



**PD&R**

# Cityscape

*A Journal of Policy  
Development and Research*

**LESSONS FOR THE UNITED STATES FROM ASIAN NATIONS  
VOLUME 11, NUMBER 1 • 2009**

U.S. Department of Housing and Urban Development  
Office of Policy Development and Research

**Managing Editor: Mark D. Shroder**  
**Associate Editor: Michelle P. Matuga**

**Advisory Board**

Dr. Stephen Malpezzi  
University of Wisconsin

Dr. Denise DiPasquale  
City Research, Boston, MA

Dr. Lance Freeman  
Columbia University

Dr. William J. Siembieda  
California Polytechnic State University

Dr. Donald R. Haurin  
The Ohio State University

Dr. Anthony Yezer  
George Washington University

Dr. Rosemary Goss  
Virginia Polytechnic Institute and State University



**PD&R**

# Cityscape

*A Journal of Policy  
Development and Research*

LESSONS FOR THE UNITED STATES FROM ASIAN NATIONS  
VOLUME 11, NUMBER 1 • 2009

U.S. Department of Housing and Urban Development  
Office of Policy Development and Research

The goal of *Cityscape* is to bring high-quality original research on housing and community development issues to scholars, government officials, and practitioners. *Cityscape* is open to all relevant disciplines, including architecture, consumer research, demography, economics, engineering, ethnography, finance, geography, law, planning, political science, public policy, regional science, sociology, statistics, and urban studies.

*Cityscape* is published three times a year by the Office of Policy Development and Research (PD&R) of the U.S. Department of Housing and Urban Development. Subscriptions are available at no charge and single copies at a nominal fee. The journal is also available on line at <http://www.huduser.org/periodicals/cityscape.html>.

PD&R welcomes submissions to the Refereed Papers section of the journal. Our referee process is double blind and timely, and our referees are highly qualified. The managing editor will also respond to authors who submit outlines of proposed papers regarding the suitability of those proposals for inclusion in *Cityscape*. Send manuscripts or outlines to [Cityscape@hud.gov](mailto:Cityscape@hud.gov).

***Opinions expressed in the articles are those of the authors and do not necessarily reflect the views and policies of HUD or the U.S. government.***

Visit PD&R's website, [www.huduser.org](http://www.huduser.org), to find this publication and others sponsored by PD&R. Other services of HUD USER, PD&R's research information service, include listservs, special interest and bimonthly publications (best practices and significant studies from other sources), access to public use databases, and a hotline (800-245-2691) for help with accessing the information you need.

# Contents

## *Symposium*

*Lessons for the United States From Asian Nations*

Guest Editor: Alven Lam

<b>Guest Editor's Introduction</b> .....	1
<b>Reinventing Highrise Housing in Singapore</b> .....	3
by Belinda Yuen	
<b>Land Takings in the Private Interest: Comparisons of Urban Land Development Controversies in the United States, China, and Vietnam</b> .....	19
by Annette M. Kim	
<b>Enabling the Voluntary Sector in Third World Housing</b> .....	33
by Sukumar Ganapati	

## *Refereed Papers*

<b>Crime Control in the City: A Research-Based Briefing on Public and Private Measures</b> .....	53
by Philip J. Cook	
<b>Applying Lean Production in Factory Homebuilding</b> .....	81
by Jordan Dentz, Isabelina Nahmens, and Michael Mullens	
<b>Role of Personal Bankruptcy Exemption Laws on Mortgage Availability</b> .....	105
by Sumit Agarwal and Souphala Chomsisengphet	

## *Departments*

### *Policy Brief*

<b>Conforming Loan Limits</b> .....	117
by John Comeau	

### *Data Shop*

<b>A Note on Data Preparation Procedures for a Nationwide Analysis of Urban Form and Settlement Patterns</b> .....	127
by Robert N. Renner, Selma Lewis, John I. Carruthers, and Gerrit-Jan Knaap	

### *Industrial Revolution*

<b>Insulating Concrete Forms: Walls for a Better Home</b> .....	137
by Mike Blanford	

### *Impact*

<b>The Impact of the HOPE for Homeowners Program Rule</b> .....	141
by Alastair McFarlane, Edward Szymanoski, and Kurt Usowski	

---

# Guest Editor's Introduction

**Alven Lam**

U.S. Department of Housing and Urban Development

This *Cityscape* symposium is dedicated to articles that reflect some lessons that Americans might learn from the housing and urban development experience of Asian nations. Our intention is to expand the framework within which domestic policy issues in this field are discussed.

