who require housing. From 7 billion people in 2010, the population is projected to rise to 8.3 billion by 2030. Asia will account for about half of that increase, with over 700 million more people requiring shelter by the end of the century's third decade. The region is currently home to 60% of the world's population, which will fall gradually to 58% by 2030 (UN 2010).

The demand for housing increases in response to several factors, notably urbanization and population growth. In 2009, the world's urban population of 3.42 billion people exceeded the rural population of 3.41 billion for the first time in history. This trend will continue with the urban population projected to increase by 1.7 billion people over the next 40 years. Asia will contribute greatly to that increase as a result of its strong economic growth performance. Urban housing is different from rural housing; the former has greater concentration in terms of land area, more multiple-unit structures (apartment buildings) and more rental accommodation. The urban portion of Asia's population will increase from 45% in 2015 to 65% in 2050 (UN 2010). There is also a shift to megacities—agglomerations of 10 million people or more. In 1950, there were only two such cities in the world, now there are 21 and they account for 5% of world's total population. By 2025, there will be 29 megacities, with half of them (15) in Asia (UN 2010).

Longevity is also increasing, mortality is declining and fertility, while declining, remains higher in Asia than in developed regions. Population increase interacts with secular trends in demography and society. Such changes include the spatial concentration of the population (i.e., urbanization), changes in the structure of the family unit, and increases in income.

The increasing prevalence of the nuclear family—(parents and young children) living in a single housing unit, without extended family members, and the increase in single person households, will also put upward pressure on housing demand (although reducing the need for large dwellings). The life-cycle stage of the family will also be important with new families increasing the demand (Arimah 1992). On top of these demographic changes, incomes in Asia are rising and the middle class is expanding. Higher incomes can be spent on better housing and fuel a shift from renting to owning. However, the demand will only be realized if the supply is affordable and financing is available (Ballesteros 2002).

While rising incomes make improved housing possible, the incidence of substandard accommodation remains significant in Asia and elsewhere. The prevalence of slums, characterized by nondurable construction materials, insecure tenure, overcrowding, and the lack of safe water and sanitation, remains high. Over one-third of the urban population in the developing world lives in slums. In Asia, the incidence ranges from 42% of the urban population in South Asia to 37% in East Asia and 24% West Asia (see Figure 3). Asia has a higher share of urban residents living in slums than North Africa, and Latin America and the Caribbean but a lower level than Sub-Saharan Africa (62%).[1]

In addition to poor quality housing, developing Asia also suffers from homelessness, notably among urban migrants. One commentator noted regarding rapid urbanization in India: "among the fresh migrants having little social connections with the earlier migrants of the city... [some] land up as houseless populations spending their nights on the footpaths, pavements or under the flyovers" (Meher 2010, p. 220). Reliable figures on the extent of homelessness are scarce and therefore most studies are qualitative. Policies to combat chronic homelessness include an increase of affordable housing stock, enhancement of support systems for successful transition to housing, and reduction of bureaucratic barriers to housing (Meschede 2011).[2]

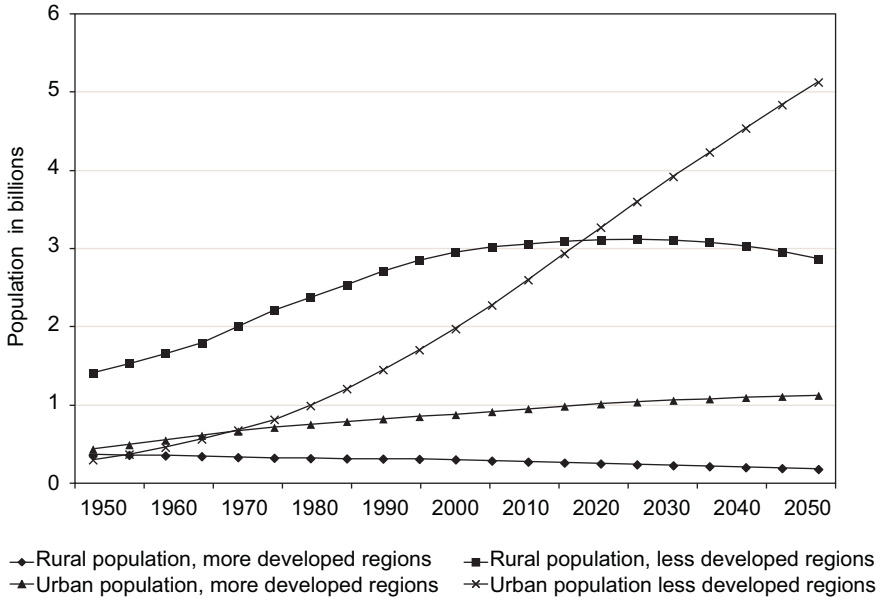
There is a direct correlation between slum housing, on the one hand, and household poverty and low gross domestic product (GDP), on the other. Across developing countries, economic development leads to improved housing conditions (World Bank 1993). But the underlying causes are far more complex than economic prosperity alone. On the demand side, spending on housing in many countries is depressed by a lack of tenure security and property rights and by a lack of access to mortgage finance. Similarly, the supply side is often also hindered by failures in the operation and capacity of markets in land, labor, and finance (UN-Habitat and ILO 1995). In such contexts, the poor are often forced to pursue informal solutions to meeting housing needs, resulting in large-scale slum formation (UN-Habitat and ILO 1995).

---

1 Substandard housing is also a problem, although a reduced one, in rich countries. These countries urbanized earlier and more slowly than developing countries. Today, with higher gross domestic product per capita and greater disposable income, combined with more mature housing finance systems, households are able to spend more on housing. Secure property rights, a developed regulatory environment, and good physical infrastructure have also been important. Problems remain, however. In the US, for example, the housing circumstances of 65 million people, about a quarter of the population, were considered unsatisfactory, according to the 2001 census. The key problems included substandard housing structures, overcrowding, a high cost/income ratio and homelessness (National Low Income Housing Coalition 2004). Exposure to damp and mold in the home, a significant contributor to respiratory and other diseases, affects many European households, including 6% in Ireland and 30% in Portugal (WHO 2007).

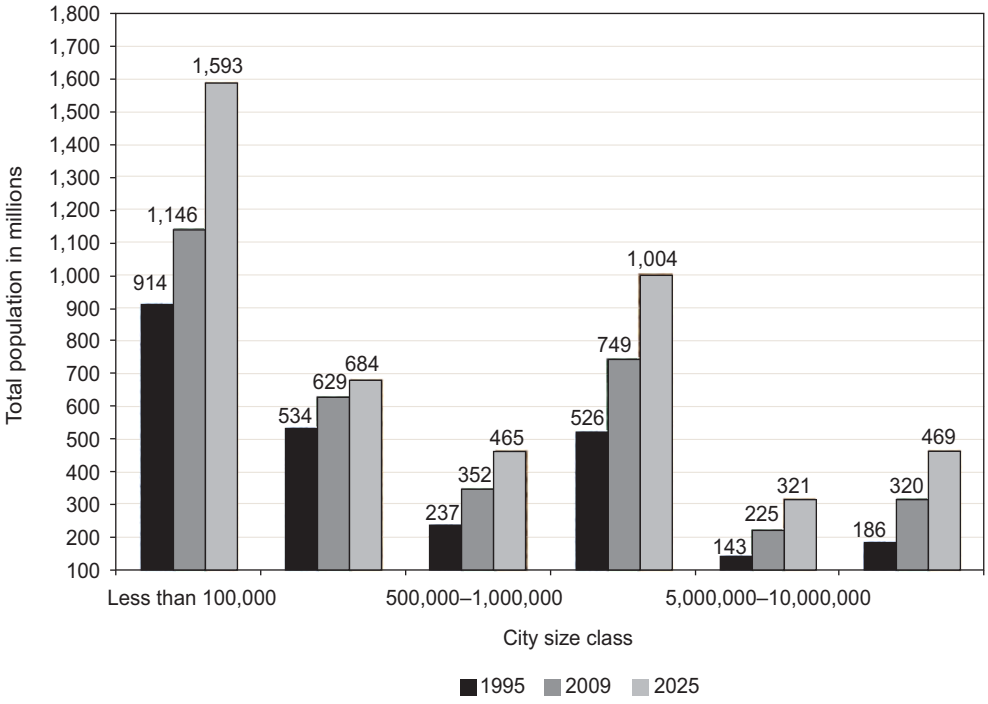
2 Homelessness also affects developed countries. In the US, about 3.5 million people are homeless, including an estimated 0.9–1.4 million children. In Canada, the number of homeless people has steadily increased to a level now far beyond anything seen a generation ago. In Western Europe, where systems of redistribution and social protection are highly developed, homelessness is currently at its highest level since the end of the Second World War. An estimated 3 million West Europeans were believed to be homeless during the winter of 2003. The combined homeless population of Western Europe and the US is estimated to equal the entire population of Denmark (UN-Habitat 2004).

Figure 1: Urban and Rural Population by Development Group, 1950–2050



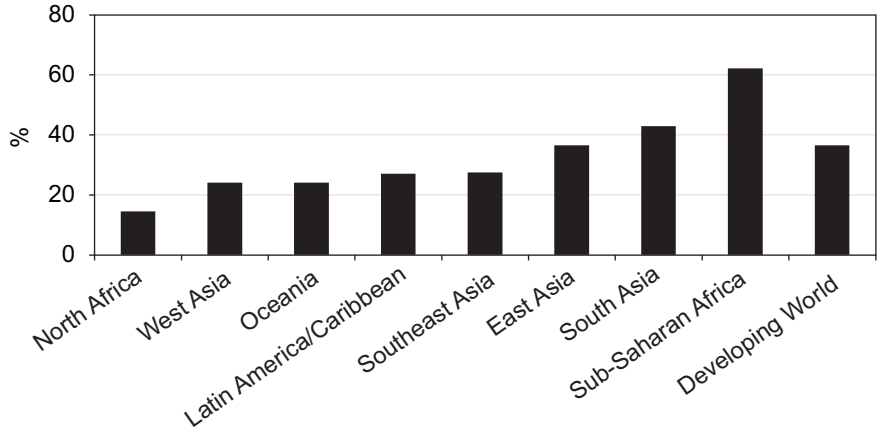
Source: United Nations, World Population Prospects, the 2010 Revision, and World Urbanization Prospects, the 2009 Revision. http://esa.un.org/unpd/wup/index.htm

Figure 2: Total Population by City Size Classification, 1995, 2009, and 2025



Source: World Urbanization Prospects, the 2009 Revision. http://esa.un.org/unpd/wup/index.htm

Figure 3: Proportion of Urban Population Living in Slums by Region, 2005 and 2010



Source: UN-HABITAT, Global Urban Observatory. http://www.devinfo.info/urbaninfo/

III. ECONOMIC AND SOCIAL IMPACTS OF MORE AND BETTER HOUSING

The creation of more and better quality housing has impacts on the economy and the welfare of households. The evidence from the literature, cited below, is overwhelmingly positive, as might be expected from the increased activity of a sector and the increased supply of a service. In this case, it is a service linked directly to the quality of life. The evidence is divided into two main categories, covering benefits to occupants and benefits to the economy, with these two areas being highly inter-related and mutually reinforcing (Figure 4).