Within the U.S. Department of Housing and Urban Development's (HUD's) Office of Policy Development and Research (PD&R), the Office of International Affairs coordinates the Department's international exchanges and contacts with foreign governments, international organizations, and other federal agencies on housing policy, housing finance, urban planning and development, and the built environment. The primary aim of this Office is to support HUD's participation in various types of international cooperative exchange programs. Such programs aim to share knowledge of the core principles of American policy and experience in housing and urban development while identifying potentially useful housing and development policies and practices in other countries that might be adapted for use in the United States. For the predominantly U.S. readership of *Cityscape*, we thought it would be appropriate to publish research on foreign housing and urban issues that could shed some light on our own policies and practices. As always, the views of the authors are their own and do not necessarily reflect the position of HUD.

In the first article in this issue, "Reinventing Highrise Housing in Singapore," Belinda Yuen of the National University of Singapore, focuses on one of the most fascinating cities in the world. Singapore is a city with limited land and a growing population. Within its land area of 270 square miles, Singapore has grown through immigration and net natural increase (resident births minus resident deaths), reaching a population of 4 million by 2000 and expecting to support another 1.5 million or more people in the next 40 to 50 years. Yuen discusses the principles, directions, and outcomes in this "planning for more with less" case, focusing on the means by which Singapore has housed 84 percent of its resident population in highrise public housing and improved residents' living conditions in the process.

Using empirical data from resident perception research, the article explores the realities of highrise living and the factors that ground the celebration of the highrise in Singapore.

The second article concerns "land takings," an old issue that has generated new controversy in recent years. The taking of lower valued private land for higher valued private development in the name of economic development and the public interest became a matter of much controversy after the *Kelo vs. New London* case, but the same conflicts occur in other parts of the world, particularly in some Asian countries that are making the transition to more market-based economies. In "Land Takings in the Private Interest: Comparisons of Urban Land Development Controversies in the

United States, China, and Vietnam,” Annette M. Kim of the Massachusetts Institute of Technology compares and contrasts the methods of conflict resolution in these three countries.

State planners in Vietnam and China are using public takings on an astounding scale to try to accommodate unprecedented urbanization rates. In both countries, the issue of land takings is politically sensitive. State-run media are often not allowed to cover protest incidents and interviewing protesters could violate research protocols here in the United States. The author assembled whatever information on “taking” controversies in these two countries was available in the international press and from activist organizations, together with data gathered from her personal field trips and interviews, to document interesting points of comparison and contrast between the Asian cases and those in the United States.

Sukumar Ganapati of Florida International University prepared the final article, “Enabling the Voluntary Sector in Third World Housing.” The voluntary sector, which is characterized by *voluntarism* and *community involvement*, plays a crucial role in filling the gap left by the public sector and the private for-profit sector in addressing Third World housing problems. The voluntary sector is more flexible than the government bureaucracy of the public sector and is not constrained by the profit-making goals of the private sector. Yet, it suffers from *voluntary failure* and faces *accountability* issues.

Ganapati argues that enabling the voluntary sector requires building institutional structures to enhance potential synergies with the other two sectors. Such structures should allow for voluntarism and autonomy; they should support the voluntary sector in financial, administrative, legal, and technical issues. Illustrative case studies from Thailand, India, and the United States provide models.

Like the authors of these articles, we think the United States can learn from other countries’ successes and failures in housing and community development. We hope that readers find the articles useful.



# Reinventing Highrise Housing in Singapore

Belinda Yuen

National University of Singapore

---

## Abstract

*Singapore is a city-state with limited land and a growing population. Within its land area of 700 square kilometers, it has to meet the needs of the city, nation, and population. From an initial population of about 150 at the time of its British founding in 1819, Singapore grew through immigration and net natural change to 4 million inhabitants by 2000. The population of Singapore is projected to grow by 1.5 million or more in the next 40 to 50 years. The challenge is how to plan for the growing population while supporting economic growth and quality of life as Singapore strengthens its development as a dynamic and distinctive global city-state. This article addresses the principles, directions, and outcomes in a “planning for more with less” scenario. In particular, it focuses on the housing strategy and how Singapore has housed 84 percent of its resident population in highrise public housing and improved residents’ living conditions in the process. Using empirical data from residents’ perception research, the article explores the realities of highrise living and the factors that ground the celebration of highrise housing in Singapore. The manner in which Singapore turns its highrise housing concept into action offers lessons for other cities, especially because the housing literature is peppered with negative discourses on highrises and an emerging revival of highrise housing is occurring in many cities throughout the world. With more than one-half of the world’s population living in urban areas, the unambiguous trend is toward a more urban-style development with taller buildings included as an inevitable housing solution.*

## Introduction

Singapore is a city-state of 700 square kilometers. Most (90 percent) of its 4.8 million residents (as of 2008) live in highrise apartment buildings. Although a highrise building is not the traditional form of housing, in recent decades it has become the common norm. Highrise housing is a key strategy for providing high-quality living to Singapore’s growing population, which is anticipated to grow by 1.5 million or more over the next 40 to 50 years. The construction of highrise struc-

tures deliberately limits the footprint of residential development to free up land for developing facilities that support a high-quality living environment. The aim of this article is to address the principles, directions, and outcomes in this “planning for more with less” scenario.

Housing provision is one of the most critical activities in the global urbanization process. The pace and scale of urban population growth have, in many instances, outstripped the ability of city administrations to provide adequate housing, leading to enormous problems, particularly poverty, housing shortages, and unemployment (Devas and Rakodi, 1993; UNCHS, 1996). The United Nations Centre for Human Settlements (UNCHS) noted the following statistics regarding homelessness:

Worldwide, the number of homeless people can be estimated at anywhere from 100 million to 1 billion or more, depending on how homelessness is defined. (UNCHS, 1996: 229)

The problem is almost universal, as Forrest and Williams (2001) recount, prevailing not just in Europe and North America but also across developing countries, where the rate of urbanization is most dramatic. With few exceptions, the scale of the global housing problem presents a serious challenge to those in the housing delivery sector and creates pressure on local and national governments to devise solutions to meet the housing shortages. As the Millennial Housing Commission wrote, “...housing matters...there is simply not enough affordable housing...” (Millennial Housing Commission, 2002: v). It is no surprise that adequate shelter with the promise of providing a decent life of dignity, good health, safety, happiness, and hope is one theme that has been repeated at international meetings and in successive United Nations declarations (see, for example, World Bank, 1993; UNCHS, 1998). The theme begs the question: How can we turn words into action and good intentions into practical possibilities? Since the 1960s, various governments have initiated ambitious public housing programs to build housing for lower income groups (World Bank, 1993).

Asian cities are no exception to the need for affordable housing. They are the sites of rapid urbanization and great housing pressure. Many of the world’s largest cities are in Asia (Jacquemin, 1999; UNCHS, 1996). Amid the unsatisfactory housing conditions, several cities (for example, Hong Kong and Singapore) have perpetually provided housing for the masses and, in the process, generated much economic growth (Castells, Goh, and Kwok, 1990; Doling, 1999; Forrest, Lee, and Chan, 2000). The strong housing performance in these cities has been a source of inspiration for other policymakers. Yeung wrote the following assessment of the city-states:

Many urban planners and policymakers from developing countries visit the city-states and come away with the conviction that they have seen the future and it works. (Yeung, 1987: 257)

Singapore, for example, has a preeminent model of mass public housing as a way of moving need and provision closer into balance. In Singapore, state-built housing has provided not just decent homes and appropriate residential infrastructure to low-income families but also homeownership to a widening majority (95 percent) of the public housing residents. Because Singapore’s public housing program and broad achievements have been documented elsewhere (see Wong and Yeh, 1985; Yuen, Teo, and Ooi, 1999), the emphasis of this article is to explicate the strategy of building highrises and how it has been employed to provide better housing in Singapore and address the challenges. The manner in which Singapore turns its highrise housing concept into action

yields lessons for other cities, especially because the housing literature is peppered with negative discourses on highrises. More significantly, during the past decade, under the narrative of urban sustainability, highrise housing is quickly reemerging on many cities' inner-city regeneration agendas. From London to Shanghai and Melbourne, local authorities are once again building residential highrises for their populations.

## **The Urban Highrise**

The notion of building highrise structures for residential use is not new. Ford (1994) observed that highrise housing has existed in large American cities since the early 1900s. Several reasons underscore the rising height of buildings. Primarily, as Lacayo wrote, it is "the best means of getting more people and businesses into a smaller footprint on the ground" (Lacayo, 2004: 104). Earlier, Moser succinctly summarized the following trends in highrise housing:

High-rise housing tends to be more prevalent in those countries where government is the major builder. . . . There are, of course, other forces shaping the aspect of tall buildings: technology enables us to build as high as we wish; the esthetics of urban design may call for a distinctive vertical mass or focal point in the cityscape; the political exigencies of a city or state may demand that "progress and development" be exemplified in a tall building. Not the least important factor in the proliferation of tall buildings around the world is the tendency to imitate. (Moser, 1981: 5)

The effect is the dynamic oscillation toward taller buildings or the 'supertalls' (Ali and Armstrong, 1995), the current genre of highrise buildings, and the global proliferation of such structures (Lacayo, 2004).