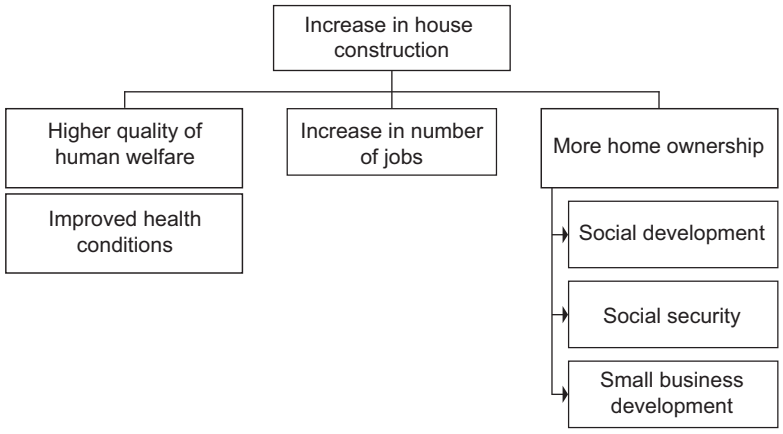
Benefits to Occupants

- *Health and human welfare.* More and better housing increases the welfare of housing occupants. The evidence points specifically to improved health conditions, but there are other benefits such as less stress and increased security, especially for children and women.
- *Social and political stability and engagement.* Greater homeownership may increase civic engagement and stability through the creation of a property-owning society with a stake in the local and national community.
- *Social security aspect.* The purchase of a housing unit can provide an asset from which to generate security in old age.

Benefits to the Economy

- *Construction multiplier.* Housing construction and improvements, as well as the transactional activities of buying and selling housing, generate economic activity with multiplier effects for the economy.
- Employment generation. Construction and home improvement generate demand for professional, skilled, semi-skilled, and unskilled labor.
- Small business aspect. Housing provides a place of employment for many micro and small businesses and can be used as collateral to secure a loan.

Figure 4: Links between Housing and Economic, Social, and Political Aspects



Source: Authors.

In reviewing the evidence, several limitations should be kept in mind. First, many claims about the impacts of housing improvements have not been subjected to rigorous and extensive empirical testing. Some results, such as the supposed political development effect of increased homeownership, can reflect ideological bias. Second, studies on a specific country or aspect of the housing market cannot necessarily be generalized to other countries or other aspects of housing. Third, much of the existing literature does not demonstrate cause and effect, but rather correlation. In some cases, there are problems of self-selection in which households select simultaneously to own a home and to engage in other desirable activities. These limitations are noted below with reference to specific areas of the literature.

A. Health and Human Welfare

A key impact of better housing is the improved health of occupants. This link is obvious as the healthiness of a household's environment will be determined in no small manner by housing, along with housing-related infrastructure such as water and sanitation. However, efforts to establish the link in a rigorous empirical manner are confounded by a number of methodological problems as discussed below.

The link between the quality of housing and human health is not a new one. Workers in the industrial towns of 19th century Britain, for example, experienced high rates of disease, such as tuberculosis, cholera, and typhus. The response in the form of various Public Health Acts established higher standards of housing quality, along with improvements in sanitation infrastructure, such as sewerage and water supply, which proved effective in reducing disease (Pooley 1992). Likewise, it is well established that healthier workers are more productive, benefiting not only the workers themselves, but also raising productivity of their employers and the broader economy (Pooley 1992). Improvements in housing quality can also lead to an increased sense of belonging or involvement in the community, which can increase life satisfaction and thereby enhance mental and physical health (Thomson, Pettigrew, and Morrison 2001). The general scientific position can be summarized as follows: "The links between poor housing and poor health are well established. Many, possibly hundreds, of cross-sectional studies have reported consistent and statistically significant associations between poor housing conditions and poor health" (Thomson and Pettigrew 2005, p. 5).

The scope of the review by Thomson and Pettigrew (2005) is limited to developed countries. The most serious health hazards are poor air quality, inadequate heat, dampness, radon, trips and falls, noise, house dust mites, tobacco smoke, and fires. Energy efficiency improvements have led to improvements in general health and respiratory health among children with asthma. The researchers suggest that housing improvement "*appears* to have the potential to improve health, especially mental health" (emphasis added). They argued that while there is a relationship between poor housing and poor health, "the independent effect of poor housing on health remains unknown due to the many confounding factors that are inextricably linked to poor housing" (Thomson and Pettigrew 2005, p. 5). The major confounding factors include: (i) the degree of individual and neighborhood deprivation; (ii) the presence of multiple domestic hazards; and (iii) the amount of time spent in the home.

Takano and Nakamura (2001) found that a quarter of the variability in health status in Japan could be attributed to urban residential quality. Breysse et al. (2004) linked improved housing to the health of children. The paper notes that since children spend as much as 80%–90% of their time inside their homes and schools, the sources of major health risks they face can be attributed to these indoor places. Other studies demonstrating health benefits of rehousing and/or house improvements include McGonigle and Kirby (1936), Wilner et al. (1960), Carp (1975), Blackman and Harvey (2001), and Wells (2000). According to Thomson and Pettigrew (2005), the impacts on physical health and illness following housing improvement are different for each of the study.

Jamison et al. (1993)[3] found that piped water in houses decreased the diarrhea mortality rate among infants by 80%, compared to a house without such water access. The study found that improved water supply and provision of infrastructure for excreta disposal reduces diarrheal morbidity by 27% on average for a range of developing countries.

Wright et al. (1991) found a strong link between housing conditions and the incidence of infant diarrhea in Bilbeis, an agricultural area 65 kilometers from Cairo. Over a 2-year period, trained nurses made twice-weekly visits to 317 homes in which a woman had recently given birth. The nurse ascertained episodes of diarrhea, a leading cause of infant morbidity and mortality in Egypt. The incidence of diarrhea in newborn infants was the dependent variable in univariate and multivariate analysis. The independent variables accounted for 25% of the variation in the incidence of diarrhea. House structure variables, measuring such factors as whether flooring was compacted earth or concrete, the number of living areas, and the state of repair and the completeness of the roof, were together the most important in terms of their contribution to the overall variation in diarrhea. Variables relating to water source and water usage were the second most important, followed by variables relating to toilet and bathing area, animal management, food preparation, hygiene and wastewater management.

Nayar (1997) reviewed data on housing in 10 states in India, in terms of the type of house, source of drinking water, distance from drinking water, sanitary facilities, and type of lighting. The study suggests that there is "a definite contribution of housing conditions including sanitary facilities in health improvement. This is evident from the better housing conditions in Kerala and Goa and extremely poor housing conditions in Orissa, Uttar Pradesh, and Madhya Pradesh" (Nayar 1997, p. 1275). The following associations are moderately or strongly, negatively correlated: (i) availability of piped water supply and crude death rates; (ii) households with water source in premises and infant mortality rate; (iii) households with exclusive latrine and infant mortality rate, crude death rate, and crude birth rate; and (iv) availability of electricity

[3] Cited in Nayar (1997).

and infant mortality rate, crude death rate, and crude birth rate. In the same manner, the following relationships are strongly or moderately positively correlated: proportion of households without latrine and infant mortality rate, crude death rate and birth rate. As for the type of housing, there are low correlations between: (i *pucca*[4] housing and infant mortality rate; and (ii) *pucca* housing and crude death rate (Nayar 1997, p. 127).

These correlations affirm the idea that while a systematic link can be observed between sanitary facilities and better health of individuals, housing alone does not exclusively cause good health. Nayar suggests that the "mere availability of housing or amenities alone would not explain health improvement. Having a source of water in the premises would be much more important even if it is an open source of drinking water. This probably explains the situation in Kerala, where the large majority of the households in rural areas depend on well water" (Nayar 1997, pp. 1275–1279).

Thomson and Pettigrew (2005) also suggest that individuals with impaired physical mobility should live in houses designed to suit their needs. Health benefits accrue to these individuals if moved to houses especially designed for them. Studies on health benefits of rehousing based on medical need include Cole and Farries (1986); Elton and Packer (1987); and Smith, Alexander, and Easterlow (1997). The studies show that "medical priority housing" improves self-reported physical and mental health.

Wolff, Schroeder, and Young (2001) examined the effect of a specific housing improvement on child illness in Malawi. Traditional houses in the area were typically 25 square meters (m^2) in area, with 2–3 rooms, constructed of mud brick walls and thatch roofing with mud floors and sometimes including a pit latrine. Houses constructed under a Habitat for Humanity program were typically larger and better constructed: 30 m^2 in area with three rooms, constructed with fired bricks, tiled roofs, concrete foundations, and pit latrines. Mothers in the two types of housing were asked to recall the periods of illness of their children under the age of 5 in the preceding month. Table 1 shows that the illness record of children in Habitat houses was considerably better. Based on multivariate analysis, the authors concluded that children in Habitat homes had a 44% reduced chance of respiratory infection, gastrointestinal illness, or malaria. In addition to the quality of the house itself, other factors significantly affecting the incidence of ill health were access to safe water, above average knowledge of malaria prevention methods, and existence of a private latrine.

[4] India classifies houses as: *katcha, semi-pucca*, *and pucca.* A *katcha* house uses nondurable materials such as unburnt bricks, mud, thatch, leaves, and bamboo. A pucca home uses permanent materials such as oven-burnt bricks, concrete, stone blocks, cement, iron, other metal sheets, and timber. A *semi-pucca* house uses a combination of durable and nondurable materials.

Table 1: Proportion of Children with Various Illnesses in the Preceding Period

	Habitat House	Traditional House
Total children surveyed (no.)	143	175
% of surveyed children with:		
Any of the three illnesses below	38	51
Respiratory infection	21	29
Gastrointestinal disorder	10	14
Malaria	16	20

Note: A child may have more than one illness.

Source: Wolff, Shroeder, and Young (2001).

These two studies illustrate a number of the general limitations of the literature. First, not all improvements in quality of housing are associated with improvements in health, so a blanket conclusion that better housing measured by any dimension, leads to improved health is not empirically demonstrated. Furthermore, there are difficulties in the identification of cause and effect. While housing conditions influence health, it is also possible that causality runs in the other direction, with poor health, through its effects on income, leading to poor housing. Intervening or confounding factors may also affect the link. Stronger evidence of causation could be provided by experimental research methods but they have not been widely used (Thomson et al. 2001).

Furthermore, most studies have failed to quantify the opportunity costs of better housing. Some evidence suggests that when housing improvements raise housing costs, households are less able to afford an adequate diet, which can impact on health negatively (Thomson, Pettigrew, and Morrison 2001). There is also a problem linking cause and effect over time. Fogel (1994, p. 388) noted “the long lags that frequently occur between the time that certain investments are made and the time that the benefits occur.” He noted the paradox of a marked increase in life expectancy and the height of men reaching maturity in the US during the Great Depression when unemployment and poverty rates were particularly high and nutrition and health suffered. The positive health outcomes were the pay-off for the huge social investments made over the previous half century, not only in medical science and practice, but also in public health infrastructure including “facilities to improve the supply of water... and the cleaning up of the slums” (Fogel 1994, p. 388).

One view is that the combined consequence of these various methodological limitations is that overall “good research evidence is lacking on the health gains that result from investment in housing” (Thomson, Pettigrew, and Morrison 2001, p. 189). Given the methodological difficulties of establishing definitive, causal links between housing improvement and health outcomes, Lowry (1990) has argued that it is more productive simply to take the World Health Organization’s concept of health as a state of emotional and physical wellbeing. On this basis, an improvement in living conditions is clearly an effective means of achieving better health.

B. Social Cohesion, Education, and Mobility

An increase in home ownership may generate broad social impacts. Much of the evidence is positive, although its validity is contested. Singapore’s effort to expand home ownership was premised on its contribution to the nation-building project of a new and ethnically diverse country (Lee, Lim, and Tay 1993). The premise is linked to the ideal of a property-owning democracy, promoted in many Western countries as well as in some Asian countries, such as

Malaysia (Agus 2002). The idea is that having a stake in the country in the form of a home results in greater allegiance to the nation, which would translate into increased political stability and greater motivation to work hard.

In a study of Malaysian households, Tan (2007) found positive social externalities of home ownership. Responses to 25 perception-based questions about the benefits of home ownership were organized through factor analysis. Respondents felt that home ownership, compared to renting, resulted in the following: (i) greater participation in neighborhood organizations which could ward off internal and external threats to the community; (ii) maintenance of properties to a higher standard; (iii) commitment to stay in the community longer; (iv) higher academic achievement and reduced behavioral problems among children; (v) greater efforts at socialization or building of social capital; and (vi) financial benefits as housing was considered a good investment.

Studies testing for the existence of such positive externalities arising from home ownership have a fairly long pedigree, although they tend to be limited to developed countries. Almost half a century ago, Coleman (1966) established that homes and their communities play a significant role in determining the educational attainment of children in the United Kingdom (UK). More recently Green and White (1997) found that children of homeowners in the US, in comparison with the children of renters, are more likely to stay at school longer and are less likely to have children themselves while still teenagers. Probit analysis showed a statistically significant connection.

Haurin, Parcel, and Haurin (2001) compared the behavior of children of homeowners with those of renters.[5] The children of homeowners had better home environments, higher cognitive test scores, and fewer behavior problems. More specifically, the independent impact of homeownership combined with its positive impact on the home environment was found to encourage children to achieve higher math scores (up to 9% better than children of renters), higher reading scores (7% greater), and fewer behavioral problems (up to 3%).

Probably the most rigorous study of the social externalities created by home ownership is by DiPasquale and Glaester (1999). They set out to measure the effects of home ownership on citizenship and community in the US based on the hypothesis that homeownership increases investment in social capital and local amenities. Regression equations tested a range of dependent variables including: whether the respondent knew the head of the local school board, knew the Representative,[6] voted in local elections, helped solve local problems, engaged in gardening, owned a gun, attended church regularly, and held multiple memberships in non-professional organizations. The main independent variable was whether the house was self-owned or rented, and control variables included gender, education, income, number of children, marital status, and race. The results showed that homeowners were more engaged and involved in their communities. Similar results were obtained in studies by Rohe and Stewart (1996) and Rossi and Weber (1996). However, it may be that so-called model citizens were more likely to have become homeowners in the first place, that is, that model citizenship is a cause rather than an effect of tenure choice.

While the results showed the link between homeownership and various outcome measures, a significant problem is that homeownership is not an exogenous variable. As DiPasquale and Glaester (1999) acknowledged, homeownership may be correlated with

[5] The study controlled a number of variables including household income.
[6] Elected member of the lower House of Congress.

variables that are not included in the model but may have an impact on the outcome variables. In the absence of an exogenous variable that correlated only with home ownership, the study used a group average homeownership rate as an instrumental variable. Other omitted variables could correlate with both homeownership and citizenship outcomes, although checks were conducted including the use of other control variables. Nevertheless, the impact of the instrumental variable is to increase the size of the coefficient on the homeownership variable, which in the case of almost all the outcome variables, remains significant.

The authors also sought to establish whether homeowners have an incentive to develop social capital because they have a financial stake in their community or homeowners are simply more likely to stay in one place. Controlling for length of residence in the local community, the homeownership effect on most of the outcome measures was reduced; for five variables the reduction was substantial. Residential immobility therefore appears to have a significant impact on the development of social capital.

Extending the analysis to Germany, DiPasquale and Glaester (1999) found that while the effects of home ownership on social capital and local amenities are significant they are smaller than in the US. The impact of the length of residence in the local community was also found to be weaker.

Overall, their results suggest that homeownership generates positive externalities, specifically in the development of social capital. A key insight, according to Aaronson (2000), is that whereas landlords recoup any community-based investment made by tenants, homeowners internalize their investments as increases in the value of their homes. It is also apparent that much of the effect occurs because homeowners are different to renters and some of the effect occurs because they are less mobile.

Aaronson (2000), commenting on the study by Green and White (1997) noted above, suggested that a reasonable interpretation of their findings is that they are the result of omitted variable bias. Using a similar analysis and similar variables, he concludes that other confounding factors may play a part in the apparent significance of home ownership. He incorporates four possibilities: family stability, parental involvement, residential stability, and wealth. He also deals with the endogeneity of homeownership problem in a manner similar to DiPasquale and Glaester (1999). Applying probit analysis where the dependent variable was whether a child has graduated from high school by the age of 19, his results indicate that residential stability is a key factor. The children of families that remain for extended periods in the same community are more likely to graduate from high school.

Much of the evidence regarding the social development externalities of home ownership, therefore, suggests that what may be important is not so much home ownership but the relative immobility of homeowners. Whether this is a consequence of specific intentions to establish long-term roots in a community and deciding to do so through home ownership or whether high transaction costs effectively trap people in home ownership is not clear.

The latter explanation, however, is consistent with the speculation that high rates of home ownership in developed countries may reduce overall growth (Oswald 1999). The argument is that high transaction costs encourage a home owner who loses his or her job to seek another one within commuting distance, rather than at a distance that would require relocation. This could occur even if the jobseekers' skills were ill-suited to the new job nearby. And if no job is available, some will accept unemployment in preference to moving to a different region. Across Europe a higher rate of home ownership correlates with higher unemployment,

and the recognition of this correlation has led to a view in some countries that rental housing should be promoted. A similar case has been made for developing countries, such that renting "allows workers to more easily move to jobs" (World Bank 2009, p. 18).

C. Social Security, Notably in Old Age

Private ownership of housing can provide security in old age as housing assets are leveraged to generate income. More generally, housing assets provide economic and social stability as assets are accumulated, passed from one generation to the next and used as security in times of economic stress. While quantifying the degree of such security is difficult, governments in some countries have encouraged the accumulation of housing assets to foster this type of social stability.

Governments, particularly in East Asia, have promoted home ownership to support the family which itself supports the welfare system. In contrast to some Western countries where social protection in the form of pensions, health care and unemployment benefits is often publicly provided and financed by taxes. In East Asia much of this social support is provided by the extended family. Home ownership has contributed to the maintenance of a self-reliant population organized around family-based systems of welfare. Families have invested in housing and built-up housing assets over their working years that are exchanged in family economies (i.e., passed on between generations) providing high levels of individual household security and social stability. Home ownership has thus provided part of the glue holding Asian societies together around affiliation to the family (Doling and Ronald 2011).

Increased rates of home ownership may also contribute to reducing old age poverty. In general, Asian countries have very limited state pension systems that are funded from taxation and provided as a right of citizenship. Rather, the more usual arrangement is for individuals to save out of earned income, voluntarily or by force, in the form of personal pensions. The bedrock of these schemes is family and ideological and religious systems (such as Confucianism among Chinese and 'balas jasa' among Malay Muslims) that require children to look after the needs of their parents. Home ownership strengthens family security and social stability, and provides the means whereby older people can live rent free in retirement, and so survive on a smaller pension (Ronald 2008).

With inadequate pension systems in these emerging markets in comparison with those in the developed nations, home ownership has become an important pillar of the pension system (Dubel 2007). Formal pension systems cover less than 15% of the world's households (Holzmann, Packard, and Cuesta 2001) and are concentrated in developed countries. Hence, owning a house has become a substitute for having a pension plan in developing countries. Willmore (2007) notes that in these countries low participation in pensions and other forms of social security is due to the large share of the population employed in the informal sector or agriculture.

Several Asian countries have recently developed mechanisms whereby homeowners can generate cash income by realizing some or all of their housing equity, while continuing to live in the home until death (Doling and Ronald 2011). The Republic of Korea's government recently introduced a reverse mortgage scheme, backed by guarantees, similar to the US model. Even more recently, Hong Kong, China, has introduced a reverse mortgage scheme and Taipei,China is considering doing so. In Singapore, which allows private financial institutions to offer reverse mortgages, the government has introduced a scheme whereby it will buy back

some years of an outstanding lease on publicly provided flats. This enables the owner to continue living in the property while receiving a payment that provides an income stream.

Singapore provides a particularly well-developed example of linking homeownership with social welfare. At the center of the social welfare system is the Central Provident Fund, a mandatory savings system into which workers and employers make regular payments. Workers can draw on their accumulated funds to purchase housing, this being a significant factor in the growth of home ownership to a rate exceeding 90%. Their assets in housing then become resources they can draw upon to meet other welfare needs such as health care, education, and pensions (Sherraden 2002).

D. Construction

A large body of literature examines the contribution of the construction sector, particularly residential construction, in the national economy. While residential construction generates positive impacts in terms of national output and employment, the empirical literature has looked more closely at the more precise relationship with economic development, especially with GDP per capita.