Worldwide, in the 1960s, governments began to build highrises as a way to house the underprivileged masses. The highrise was exhorted as the housing solution for postwar housing shortages: "a panacea for social problems" (Helleman and Wassenberg, 2004: 4), a "new architecture for new people" in a rising modern society (Tibbits, 1988: 150). Despite the proliferation of highrises in the previous decade, beginning in the 1970s, this housing form was increasingly characterized with livability problems (in particular, it was considered antifamily and antichildren), putting pressure on many governments to abandon and demolish highrise housing (Costello, 2005; Helleman and Wassenberg, 2004). Although negative perceptions about the highrise and renewed predictions of its demise may still exist, especially after September 11, 2001, interest in highrise housing has not been extinguished. Lacayo reflected on the popularity of the modern skyscraper following September 11th:

In the months right after Sept. 11 . . . The only clients still interested in building them were in nations that wanted a symbol of their arrival as a contender in the global market, mostly in Asia's Pacific Rim . . . there is the endlessly ambitious city of Dubai, in the United Arab Emirates, which architecturally is the mouse that roared: in the past five years, three of the world's 25 tallest buildings have been topped off there, and two more are in the works . . . The skyscraper seems to have even more power now as a symbol of modernization . . . (Lacayo, 2004: 104)

The unfolding trend seems to indicate that more, not fewer, people will be living in highrises. An increasing number of cities are revisiting highrise housing as a viable residential alternative in inner-city regeneration (Abel, 2003; Yuen et al., 2006). Costello, in observing highrise living in Melbourne, said the latest highrises “are discursively constructed as new and exciting places to live” (Costello, 2005: 54–55)—a “lifestyle” choice in the global era. The scenario is also certainly true for Singapore. Its long-term development plan has pronounced a development strategy of constructing more highrises as Singapore aims to become a dynamic, distinctive, and delightful global city-state.

More people will get to live on higher floors and enjoy the views. In areas with less stringent height constraints, housing can rise to 30 stories and higher. Currently, only about 35,000 people live above the 20th storey. (Urban Redevelopment Authority, 2001: 16)

In recent years, Singapore’s private and public sectors have built 40-story housing and set in motion plans to build 50- and 70-story housing structures in the city area (Yuen, 2005a).

## **The Rise of the Highrise in Singapore Public Housing**

The development of public housing introduced Singapore’s residents to living in highrise buildings. Although public housing development in Singapore first began in the 1920s, the city-state’s current public housing program for the masses was largely a postindependence (1960s) phenomenon.<sup>1</sup> In the face of enormous housing shortages, the Singapore government, upon attaining internal self-rule in 1959, had funneled expenditures and the highest priority to housing. Premised on its election pledge to provide housing to the population, the Singapore government quickly organized the public housing production process to eradicate housing inadequacies in a planned, rational manner (see Wong and Yeh, 1985; Yuen, 2002).

By the end of its first 5-year building program (1961 through 1965), the state had constructed 70,000 flats in highrise apartment blocks (averaging 10 to 12 stories high) to house about 25 percent of its population. By 2005, some 900,000 dwelling units had been built, including 25-, 30-, and 40-story apartment blocks; the units provided housing for 84 percent of the resident population. These new apartment buildings were built within new towns. Initially located within an 8-kilometer radius of the city, the new towns have gradually spread to all parts of Singapore with the expansion of the public transportation network. The aim is to improve the existing residential space, especially in terms of occupancy, accessibility, and facilities. The development of highrise public housing for the masses is primarily rooted in the policy to provide good, affordable housing for everyone who lacks shelter. Many of the Singapore public flats are large and comfortable by international standards. The average size of a four-room flat<sup>2</sup> is about 90 square meters,

---

<sup>1</sup> Singapore is a newly industrializing country with a relatively short 40-year history as a self-governing city-state. It gained internal self-rule from the British colonial government in 1959 and full independence after seceding from Malaysia in 1965. Metropolitan growth during the colonial period brought many opportunities to the city, but also several serious problems, such as double-digit unemployment, labor strikes, acute housing shortages and overcrowding, a deteriorating urban infrastructure and environment, social and ethnic segregation, and exploding population growth. For further discussion of Singapore’s postwar development challenges, see Motha and Yuen (1999) and Yuen (2004a).