Burns and Grebler (1977), using data from 39 developed and developing countries for the period 1963–1970, found that residential construction output had a nonlinear, inverted U-shaped relationship with the stage of economic development. Such construction increased in economic importance up to a certain level of income and then declined as income increased further. They noted:

> The inverted U-shaped function…may be described as follows. At the earliest stages of economic development, H [share of housing in total output] is low. A relatively small share of total resources is allocated to housing because other investments presumably yield higher expected returns. With development, H rises as housing outbids many of the types of investment seen as critical during the earliest development stage. Past some point on the development continuum, H falls as alternative investments once again outbid housing (Burns and Grebler 1977, p. 30).

Using data for Italy, Pietroforte and Bon (1999) found a similar relationship in the decades following the Second World War. Construction was at first a propulsive force as the country rebuilt from the war and reduced its housing shortage. As the shortage declined and the economy expanded further, residential construction declined as a proportion of total output. Thus, the importance of housing construction as an economic sector changes over time and broadly reflects the long term historical trend of development away from capital goods and toward service-oriented activities. The role of construction in driving national economies is thus particularly strong for developing countries (Bon 1992).

Such a conclusion is supported by studies demonstrating the interdependency of economic sectors. Based mainly on input–output analysis, which was first developed by renowned economist Wassily Leontief, such studies show that the employment generating capacity of an industrial sector stems not only from its direct employment but also from the indirect employment through linkages with other sectors. High-linkage sectors will tend to have the highest multiplier effects and create more jobs and higher economic growth. In developing countries, demand for materials and equipment (backward linkages) is estimated to equal roughly half the value of a house (UN-Habitat and ILO 1995). Based on input–output tables for

Association of Southeast Asian Nations members in 1975, Park (1989) found that the sum of direct and indirect backward linkages for the construction sector ranked first out of 23 sectors in the Philippines; second in Malaysia; fourth in the Republic of Korea, Singapore, and Thailand; and sixth in Indonesia.

Table 2: Output and Input Multipliers of Construction Sector by Country

Country		Output	Input	Source
United States	1977	2.21	1.42	Miller and Blair (1985)
Italy	1982	2.20	1.26	Bon and Pietroforte (1990)
France	1989	2.16	1.12	Bon and Pietroforte (1990)
Finland	1985	1.78	1.17	Bon and Pietroforte (1990)
Turkey	1990	1.94	1.02	Bon, Birgonul, and Ozdogan (1999)
Singapore	1990	1.85	1.05	Lean (2001)
Germany	1989	2.30	1.39	Pietroforte and Gregori (2003)
Denmark	1989	2.26	1.53	Pietroforte and Gregori (2003)
Netherlands, The	1985	2.24	1.52	Pietroforte and Gregori (2003)
Canada	1989	2.22	1.29	Pietroforte and Gregori (2003)
Japan	1990	2.15	1.15	Pietroforte and Gregori (2003)
Australia	1988	2.06	1.08	Pietroforte and Gregori (2003)
Thailand	1995	1.70	1.08	Kofowolora and Gheewala (2008)
Thailand	1998	1.79	1.04	Kofowolora and Gheewala (2008)
Thailand	2000	1.78	1.03	Kofowolora and Gheewala (2008)

Source: Kofowolora and Gheewala (2008).

A variety of studies have used the input–output approach, including the six studies covering a total of 13 countries that are listed in Table 2. The output multiplier ranges from 1.7 to 2.3, whereas the input multiplier ranges from 1.03 to 1.53. An input multiplier of 1.5 implies that if the construction sector increases its demand for primary inputs (e.g., labor, materials) by $1 million, the economy's consumption of primary inputs increases by a total of $1.5 million. On the other hand, an output multiplier of 1.5 indicates that a $1 million increase in the construction sector's final output will increase total economic output by $1.5 million.

The National Association of Home Builders in the US found that the construction of 100 single-family houses in a typical metropolitan area generates local income of $21 million and local taxes of over $2 million in the first year. In subsequent years, the same activity generates income of $3 million and taxes of $0.74 million (NAHB 2009).

A common limitation of such analysis is that it combines residential (housing) and nonresidential construction. Analysis of housing construction alone is dependent on the availability of disaggregated input–output data that is often not available. As well, housing data is often not disaggregated to distinguish between new buildings as distinct from maintenance and repair (Pietroforte and Bon 1999).

Kofowolora and Gheewala (2008) use input–output tables for 180 sectors in Thailand for 1995, 1998, and 2000. The construction sector is divided into seven subsectors: residential, nonresidential, other constructions, public works for agriculture and forestry, nonagricultural public works, construction of local plant, and construction of communication facilities. The input and output coefficients differ across the seven subsectors. Nonresidential construction has the highest input coefficient reflecting its high industrialization level and use of capital-intensive technologies. In each of the 3 years studied, many of the same subsectors were ranked in the

top 10 of those providing inputs for construction. Most of these were material sources such as stone quarrying, concrete and cement products, and steel products, but also included banking and business service subsectors which provide finance for construction projects.

Input–output analysis is the traditional approach to estimating forward and backward linkages, whereas econometric techniques have been used more recently to establish causal relationships. Tse and Ganesan (1997) used Granger causality analysis with quarterly data for Hong Kong, China over the period 1983–1989 and concluded that GDP leads construction activity. Saka and Lowe (2010) test causality using GDP and annual national income account for nine sectors from the Central Bank of Nigeria for 1981–2005. Based on results of unit root and Johansen co-integration tests, they found a long-term equilibrium contemporaneous relationship between the variables, as well as a common trend. Further, the possibility of a spurious relationship between variables could be ruled out with a causal relationship existing in at least one direction. The Granger causality test was then applied to analyze the significance of linkages between construction and other sectors of the economy. The results indicate that construction activity Granger caused output in: services, transport, and utilities with a lead of 1 year; finance and trade with a lead of 2 years; and manufacturing and mining, petroleum, and gas with a lead of 6 years. Construction did not Granger cause output in the agricultural sector, but it did Granger cause GDP with a lag of 6 years. In turn, construction sector output was Granger caused by GDP and output in all sectors, except petroleum and gas. The bi-directional cause and effect relationships imply a strong mutual dependence among all the sectors of the Nigerian economy.

E. Employment

Housing construction and home improvements generate employment. The type of employment ranges from unskilled and lowly skilled workers to highly paid professions, and include a considerable proportion of technically skilled workers. The employment elasticity can vary considerably, with poorer countries tending to employ more labor-intensive techniques, as wage rates are low, whereas developed countries apply more capital, especially in civil works.

One estimate for India indicates that 1 million rupees[7] invested in construction creates 22,000 unskilled, 23,000 skilled and semi-skilled, and 9,000 managerial and technical person-days (Laskar and Murty 2004). This equates to approximately 180 workers for 1 year.[8] The housing sector in India has significant backward and forward linkages to more than 250 industries. Housing and real estate activity is the second highest provider of employment in the country, after agriculture. Zhang (2008) uses data from the Ministry of Urban Employment to estimate that construction provides direct employment to 16% of the national workforce in the People's Republic of China. Housing itself accounts for 58% of workers in the construction sector, with slightly more than half of them unskilled.

Kofowolora and Gheewala (2008) estimate that for the Thai construction sector, the Type I employment multiplier—defined as the total direct and indirect employment generated as a ratio of the direct employment generated by an expenditure of one unit—was 1.46 and was ninth highest of 15 sectors. They suggest that the trend in the Thai construction sector is toward capital-intensive and labor-saving technologies. Estimates produced for the US by the National

[7] This equals approximately $22,000 based on 2004 exchange rate and about $90,000 based on purchasing power parity (PPP) terms.

[8] The figure is based on a working year of 300 days and was calculated by the authors.

Association of Home Builders found that the construction of 100 single-family houses in a typical metropolitan area creates 324 jobs in the local area in the initial year and 78 jobs in subsequent years (NAHB 2009). In a number of Asian countries, construction provides between 8% and 13% of total employment (Table 3).

The number of jobs created is a function not only of the scale and nature of investment, but also the technology adopted. Low-cost housing using informal methods creates 20% more jobs than formal methods used in the construction of higher-cost housing, according to estimates by UN-Habitat and ILO (1995). Labor-intensive methods can also generate high employment effects in infrastructure provision, including water supply, sewerage, drainage, roads, and pathways. A one-kilometre earthen road, five meters wide, can generate 2,000 work-days. The use of simple, noncapital-intensive methods leads to greater employment of workers who are poor and unskilled or semi-skilled (UN-Habitat and ILO 1995).

Table 3: Employment in Construction as a Percentage of Total Employment (2001–2008)

Countries	2001	2002	2003	2004	2005	2006	2007	2008
PRC	6.8	7.2	7.4	7.4	7.9	8.2	8.4	8.4
Hong Kong, China	3.1	2.7	2.8	2.5	2.2	2.1	1.9	1.9
Indonesia	9.3	10.4	10.4	11.2	10.8	10.6	11.7	11.5
Korea, Rep. of	8.9	9.4	9.4	9.2	8.9	8.8	8.9	–
Macau, China	8.7	7.5	8.3	8.6	9.9	12.1	13.3	12.0
Philippines	10.0	10.0	9.9	9.5	9.6	9.4	9.5	9.6
Sri Lanka	2.1	1.8	1.8	2.0	2.6	3.0	2.1	–

PRC = People's Republic of China.
Source: ADB staff estimates, based on Labour Statistics, International Labour Organization.

F. Small Business Development: Collateral and Business Premise

There is evidence that home ownership provides a physical and financial asset that is a foundation for small business development, which in turn generates employment and income.

As a physical asset, housing provides a location for operating a business. This has been particularly important for house-bound women who make a contribution to household income that would not otherwise be possible. In Zambia, for example, a quarter of households studied ran a home-based enterprise with income per capita 22% higher than in households without enterprises (Moser 1998).

De Soto (2000) has argued that establishing secure property rights in developing countries would allow houses to be used as collateral to generate finance for the householder's economic initiatives. This is consistent with literature for both developing and developed countries indicating that home ownership is important as collateral for small business loans (Tabaijuka 2009; Black, de Meza, and Jeffreys 1996).

Beck, Demirguc-Kunt, and Martinez Peria (2007) collected data on the financing behavior of 91 banks in 76 developing and developed countries. At least three-quarters of these banks require collateral to make business loans. Given the more pronounced

information asymmetry in developing countries, a slightly higher percentage of banks in these countries require collateral relative to banks in developed countries. Real estate is the preferred type of collateral in both developing and developed countries. The authors note that, "close to 40% of banks rank real estate as the most important type of collateral used for small, medium, and large firm financing. Cash and other liquid assets are the second most important forms of collateral used across all firm sizes (approximately 22% of banks rate this form of collateral as the most important), followed by bank and personal guarantees (10%–15% of banks)."