<sup>2</sup> This flat generally includes three bedrooms, one living/dining room, one kitchen, and two bathrooms.

or approximately 24 square meters per person (the average household size is 3.7 persons). Most (95 percent) public flats are owner occupied. Housing access and affordability are not limited to some households; instead, various financial assistance schemes have been initiated to specifically help low-income families become homeowners (Field, 1989; Yuen, 2005b). Lee Kuan Yew, Prime Minister of Singapore from 1959 to 1990, summarized the argument for residents to own public housing units:

My primary preoccupation was to give every citizen a stake in the country and its future. I wanted a home-owning society. I had seen the contrast between the blocks of low-cost rental flats, badly misused and poorly maintained, and those of house-proud owners, and was convinced that if every family owned its home, the country would be more stable. (Lee, 2000: 116)

The underlying principle is for public housing units to be “erected as part of comprehensively planned housing estates with schools, open space and other community facilities” (Singapore Planning Department, 1965: 35). With this principle, attention inevitably turns on highrise construction as the *modus operandi* to meet the twin objectives of high living standards and space affordability. Even though highrise housing lacks historical precedent, the concept of vertical stacking instead of the spread of lowrise housing has been constantly viewed as a pragmatic and responsive urban solution for housing a large and growing population that would yield a better usage of scarce land (Palen, 1990; Wong and Yeh, 1985). Wong and Yeh described how planners address issues of density:

...the population density in Singapore is approximately 4,200 persons per sq km...the planners in Singapore have to make sure that the Central Area facilities, new towns, water catchments, military training grounds and agricultural areas are all accommodated within the available land area.<sup>3</sup> Under these circumstances, the gross residential density for a new town as a whole has to be pegged at 64 dwelling units or 280 persons per hectare. Taking the residential area by itself, the net density is 200 dwelling units or 880 persons per hectare. At this density, and given the relatively large flat sizes, the plot ratio of the built up area is around 1.6 to 2.3. The building blocks have to be mostly 10- to 13-storey in height, with 5 to 10 per cent being 4-storey buildings and another 5 to 10 per cent 20- to 25-storey point blocks. (Wong and Yeh, 1985: 8)

The decision to build highrise housing is, in the official narrative, not intended to show off economic or technological capabilities. Instead, as Wong and Yeh stated, “there is simply no other choice” (Wong and Yeh, 1985: 8). The lack of choice is undergirded by the urban characteristics of Singapore, the demographics, and the housing delivery process that focuses on providing decent shelter in a landscaped, residential environment. As Huxtable (1984) argued in the wider case for highrises, building highrise housing can yield a physical, holistic reality. Although they can greatly affect the scale and context of the urban environment due to their height, highrise structures would yield land for other buildings and retain open spaces to serve societal needs and aspirations.

---

<sup>3</sup> At the time of the Wong and Yeh (1985) writing, the population of Singapore was 2.6 million and the land area was 620 square kilometers. Through land reclamation, the land area has since been increased to 699 square kilometers; however, land reclamation is limited.

In this regard, while following western new town prescriptions, Singapore has set aside as much as 50 percent of the land in its public housing new towns for facilities provision (exhibit 1).

Each new town is planned with an ascending distribution of public facilities and spaces, from the block, precinct, and neighborhood to the town center. For example, as the largest of the town's retail nodes, the town center would have the largest number and greatest variety of shops. After several initial ad hoc developments, planning standards such as those outlined in exhibit 2 have been developed for each facility to create a high-quality service environment that would readily fulfill the day-to-day living needs of the residents (Housing & Development Board, 1995; Wong and Yeh, 1985). This use of standards has produced a new pattern of facility provision in which amenities such as open spaces, car parks, schools, and shops are being developed within easy access (a 5-minute walk) of the residents. The premise for this pattern of development is, as Delamonica and Mehrotra (2006) observed, one's standard of living is very much determined by access to basic social services, which provides the means to expand capabilities and functionalities.

Like its western counterparts, Singapore's public housing town is established on the spatial organization of major land uses, including residential, employment, and leisure. Structured around the notion of self-contained, cohesive communities living in landscaped residential areas of neighborhoods and precincts, the primary direction is to plan each new town with an anticipated population of 200,000 to 300,000 as a "total living environment" that will support high-quality living, recreation, and accessibility to facilities so that people will want to stay (Urban Redevelopment Authority, 2002). In its basic conception, a new town of 200,000 people is composed of five to six neighborhoods. The town includes about 4,000 to 6,000 dwelling units (80 to 100 hectares) with differing amounts of floor space to accommodate between 20,000 and 30,000 people in each neighborhood. After findings showed that neighborhoods were too large to foster a sense

### Exhibit 1

#### Land Use Distribution and Gross Density of New Town

Land Use	Prototype New Town (60,000 Dwelling Units)	
	Land Area (hectares)	Percentage of Land Designated for Given Land Use
Residential*	347	53.4
Major roads	89	13.7
Schools	62	9.5
Industry**	44	6.8
Commercial (town center and neighborhood center)***	30	4.6
Open space	26	4.0
Institutions	15	2.3
Sports complex	7	1.1
Utilities and others	30	4.6
<b>Total</b>	<b>650</b>	<b>100.0</b>
Gross new town density	92 dwelling units per hectare	

\* Includes private housing within the town boundary.

\*\* Includes nonpollutive industries only.

\*\*\* Includes civic, cultural, and recreational uses and incidental developments in the town and neighborhood centers.

Source: Housing & Development Board (2000a)

**Exhibit 2****Planning Standards for Commercial Facility Provision in New Towns**

<b>Commercial Facility and Size</b>	<b>Planning Standards</b>
Shops (30 to 400 square meters)	1 per 70 flats 20% in town center, 50% in neighborhood centers, 30% in precincts
Kiosks (3 to 15 square meters)	1 per 600 flats 30% in town center, 70% in neighborhood centers
Emporiums (4,500 to 6,500 square meters)	1 to 2 per new town, in town center
Supermarkets (1,200 square meters)	1 to 2 per new town, in town center
Eating houses (450 square meters)	1 per 750 flats 7% in town center, 23% in neighborhood centers, 70% in precincts
Restaurants (90 to 2,000 square meters)	1 per 1,000 flats 30% in town center, 70% in neighborhood centers. In addition, 2 or 3 fast food restaurants and 1 or 2 bigger restaurants in town center
Office space	60 square meters per 450 flats 70% in town center, 30% in neighborhood centers
Cinemas (1,800 square meters)	2 per new town, in town center
Minimarkets (450 square meters)	1 per 6,000 flats
Market produce shops (130 square meters)	1 per 3,000 flats
Market produce lockup shops (40 square meters)	1 per 500 flats

Source: Wong and Yeh (1985)

of community, since 1978, each neighborhood has been structured into six or seven precincts to better promote community interaction among residents. Each precinct is made up of seven or eight residential blocks with 400 to 800 dwelling units to house 1,500 to 3,000 people.

In addition to the land-saving argument, another key factor supporting highrise construction is that it can readily support modern building methods, including precasting, and promote speedy, large-volume construction (Lam, Chung, and Sham, 2005; Wong and Yeh, 1985). Helleman and Wassenberg observed the following in their review of European highrises:

...repetitions, regularity, symmetry...the production process—quicker, cheaper and more efficient. High-rise with prefabricated components, standardization and rationalization of the building process did fulfil all these aspects.... Applying industrial methods significantly reduced the average time taken to produce a dwelling, in France, for example, by two-thirds. (Helleman and Wassenberg, 2004: 4)

Considering the long life of these buildings, the intent to provide quick and good housing has meant not just new construction but also proper maintenance, as pointed out earlier in Prime Minister Lee's citation and as other housing observers have long argued (Conway and Adams, 1977; Young, 1976). More than three decades have passed since Young wrote about her findings:

Surprisingly, satisfaction with the estate was not determined by such factors as density, building form, being on or off the ground and problems with children's play, but was closely related to the appearance of the estate and the way it was looked after. (Young, 1976: 27)

Aging neighborhoods and new towns are accordingly upgraded and redeveloped, where appropriate, to maintain attractiveness and define a greater sense of place identity to help build social stability (Lau, 1998; Yuen, 2004b, 2002). The Minister for National Development announced that the upgrading program "will improve the interior and exterior of flats in existing HDB [public housing] estates, and progressively convert them into precincts and communities of middle class housing comparable to or even better than the latest HDB projects at Pasir Ris or Bishan."<sup>4</sup> British and American experiences have demonstrated that a defined neighborhood image can heighten local distinctiveness and satisfaction among the residents, reducing the dangers of design uniformity and repetition that are often associated with highrise public housing (Lang, 1994; Moughtin, 1996). The continuing effort to strengthen the bonds between residents and between residents and their environment is integral to reducing degradation and transforming highrise communities into good places to live. The basis for implementing this plan is the basic desire that highrise public housing does not deteriorate into "vertical slums" or "soulless monstrosities." Teh expanded on the rationale of this goal as follows:

...residents of the HDB [public housing] estates belong to various ethnic groups<sup>5</sup> and they come from all walks of life. This conglomeration of different social groups must be quickly welded into a cohesive community if we were to avoid soulless monstrosities. (Teh, 1983)