Buckley and Kalarickal (2005) qualify the widespread support for the link between housing and enterprise loan provision. They cite evidence that the process of establishing systems of secure title is not unproblematic and that the cost can outweigh the economic gains. This can arise where providing property rights to illegal squatters has the effect of undermining respect for property rights, or where the need to adjudicate between counter claims arises. They also point to the necessary condition that for secure title to be translated into effective collateral requires a financial system that will allow it. Even where such a system exists there may be other barriers such as property owners who are self-employed and not able satisfactorily to demonstrate their level of income. Furthermore, Moser (1998) notes that contribution of small business development to poverty reduction depends partly on the assets that complement home ownership such as skills, electricity, and water supply. Buckley and Kalarickal (2005) argue that these warnings are not intended to suggest that secure title is not important for accessing the full benefits of home ownership. Instead, they note that ownership itself may not be sufficient and that "a set of interlocking, complementary reforms is also necessary" (Buckley and Kalarickal 2005, p. 246).

IV. HOUSING FINANCE

To secure adequate housing, households confront the choice between renting and owning.[9] These options in turn are determined greatly by a household's access to financial resources. Renting requires a regular income stream, while owning requires access to a large amount of accumulated finance because the purchase of a dwelling is very costly—indeed it is the largest asset that most households will ever possess.[10] Ball (2003) estimates the average price of a home in a developed country to be four times the average household's annual income. Due to the high cost of a housing purchase relative to family income and because such investments are front-loaded in anticipation of flows of services in the future, most housing purchases are financed. They are financed directly through the previous owner[11] or, more commonly, through a mortgage arranged through a financial intermediary. As such, housing finance is a key part of the housing system, making homeownership possible for a much greater proportion of the population than would be the case otherwise. Finance also plays a key role in housing construction, supporting the large costs of developers before housing units can be sold or rented out.

[9] In some countries, the situation can be more complex with various hybrids that combine renting and owning.

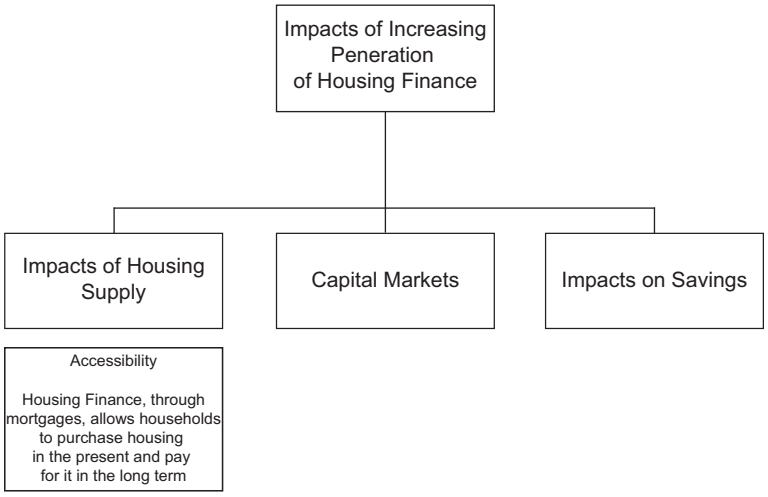
[10] Purchasing requires a large payment up front which normally requires that the homeowners to secure a mortgage and therefore also requires a regular income stream to pay the mortgage.

[11] In effect, the seller becomes the (private) mortgage holder.

In many developing countries, families are frustrated by their inability to borrow the money to make a house purchase. Housing finance may be limited to those with a high and steady income. Those who are able to secure finance are often required to provide an initial (down) payment of 30% or higher, of the value of the unit and the mortgage may be large relative to income. Those who cannot secure a mortgage are forced to save for many years or abandon the dream of owning their own home. Moreover, when housing improvements are incremental—related to the rate at which people can save—the outcome may be inefficient. For example, people start by using cheap, poor quality materials that soon need replacement (UN-Habitat 2009).

In short, the underdevelopment of mortgage markets constitutes a barrier to improving living conditions. The benefits of expanding the availability of housing finance are therefore directly related to the benefits of housing itself. Mortgages are merely the means to securing ownership of housing earlier than might otherwise be possible. But the development of housing finance also has other impacts on the financial system.

Figure 5: Impacts of increasing penetration of housing finance



Source: Authors.

The links between housing finance and the rest of the economy are described pictorially in Figure 5. The size of the mortgage market is related to economic fundamentals but causality is not unidirectional. Instead, that market is both dependent on economic growth and, in turn, it helps stimulate growth.

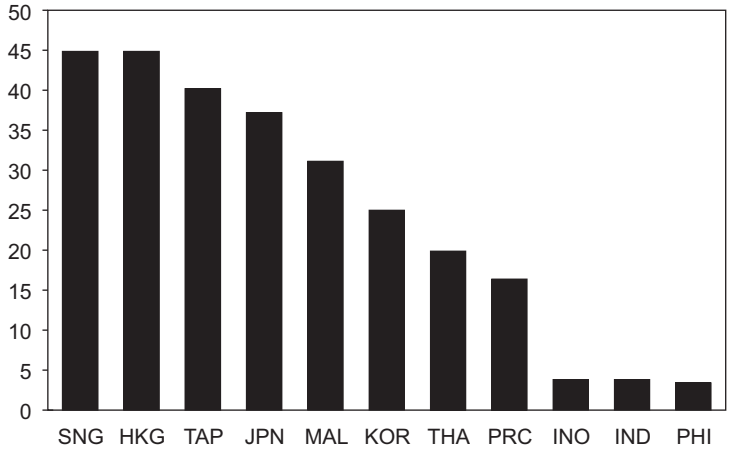
We review the direct effect of the increasing penetration of mortgage markets on three economic phenomena. First, the relationship with capital markets is examined. Here, the causal effects appear to operate in both directions: mortgage market growth is supported by diverse and developed capital markets, while capital markets are further developed by the expansion of mortgage markets. Second, evidence of the relationship between mortgage market development and household savings is considered. Finally, evidence of the stimulus provided by mortgage market development on housing supply, and through that, the improvement of living conditions of urban residents is analyzed.

While these are important issues, none has been the subject of a large number of empirical studies. This may be attributed partly to a lack of relevant, comparable data across countries, notably for developing and emerging countries.[12] Beyond the developed economies, knowledge of the scale and nature of mortgage markets is limited. Indeed, "comprehensive data on national housing finance development are completely lacking in many countries" (UN-Habitat 2009:3). Information about the range of financial products is important for understanding the housing finance market, but comparable statistics are restricted to overall size of that market (UN Habitat 2009). Moreover, very little formal empirical cross-country analysis on the data that does exist has been conducted (notable exceptions include: Warnock and Warnock 2008, 2012). Thus, there exists no substantial research base on which to make scientific conclusions about these direct impacts, particularly those relating to financial sector development.

A. Housing Finance and Economic Development

A basic indicator of mortgage market depth is the ratio of mortgage debt (outstanding) to GDP. In emerging Asia, this ratio is at a level far below that of developed countries (Figure 3.2). Developed countries in the West and Asia generally have large housing finance markets with a ratio of mortgage debt to GDP over 50%. In some emerging Asian countries, such as Hong Kong, China and Singapore, mortgage finance has grown considerably in recent decades to achieve a ratio of around 45%. In most Asian economies, however, the ratio remains at less than 20%.

Figure 6: Mortgage Market Depth in Asia, 2012
(mortgage debt as % of GDP)



HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan; KOR = Republic of Korea; MAL = Malaysia; PHI = Philippines; PRC = People's Republic of China; SNG = Singapore; TAP = Taipei,China; THA = Thailand.

Note: Data as of end-2012, except for Taipei,China (and India as of end-2011. Data for the Philippines (as of end 2009) includes banking sector housing loans and Pag-ibig Fund loans.

Source: Authors' calculations using data from national sources accessed through CEIC and reports.

[12] Data for developed countries can also be scarce. For example, the European Mortgage Federation provides an annual statistical update of mortgage markets in the 27 members of the European Union. A recent edition (EMF 2010) contains a table of covered bonds—debt instruments generally secured to mortgage loans—for the years 1998–2009. However, for nine countries, no statistics are available for any year, and a full set of statistics is available for only one country, Spain.

The broad pattern then is that mortgage lending per capita increases with country income level. The direction of causality is not clear, however. Does economic growth lead to deeper housing finance or does housing finance development contribute to economic growth? According to Dubel (2007) there are a number of variables at play. Variables that correlate with the ratio of mortgage debt to GDP include: the strength of legal rights for borrowers and lenders; the depth of credit information; and inflation volatility, with the latter acting as a proxy for the macroeconomic environment. Dubel (2007) suggests that macroeconomic stability, lower interest rates, and more dynamic labor markets may stimulate higher income and larger finance sectors, and that housing finance may affect levels of gross fixed investment.

There is no strong relationship, however, between the volume of mortgage lending and either the volume of total lending in the country, or the efficiency of total lending as measured by lending and borrowing rates of the banking system. For UN Habitat, the conflicting indicators can be attributed to the fact that the volume of mortgage lending is frequently and strongly influenced by government housing and finance policies (UN Habitat 2009).

In East Asia, primary mortgage markets expanded significantly after the 1997 Asian financial crisis, aided by economic recovery and liberalization of the financial sector. Mortgage markets in East Asia now exceed those of any other group of emerging economies (Chiquier 2006, Dubel 2007). Chiquier (2006) attributes the growth of primary markets in these countries to the strategies of commercial banks, responding both to growing mortgage demand from families and to the banks' own strategies to develop low-risk retail lending opportunities. Dubel (2007) identifies the important drivers of this trend as being global disinflation and low real interest rates, combined with the increasing capability of information and communications technologies (ICTs). The latter has provided a new level of transparency regarding collateral and borrowers that in turn has eased caution about offering credit in new markets.

B. Impact of Housing Finance on Housing Supply

1. Construction

Dubel (2007) argues that more housing finance may have a limited initial impact on housing supply, in part due to constraints in the land market and infrastructure. The resulting upward movement of prices, however, eventually stimulates the land and construction markets, leading to an expansion of supply in the medium term. From both a cross-sectional and longitudinal perspective, housing finance appears to drive construction output directly.

In a study of the effects of credit availability on housing supply, Chan (1999) argues that because most builders are small firms with little internal capital, aggregate house construction will be negatively impacted during periods of tight credit. His regression results using data for the U.S. indicate that credit availability plays a significant role in the level of construction activity especially for speculative construction.

Erbas and Nothaft (2005) apply the Washington University Macro Model, a quarterly econometric system with 442 equations and 611 variables, to countries in the Middle East and North Africa. They simulate the likely effect of sharp reductions in mortgage and other lending rates on house construction and GDP growth over 10 years. The simulation is conducted for changes of 200, 400, and 600 basis points in both residential mortgage rates and long-term corporate bond yields. The latter are included for two reasons. First, reforms that result in lower residential mortgage rates are also likely to include reforms that would reduce lending rates to businesses. Second, because many lower- and middle- income homeowners in developing

countries are also small business owners, housing loans are likely to finance business development. The results show that with no change in corporate bond yields, housing construction increases in the first 10 years by almost 3% as a result of a 200-basis-point reduction in mortgage rates. It increases by almost 6% with a 400-point reduction, and almost 10% with a 600-point reduction. If the reforms also cause a reduction in business lending rates of 600 basis points, then house construction grows by 12% in part due to the growth of the economy.