## The Outcome and Realities of Highrise Living

Over the decades, public housing has brought not just a new landscape of highrise buildings but also a new lifestyle. Singapore is clearly distinguished by highrises. The "Manhattanized" Singapore has stirred urbanists such as Koolhaas and Mau to observe that "Singapore is incredibly 'Western' for an Asian city" (Koolhaas and Mau, 1995: 1013) and others to argue and finally take action to conserve its remaining old buildings (Keys, 1981; Urban Redevelopment Authority, 2001; Wong et al., 1984). One major achievement of building highrise housing is restructuring the city to facilitate what Field described as "a more efficient locational arrangement for urban activities, with a massive relocation of population into public housing estates and new towns to reflect the preferred spatial pattern" (Field, 1989: 344). Such housing is planned, built, and provided for the people. Organized and equipped to serve the daily needs of the residents, highrise public housing offers improved housing and living conditions. In the process, residents have identified with the environment, become increasingly adapted to highrise living conditions, and become more prepared to live in taller blocks of apartments. The Housing & Development Board reported on the sentiments of highrise living:

---

<sup>4</sup> Parliamentary Debates, 1989, Vol 54, Col 332-3.

<sup>5</sup> After the colonial immigration policy ended, Singapore evolved into a multiethnic, multireligion, multicultural society. About 79 percent of the population is Chinese, 14 percent is Malay, 6 percent is Indian, and 1 percent is Eurasian.



Despite external shocks arising from the 11 September 2001 terrorist attack on the World Trade Centre in New York...ground sentiments towards living in high-rise, high-density environment remain strong. (Housing & Development Board, 2005: 84)

Residents have expressed a keen sense of belonging to their public housing towns; in 2000, 82 percent of residents expressed a sense of belonging to their new town (Housing & Development Board, 2000b). Their main reasons for this perception included length of stay in the town (an average of 12 years), good neighbors, pleasant surroundings and environment, and regarding the flat as home. The inclusive nature of dwelling has been demonstrated in the work of Norberg-Schulz (1985) and Moser (1981). Dwelling is an activity that develops out of residents' lives, habits, and practices. It enhances familiarity and engagement with the particular environment. In the case of Singapore, the dwelling impulse is reinforced by several factors.

Contrary to the living conditions in multiple occupancy, overcrowded, traditional two- to three-story shop houses and temporary, squalid squatter huts, highrise public housing offers more living space and amenity convenience to the residents. Comparative statistics reveal that public housing residents enjoy more floor area and open space per person after moving to highrise public housing: living space per person doubled from just under 3 square meters to 6 square meters per person (Yeh and Lee, 1968); open space increased from 2 square meters to 20 square meters per person (Liu, 1975). Research has continued to show high levels of public satisfaction with highrise living (Wong and Yeh, 1985; Yuen et al., 2006). Most (more than 85 percent) public housing residents perceived the elevator to be reliable, the noise level to be tolerable, and the level of privacy from neighbors and passers-by to be sufficient (Housing & Development Board, 2005). Our interview with sampled residents in two new towns<sup>6</sup> indicated general satisfaction on several dimensions, as summarized in exhibit 3.

### Exhibit 3

#### Respondent Satisfaction With Present Living Arrangement

Aspect	Very Unsatisfied (%)	Unsatisfied (%)	Fairly Satisfied (%)	Satisfied (%)	Very Satisfied (%)
Floor level (n=348)	3.2	5.5	36.2	34.8	20.4
Location (n=348)	0.3	2.6	26.7	45.4	25
View (n=348)	3.2	15.8	33	31.6	16.4
Breeze (n=348)	0.6	12.1	20.1	40.8	26.4
Privacy (n=348)	1.4	6.6	25.3	41.7	25
Noise from traffic (n=347)	3.7	17.6	28.5	30	20.2
Noise from neighbors (n=346)	0.9	3.5	27.5	36.1	32.1
Space between buildings (n=348)	3.2	19	34.5	29.3	14.1
Convenience to facilities (n=348)	2.0	9.8	23	40.2	25

<sup>6</sup> We interviewed a total of 348 households in two new public towns: Toa Payoh and Bukit Panjang. Using a structured questionnaire, we interviewed the household head or the spouse. The sample selected, using stratified random sampling, comprised residents living in apartment buildings of different heights (30 stories and the adjoining lower block), floor levels (low: 10 stories or fewer; medium: 11 to 20 stories; high: more than 20 stories), and flat types (four- and five-room apartments built within the past 5 years).