The simulation also indicates the impact on GDP growth in the first 10 years. In this scenario, the decrease in mortgage lending rates in the absence of a corresponding decrease in business lending rates results in lower GDP growth. This outcome appears to come about because increased residential development diverts resources from other types of investment. If rates for both forms of lending decrease by 600-basis-points, however, annualized GDP growth would increase by 0.1%.

2. Affordability

The lack of flexible, long-term housing finance for many Asian households limits affordable housing supply and effective demand. When and where formal housing finance schemes do exist, they are accessible only to high-income households. In these countries, down payment requirements and interest rates are high—thus, limiting the ability for most households to secure formal housing finance (Majale, Tipple, and French 2011).

Studying housing markets in Asia, Cruz (2008) therefore argues that a well-functioning housing market, including finance, can help resolve these challenges. This is consistent with Malpezzi's study (1990) which argues that the deeper the penetration of a country's housing finance, the more affordable are its housing units. Malpezzi's simple demonstration involves price-to-income ratios. Accepting that housing finance is not the only determinant of the price-to-income ratio and that the ratios may disguise wide variations between housing sub-markets, he stresses that the simple bivariate relationship indicates that countries with higher level of mortgage lending tend to have lower price-to-income ratios.

Moreover, the expansion of the housing sector—through greater availability of housing finance—does lead to availability of lower priced units in another way. Dubel (2007) explains that as more high-cost residential properties are constructed (due to their new affordability), the succeeding "upgrades and moves of households help to vacate lower-quality stock for lower-income households." Furthermore, in a study by Mehta and Mehta (1991) on the housing system in India, it was revealed that households will engage in housing improvement if credit is available.

Mehta and Mehta (1991) also observes, however, that while increased housing finance is desirable, housing supply may not be able to respond adequately, causing prices to increase. Hence, he highlights the importance of the elasticity of supply to rising demand patterns. For housing finance, this means that the scope of housing finance should be deep enough so that mortgage finance should allow for land acquisition and development, provision of infrastructure and basic services, and financing of improvements in the quality of housing and housing extensions.

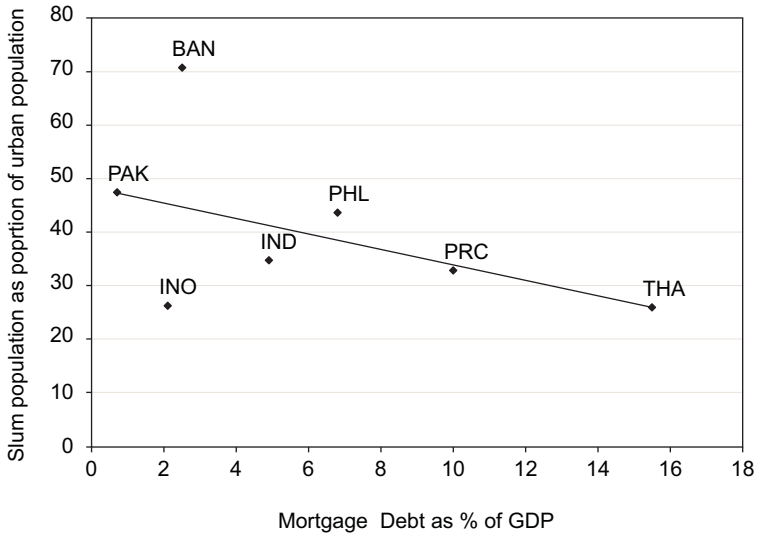
3. Reducing Slum Living

Slum reduction may occur because of the new affordability brought about by deepening of housing finance and an increase in housing supply. As mentioned, new construction in the upper end of housing markets allows for the movement of middle-income groups; this in turn motivates lower-income households to avail of the lower-cost housing units previously occupied by the middle-income groups.

Thus, in the same manner that the deepening of housing finance in developing countries helps to increase affordability of houses, more flexible housing finance also contributes to the reduction of slums. Thailand is one such example whose housing finance system and liberal land policies have allowed the delivery of low-cost housing units "down to the second income distribution decile" and were able to therefore rapidly reduce the proportion of slum-dwellers (Dubel 2007).

In this regard, the presence of mortgage markets can be said to work against the expansion of slums. However, housing finance is still found to be insufficient in most developing economies. Financial systems generally fail to deliver financial services to the poor and even those with moderate income.

Figure 7: Housing Finance and Slum Population, Selected Asian Countries



BAN = Bangladesh, IND = India, INO = Indonesia, PAK = Pakistan, PHI = Philippines, PRC = People's Republic of China, THA = Thailand.

Source: ADB staff estimates based on data from Warnock and Warncock (2008) and Global Urban Indicators (2009).

C. Relationship between Housing Finance and Financial Sector Development

There is a symbiotic relationship between housing finance markets and wider capital markets, according to current evidence. The expansion of housing finance is assisted by the development of capital markets, and the growth of capital markets assists the expansion of housing finance. The development of both contributes to overall growth of the economy.

On the one hand, the development of housing finance appears to be enhanced by well-developed capital markets. A study of 15 European Union (EU) countries found that the growth of outstanding mortgages as a percentage of GDP was positively affected by deregulation measures across the financial sector, as well as by stock market growth (Wolswijk 2005).

On the other hand, the development of a healthy, large, and buoyant mortgage market is expected to contribute to a more resilient financial sector. In general, commercial banks welcome mortgage business because it links them directly with households and potentially their savings and other business, such as insurance. Further, and notwithstanding the subprime crisis, lending to households for home purchase is generally low risk because the importance of the home to the homeowners means that default is lower than for most other categories of credit. The diversification of bank portfolios into the housing sector, combined with the increased level of business, contributes to the overall depth, diversity, and buoyancy of the financial sector, according to Buckley, Chiquier, and Lea (2009).

A central feature of this mutual reinforcement is the development of both primary and secondary mortgage markets. Constraints on housing finance expansion through primary markets occurs because, first, housing finance requires long-term lending based on short-term deposits thereby creating liquidity risks, and, second, a mismatch between interest rate and maturity characteristics of assets and liabilities creates interest risks.

In developed countries, in addition to the primary market, there has generally been an extension to the secondary market. In this market, the risk and ownership of mortgage loans is transferred to third parties. Furthermore, developed economies “have adopted diversified capital market strategies consisting of building a domestic institutional investor base, domestic bond market instruments, including mortgage-backed securities and covered bonds, and of attracting foreign direct investments as well as long-term portfolio investment” (Dubel 2007, p.15).

Secondary market development provides a number of advantages for the economy. First, it increases the flow of funds, overcoming any geographical mismatch between savers and borrowers, or between institutions. It expands the pool of funding options available to retail or primary lenders and imposes less pressure on governments to provide subsidized credit. Second, it reduces the cost of mortgage credit through more efficient allocation of risk, through nationwide diversification and by matching long-term mortgages with long-term sources of funds. Third, it can increase the availability of fixed-rate lending, which provides a less risky option especially for low-income households. Overall, by embedding housing finance in the wider financial sector, the availability of funds for housing loans is enlarged. In general, mature financial systems that provide access to mortgages for all households for which such borrowing is appropriate will have both primary and secondary markets.

As financial sectors become more mature and deeper, housing finance generally tends to constitute a more significant part of the overall activity of the sector. Table 4 shows the extent of this in both Europe and the US just over a decade ago. The data also shows that the significance of bonds varies considerably between countries. Bonds have been particularly significant in Denmark, Germany, and Sweden.

In turn, a larger role for housing finance tends to stimulate economic growth (Buckley, Chiquier, and Lea 2009). This link is similar to the broader connection between the financial sector and economic growth. According to an extensive review of the literature carried out by the Asian Development Bank (Zhuang et al. 2009), there is a consensus that the development of a national financial sector is critical to economic growth. The study concludes that a “sound

financial system supports growth through mobilizing and pooling savings; producing information ex ante about possible investments and allocating capital; monitoring investments and exerting corporate governance; facilitating the trading, diversification, and management of risks; and facilitating the exchange of goods and services" (Zhuang et al. 2009, p. 29).

Table 4: Mortgage Bonds, Selected Countries

	Mortgage Bonds	
Country	**Volume**	**% Debt**
Austria	12.2	8.8
Belgium	0.0	0.0
Denmark	153.1	59.0
Finland	1.2	1.5
France	37.7	3.4
Germany	1,056.3	44.0
Greece	0.0	0.0
Ireland	0.0	0.0
Italy	0.0	0.0
Netherlands, The	1.2	0.5
Portugal	0.1	0.2
Spain	11.5	3.4
Sweden	80.7	33.9
United Kingdom	0.0	0.0
European Union	1,354.0	17.7
Norway	10.9	17.6
Switzerland	25.9	15.1
Europe	1,390.8	17.7
United States	2,312.0	19.3

Source: Hardt and Lichtenberger (2001).

D. Impact on Rate of Household Savings

A common view is that greater penetration of housing finance is associated with the stimulation of household savings and the mobilization of those savings for housing purchases. The small body of empirical studies indicates a more complex relationship.

Jappelli and Pagano (1994) applied a three-period overlapping generations model to test the proposition that alleviating binding liquidity constraints on households reduces the savings rate. Using data for a sample of 25, mainly Organisation for Economic Co-operation and Development (OECD) countries, they demonstrated that lower liquidity constraints, proxied by loan-to-value ratios for mortgages, were associated with a lower savings rate. In other words, less developed mortgage markets are associated with higher savings rates.

Li (2001) applied a six-period overlapping generations model to data for Middle East countries in which mortgage markets were very small, yet population growth and thus the demand for housing was high. Consistent with Japeeli and Pagano (1994), he found that for a given tenure choice, the more restrictive the liquidity constraints in the mortgage market, the higher the savings ratio. However, when liquidity constraints are extremely restrictive, households adapt their tenure decision by either delaying or even foregoing the decision to buy a home. With both strategies, the savings rate remained at a very low level, suggesting that a relaxation of liquidity constraints for a very undeveloped mortgage market would at first lead to

higher savings, but as the finance sector expanded and liquidity constraints fell, the savings rate would decline.

Klyuev and Mills (2007) suggest that the decline in savings rates continues in markets in which liquidity constraints are very low. In their study of the US, the inclusion of a trend variable in regression analysis—intended to represent the ongoing effects of financial liberalization and innovation—was strongly significant. The growth of financial markets, financial innovation, and increased access to financial products all enable households to smooth consumption more effectively without the need to maintain high levels of saving.

These different conclusions about the relationship between the size of the housing finance market and aggregate savings may be reconciled with the recognition that home ownership constitutes both consumption and investment. Datta and Jones (2001) argue that housing and savings are not separate, but rather housing is a form of savings. When cities are growing and land ownership is consolidating, the link between housing finance and savings may be particularly reliable. Indeed, the lack of developed markets, both for housing finance and non-housing investment, may leave households seeking a mechanism to smooth consumption over the life cycle, with little option other than to invest in housing. As Datta and Jones (2001) conclude:

> One question for research therefore is whether rather than save in order to build adequate housing as per conventional wisdom, the lack of institutional financial capacity is increasing investment in housing as a form of savings. One could even support a scenario that under certain conditions households may be 'over' investing in housing (2001, p. 345).

The corollary is that when housing finance develops, providing households with easier access to credit, both to purchase housing in the first place but as well as later to realize its equity, home ownership becomes an increasingly useful form of investment.

Analysis of consumption patterns in OECD countries suggest that when people feel that their personal wealth, including housing equity, has increased, there is a measurable tendency to use some of that increase to increase consumption (Catte et al. 2004). The housing wealth effect is most clearly marked in the countries with the most developed mortgage markets.[13] Those markets are pivotal in translating house price increases into spending through both perception and increased collateral value that increases access to credit.

Together, these findings suggest a U-shaped relationship between investment in home ownership relative to GDP per capita and the size of housing finance markets. Households invest most heavily in home ownership, and less heavily in other forms of savings, at low and high levels of housing finance development.

[13] Housing improvement projects can also raise the value of a home and invoke varied responses from the homeowner. Evidence from a mature housing improvement project in Zimbabwe in the early 1990s found that while some of the original low-income inhabitants remained, many had sold up because they wanted to move to another area, they had financial difficulties, or they had wanted to make a capital gain. The new inhabitants were on average from higher income groups responding to the lack of middle-income housing elsewhere (Radoki and Withers 1995).

E. Finance of Housing Developers

Many actors are engaged in the provision of housing and infrastructure in developing countries. They also need access to finance over and above their individual saving capacity (UN-Habitat 2005). This is important to prevent a situation in which increased access to finance for households is not followed by an adequate supply response with consequent increases in house prices (World Bank 1993).

Small builders, comprised of an individual or small group of skilled workers plus laborers, are often the most important providers of dwellings and associated infrastructure for low-income groups. Furthermore, small-scale landlords operating in informal settlements provide affordable housing for large numbers of poor households. Often they do not have ready access to funds, however, to provide additional housing or upgrade existing stock. This represents an important finance gap (UN-Habitat 2003). Large-scale developers of private housing both for sale and for rent, particularly if this is provided speculatively to meet market demand, will often require bridging loans. The lack of access to credit for small and large builders constrains the supply side of the housing market, because builders and developers must invest more of their own capital into projects, with the result of a reduction in the size and number of projects overall (Chiquier 2009).

In some countries, finance mechanisms for larger rental enterprises have developed. These include real estate investment trusts in which equity is pooled and individual investors receive dividends from a real estate portfolio. In addition, banks may offer loans, although the assessment of risk is complex, relying on potential cash flow. Finally, capital market funding through the issuance of bonds, including the securitization of rents—comparable to the securitization of mortgages—is also possible (Le Blanc 2009).

A not uncommon response to the need for finance has been the development of buyer financing in the form of advance deposits or presales, which help to verify the strength of demand and fix the commitment of the buyers. Whereas this reduces the risk for the developer/builder, over-reliance on presales may tip the balance of risk too far toward the buyer (Chiquier 2009). Funding by banks is possible but in many developing economies there are practical obstacles to extending loans. These include developers having limited own equity, poor accounting practices, and a lack of financial transparency. Furthermore, financial institutions often have a lack of expertise (legal, construction, and housing market) needed to adequately assess risk (Chiquier 2009).

V. CONCLUSION

In conceptualizing economic development, there is a tendency to focus on agriculture, or manufacturing or services. The housing sector is, however, an important sector of the economy. This paper has sought to review the links between housing, housing finance, and the broader issues of economic development and poverty reduction. The review suggests that there are important links between the quality of housing and improved health. There are also links to the education of children, social cohesion, and small enterprises but the exact nature of causality is harder to establish. There are important spin-off or multiplier effects from housing construction, in terms of both employment and primary inputs. Many of the construction workers are unskilled or low skilled, suggesting they are from poorer segments of society

Housing finance is critical for homeownership and for financing housing developers. A housing unit (house or apartment) is the most valuable asset that most families possess. It needs financing in most cases. The literature also suggests that there is a symbiotic relationship between housing finance and financial sector development. Housing finance helps to develop the financial sector (contributing to economic growth) and is also helped by financial sector development. The paper also provides areas for consideration based on historical experiences as countries develop their housing and housing finance markets.

REFERENCES

Aaronson, D. 2000. A Note on the Benefits of Homeownership. *Journal of Urban Economics* 47:356–369.

Agus, R. 2002. The Role of the State and Market in the Malaysian Housing Sector. *Journal of Housing and the Built Environment* 17:49–67.

Arimah, B. C. 1992. An Empirical Analysis of the Demand for Housing Attributes in a Third World City. *Land Economics* 68(4): 366–379.

Ball, M. 2003. Improving Housing Market. *RICS Leading Edge Series* (May). London: Royal Institution of Chartered Surveyors.

Ballesteros, M. 2002. The Dynamics of Housing Demand in the Philippines: Income and Lifecycle Effects. *Philippine Institute for Development Studies Research Paper Series* no. 2003–01.

Beck, Thorsten, Asli Demirguc-Kunt, and Maria Soledad Martinez Peria. 2007. Reaching Out: Access to and Use of Banking Services Across Countries. *Journal of Financial Economics* 85(1): 234–266.

Black, J., D. de Meza, and D. Jeffreys. 1996. House Prices, the Supply of Collateral and the Enterprise Economy. *The Economic Journal* 106:60–75.

Blackman, T., and J. Harvey. 2001. Housing Renewal and Mental Health: A Case Study. *Journal of Mental Health* 10(5): 571–583.

Bon, R. 1992. The Future of International Construction: Secular Patterns of Growth and Decline. *Habitat International* 16(3): 119–128.

Bon, R., and R. Pietroforte. 1990. Historical Comparison of Construction Sectors in the United States, Japan, Italy, and Finland Using Input–Output Tables. *Construction Management and Economics* 8:233–247.

Bon, R., T. Birgonul, and I. Ozdogan. 1999. An Input Output Analysis of the Turkish Construction Sector, 1973–1990: A Note. *Construction Management and Economics* 17:543–551.

Breysse, P., N. Farr, W. Galke, B. Lanphear, R. Morley, and L. Bergofsky. 2004. The Relationship between Housing and Health: Children at Risk. *Environmental Health Perspectives* 112(15): 1583–1588.

Buckley, R., and J. Kalarickal. 2005. Housing Policy in Developing Countries: Conjectures and Refutations. *The World Bank Research Observer* 20(2): 233–257.

Buckley, R., L. Chiquier, and M. Lea. 2009. Housing Finance and the Economy. In L. Chiquier and M. Lea, eds. *Housing Finance Policy in Emerging Markets*. Washington, DC: World Bank.

Burns, L., and L. Grebler. 1977. *The Housing of Nations: Analysis and Policy in a Comparative Framework*. New York: Wiley.

Carp, F. M. 1975. Impact of Improved Housing on Morale and Life Satisfaction. *Gerontologist* 15(6): 511–515.

Catte, P., N. Girouard, R. Price, and C. Andre. 2004. *Housing Markets, Wealth and the Business Cycle*. Economics Department *OECD Working Paper* No 194. Paris: OECD.

Chan, T. 1999. Residential Construction and Credit Market Imperfection. *Journal of Real Estate and Economics* 18(1): 125–139.

Chiquier, L. 2006. *Housing Finance in East Asia*. Washington, DC: World Bank.

_____. 2009. Construction finance in emerging economies. In L. Chiquier and M. Lea, eds. *Housing Finance Policy in Emerging Markets*. Washington, DC: World Bank.

Chiquier, L., and M. Lea, eds. 2009. *Housing Finance Policy in Emerging Markets*. Washington, DC: World Bank.

Cole, O., and JS. Farries. 1986. Rehousing on Medical Grounds: Assessment of its Effectiveness. *Public Health* 100:229–35.

Coleman, J. 1966. *Utopia on Trial: Vision and Reality in Planned Housing*. London: Hillary Shipman.

Cruz, P. 2008. Transaction Costs and Housing Affordability in Asia. *International Real Estate Review* 11(1): 128–150.

Datta, K., and G. Jones G. 2001. Housing and Finance in Developing Countries: Invisible Issues on Research and Policy Agenda. *Habitat International* 25:333–357.

De Soto, H. 2000. *The Mystery of Capital*. New York: Basic Books.

DiPasquale, D., and E. Glaester. 1999. Incentives and Social Capital: Are Homeowners Better Citizens? *Journal of Urban Economics* 45:354–384.

Doling, J., and Ronald, R. 2011. *Meeting the Income Needs of Older People in East Asia: Using Housing Equity, Ageing and Society*.

Dubel, H. 2007. Does Housing Finance Promote Economic and Social Development in Emerging Markets? Study commissioned by the International Finance Corporation, Washington, D.C.

Elton P. J., and J. M. Packer. 1987. Neurotic Illness as Grounds for Medical Priority for Rehousing. *Public Health* 101(4): 233–242.

EMF. 2010. *Hypostat 2009.* Brussels: European Mortgage Federatino.

Erbas, S., and F. Nothaft. 2005. Mortgage Markets in Middle East and North African Countries: Market Development, Poverty Reduction, and Growth, *Journal of Housing Economics* 14:212–241.

Fogel, R. 1994. Economic Growth, Population Theory and Physiology: The Bearing of Long Term Processes on the Making of Public Policy. *American Economic Review* June:369–395.

Green, R., and M. White. 1997. Measuring the Benefits of Home Owning: Effects on Children. *Journal of Urban Economics* 41:441–461.

Hardt, J., and J-D Lichtenberger. 2001. The Economic and Financial Importance of Mortgage Bonds in Europe. *Housing Finance International* June:19–29.

Haurin, D., Parcel, T., and Haurin R. 2001. The Impact of Homeownership on Child Outcomes. *Low-Income Homeownership Working Paper Series LIHO-01.14*. Joint Center for Housing Studies of Harvard University.

Holzmann, R., T. Packard, and J. Cuesta. 2001. Extending Coverage in Multi-pillar Systems: Constraints and Hypotheses, Preliminary Evidence and Future Research Agenda. In R. Holzmann and J. Stiglitz, eds. *New Ideas about Old Age Security: Toward Sustainable Pension Systems in the 21st Century*. Washington, DC: World Bank.

ILO. 2008. Labour Statistics. International Labour Organization.

Jamison, D. T., H. W. Mosley, A. R. Measham, and J. L. Bobadilla, eds. 1993. *Disease Control Priorities in Developing Countries.* Washington, DC: World Bank.

Jappelli, T., and M. Pagano. 1994. Saving, Growth and Liquidity Constraints. *The Quarterly Journal of Economics* 109 :83–109.

Kofowolora, O., and S. Gheewala. 2008. An Input–Output Analysis of Thailand's Construction Sector. *Construction Management and Economics* 26:1227–1240.

Klyuev, V., and P. Mills. 2007. Is Housing Wealth and "ATM"? The Relationship between Household Wealth, Home Equity Withdrawal and Saving Rates. *IMF Staff Papers* 54(3): 539–5621.

Laskar, A., and C. Murty. 2004. Challenges Before Construction Industry in India. Department of Civil Engineering, Indian Institute of Technology, Kanpur (www.iityk.ac.in).

Lean, S. C. 2001. Empirical Tests to Discern Linkages between Construction and Other Economic Sectors in Singapore. *Construction Management and Economics* 13:253–262.

Le Blanc. 2009. Residential Rental Housing Finance. In L. Chiquier and M. Lea, eds. *Housing Finance Policy in Emerging Markets*. Washington, DC: World Bank.

Lee, L. L., L. Y. Lim, and K. P. Tay. 1993. Shelter for All: Singapore's Strategy for Full Home Ownership by the Year 2000. *Habitat International* 17(1): 85–112.

Li, X. 2001. Mortgage Market Development, Savings, and Growth. *IMF Working Paper* WP/01/36.

Lowry, S. 1990. Housing and Health: Getting Things Done. *British Medical Journal* 300:390–392.

Majale, M., G. Tipple, and M. French. 2011. *Affordable Land and Housing in Asia: Volume 2.* United Nations Human Settlement Program (UN-HABITAT). Nairobi: Union Publishing Services.

Malpezzi, S. 1990. Urban Housing and Financial Markets: Some International Comparisons. *Urban Studies* 27(6): 971–1022.

McGonigle, G. C. M., and J. Kirby. 1936. *Poverty and Public Health*. Golantz, London

Mehta, Meera, and Dinesh Mehta. 1991. Housing Finance System and Urban Poor. *Economic and Political Weekly* XXVI (17, 1): 110.

Meher, R. 2010. Urbanization, Housing and the State of Living of Urban Poor in India, *Review of Development and Change* XX(2): 219–40.

Meschede, Tatjana. 2011. From Street Life to Housing: Consumer and Provider Perspectives on Service Delivery and Access to Housing*. Cityscape: A Journal of Policy Development and Research* 13(1): 71–93*.*

Miller, R. E., and P. D. Blair. 1985. *Input–Output Analysis: Foundations and Extensions*. Englewood Cliffs, NJ: Prentice-Hall.

_____. 1998. The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies. *World Development* 26(1): 1–19.

Moser, Caroline O.N. 1998. The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies, *World Development* 26 (1): 1–19.

NAHB. 2009. The Local Economic Impact of Home Building in a Typical Metro Area: Incomes, Jobs and Taxes Generated. National Association of Home Builders, Washington, DC.

National Low Income Housing Coalition. 2004. America's Neighbors: The Affordable Housing Crisis and the People it Affects, National Low Income Housing Coalition. Washington, DC.

Nayar, K. R. 1997. Housing Amenities and Health Improvement. *Economic and Political Weekly* 32(22): 1275–1279.

Oswald, A. 1999. The Housing Market and Europe's Unemployment: A Non-technical Paper. Warwick University.

Park, S-H. 1989. Linkages between Industry and Services and their Implications for Urban Employment Generation in Developing Countries. *Journal of Development Economics* 30: 359–379.

Pietroforte, R., and R. Bon. 1999. The Italian Residential Construction Sector: An Input–Output Historical Analysis. *Construction Management and Economics* 17:297–303.

Pietroforte, R., and T. Gregori. 2003. An Input–Output Analysis of the Construction Sector in Highly Developed Economies. *Construction Management and Economics* 21(3): 319–327.

Pooley, C. 1992. *Housing Strategies in Europe 1889–1930*. Leicester: Leicester University Press.

Radoki, C., and P. Withers. 1995. Sites and Services: Home Ownership for the Poor? *Habitat International* 19(3): 371–389.

Rohe, M. W., and L. S. Stewart. 1996. Homeownership and Neighbourhood Stability. *Housing Policy Debate* 7(1): 37–81.

Ronald, R. 2008. *The Ideology of Home Ownership: Homeowner Societies and the Role of Housing*. Basingstoke: Palgrave Macmillan.

Rossi, P. H., and E. Weber. 1996. The Social Benefits of Homeownership: Empirical Evidence from National Survey. *Housing Policy Debates* 7(1): 1–35.

Saka, N., and J. Lowe. 2010. An Assessment of Linkages between the Construction Sector and Other Sectors of the Nigerian Economy. Paper given to the COBRA 2010 Conference, Paris.

Sherraden, M. 2002. Individual Accounts in Social Security: Can They be Progressive? *Interracial Journal of Social Welfare* 12:97–107.

Smith S. J., A. Alexander, and D. Easterlow. 1997. Rehousing as a Health Intervention: Miracle or Mirage? *Health and Place* 3(4): 203–216(14).

Takano, T., and K. Nakamura. 2001. An Analysis of Health Levels and Various Indicators of Urban Environments for Healthy Cities Projects. *J Epidemiol Community Health* 55:263–270.

Tan, T. 2007. Determinants of Home Ownership in Malaysia. *Habitat International* 32:318–335.

Thomson, H., and M. Pettigrew. 2005. Is Housing Improvement a Potential Health Improvement Strategy? Health Evidence Network Report, WHO Regional Office for Europe, Copenhagen.

Thomson, H., M. Pettigrew, and D. Morrison. 2001. Health Effects of Housing Improvement: Systematic Review of Intervention Studies. *British Medical Journal* 323:187–190.

Tibaijuka, A. 2009. *Building Prosperity: Housing an Economic Development*. London: Earthscan.

Tse, R., and S. Ganesan. 1997. Causal Relationships between Construction Flows and GDP: Evidence from Hong Kong [,China]. *Construction Management and Economics* 15:371–6.

UN-Habitat. 2003. *Rental Housing: An Essential Option for the Urban Poor in Developing Countries*. United Nations Human Settlements Programme, Nairobi.

_____. 2004. *The State of the World's Cities; Globalisation and Urban Culture*. London: Earthscan.

_____. 2005. *Financing Urban Shelter: Global Report on Human Settlements.* London: Earthscan.

_____. 2008. *Global Urban Observatory*.

_____. 2009. *Global Urban Indicators – Selected statistics: Monitoring the Habitat Agenda and the Millennium Development Goals*.

_____. 2009. *Guide to Preparing a Housing Finance Strategy*. London: Earthscan.

UN-Habitat and ILO. 1995. *Shelter Provision and Employment Generation*. UNCHS and ILO, Nairobi an Geneva.

United Nations. 2010. World Urbanization Prospects. The 2009 Revision: Highlights. Department of Economic and Social Affairs, United Nations, New York.

_____. 2011a. World Population Prospects: The 2010 Revision. Department of Economic and Social Affairs, Population Division. http://esa.un.org/undp/wpp/unpp /panel_population.htm/

_____. 2011b. World Urbanization Prospects. The 2010 Revision. http://esa.un.org/unpd /wup/index.htm

Warnock, V., and F. Warnock. 2008. Markets and Housing Finance. *Journal of Housing Economics* 17(3): 239–251.

Warnock, F., and V. Warnock. 2012. Developing Housing Finance Systems. , In Alexandra Heath, Frank Packer and Callan Windsor, eds. *Property Market and Financial Stability*. RBA Conference Volume. Reserve Bank of Australia

Wells, N. M. 2000. At Home with Nature: The Effects of Nearby Nature on Children's Cognitive Functioning. *Environment & Behavior* 32:775–795.

Willmore, L. 2007. Universal Pensions for Developing Countries*. World Development* 1:24–51.

Wilner, D. M., R. P. Walkley, T. Pinkerton, and M. Tayback. 1960. The Housing Environment and Family Life. A Longitudinal Study of the Effects of Housing on Morbidity and Mental Health.

Wolff, C., D. Schroeder, M. Young. 2001. The Effect of Improved Housing on Illness in Children under Five Years Old in Northern Malawi. *British Medical Journal* 322:1209–1212.

Wolswijk, Guido. 1993. *Housing: Enabling Markets to Work.* Washington, DC: World Bank.

———. 2005. Determinants of Mortgage Debt Growth in the EU Countries. *European Journal of Housing Policy* VI(2).

World Bank. 1993. *Housing: Enabling Markets to Work.* Washington, DC: World Bank.

_____. 2009. *Systems of Cities: Harnessing Urbanization for Growth and Poverty Alleviation.* Washington, DC: World Bank.

World Health Organization. 2007. Local Housing and Health Action Plans. WHO Regional Office for Europe, Denmark.

Wright, C., M. El Alamy, H. DuPont, A. Holguin, B. Hsi, S. Thacker, A. Zaki, and M. Habib. 1991. The Role of House Environment in Infant Diarrhea in Rural Egypt. *American Journal of Epidemiology* 134(8): 887–894.

Zhang, Xing Quan. 2008. Housing and Urban Upgrading in Yantai, [People's Republic of] China. Nairobi: United Nations Human Settlement Programme (UN-HABITAT).

Zhuang, J., H. Gunatilake, Y. Niimi, M. E. Khan, Y. Jiang, R. Hasan, N. Khor, A. Lagman-Martin, P. Bracey, and B. Huang. 2009. Financial Sector Development, Economic Growth, and Poverty Reduction: A Literature Review. *ADB Economics Working Paper* No 173. Manila: Asian Development Bank.

Housing and Housing Finance—A Review of the Links to Economic Development and Poverty Reduction
The links between housing, finance, and inclusive growth are explored in this paper. The benefits of improved housing accrue through better health, based on improved water and sanitation, and through large multiplier effects in terms of output and the employment of skilled and poorer, unskilled workers. The evidence also suggests that housing finance helps develop the financial sector (contributing to economic growth) and is also helped by financial sector development.

About the Asian Development Bank
ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.7 billion people who live on less than $2 a day, with 828 million struggling on less than $1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org/economics

Printed on recycled paper

Printed in the Philippines