We also collected time-use diaries, which provided a view of how residents spent their time on a typical day (excluding working or school hours). Our aim in collecting the diaries was to examine how living in highrise buildings affects daily behavior. A total of 3,272 diary entries were collected over a 24-hour period from 211 members<sup>7</sup> of 82 households living in focus neighborhoods in the two towns. Some 4,350 activities, or an average of 20.62 activities per person per day, were reported. As far as we know, ours was the first time-use study conducted in Singapore. Time-use data collection is widely recognized as an effective, albeit difficult, method for measuring behavior (Gershuny, 2000; Robinson and Godbey, 1997).

Our findings, summarized in exhibit 4, show that respondents spent the bulk of their time on personal maintenance. Television watching at home was a favorite pastime. The main activity was sleeping. Respondents spent about 25 percent of all available time (the largest block of social time) with their immediate family and spent less than 10 percent of their time with friends (exhibit 5). When we compared our data with American findings, the emerging picture seems to indicate that the Singapore respondent spends more time on passive leisure, in particular on watching television, than the television-addicted American does. The Singapore respondent also appears to engage in fewer collective social activities in other people’s homes, such as visiting, and in activities outside their own homes, such as visiting museums, than does the typical American. Determining to what extent these differences are influenced by culture, the living environment, or other considerations is a matter for further investigation.

**Exhibit 4**

**Time Use of Respondents**

Broad Categories*	All Respondents	Adult (16+)	Adult (16+)	Adult (16+)
	% (minutes)	Respondents	Respondents	Respondents
		% (minutes)	Activities With Immediate Family	Activities With Friends
			% (minutes)	% (minutes)
Productive time	25.32 (96,145)	26.93 (84,670)		
Contracted time (employment)	12.94 (49,140)	13.93 (43,800)		
Committed time (housework, childcare, shopping)	12.38 (47,005)	13.0 (40,870)	21.86 (9,790)	15.36 (2,370)
Transport	5.42 (20,595)	5.36 (16,860)	7.64 (3,420)	7.23 (1,115)
Personal maintenance time	42.74 (162,280)	42.73 (134,360)	25.30 (11,330)	23.05 (3,555)
Eating	7.54 (28,615)	7.55 (23,735)	19.08 (8,545)	18.57 (2,865)
Sleeping	28.41 (107,855)	28.02 (88,095)		
Expressive time (free time)	26.51 (100,671)	24.98 (78,561)	45.21 (20,250)	54.36 (8,385)
Television viewing	10.57 (40,145)	10.29 (32,345)	25.13 (11,255)	7.49 (1,155)
Total	100 (379,691)	100 (314,451)	100 (44,790)	100 (15,425)

\*Categories according to Robinson and Godbey (1997).

<sup>7</sup> The unit of analysis was the individual. Each member of the household aged 12 and older was asked to keep a time-use diary over a span of 24 hours. Our sample included a total of 173 adults.

**Exhibit 5****Time Respondents Spent With Others**

<b>Adult (16+) Respondents</b>	<b>% (minutes)</b>
Immediate family	25.04 (44,790)
Extended family	1.87 (3,345)
Friends	8.62 (15,425)
Colleagues from work	2.32 (4,150)
Nonrelated intimates	0.25 (450)
Others	1.89 (3,375)
Total social time	39.99 (71,535)
Total nonwork, nonsleep time	100 (178,876)

Of interest, according to the Singapore Census of Population 2000, is that all ethnic groups in Singapore have indicated an improvement in the proportion occupying better quality housing over the 10-year intercensus period. Among households living in public housing, the average number of rooms per person has increased from 0.99 in 1990 to 1.29 in 2000 (Leow, 2001). To put this achievement in perspective, it should be noted that, right at the outset, community feedback and participation are widely accepted as integral components of the public housing delivery system. This approach has put the residents at the center of the provision and has brought the city-state in constant contact with residents' housing needs and preferences, including monitoring their levels of satisfaction with the physical and social living environment. The rationale is as follows:

...to gain a better understanding of the urban community living in high-rise, high-density environment so that efforts can be made to foster a sense of community spirit among our residents. (Housing & Development Board, 2000b: 3)

Increasingly drawn by residents' needs, expectations, and lifestyles, the consequential outcome is, as Teo and Phillips (1989) have argued, an evolving high-quality residential space that is fast becoming synonymous with comfortable, middle-class housing. After the initial housing shortages were mitigated, the housing production emphasis focused not just on volume but also on quality considerations (Teo and Kong, 1997). The people who live in highrise structures are not reluctant tenants; instead, an increasing number of Singapore residents are opting for highrise living. Most (82.5 percent) households in public housing have expressed contentment about the idea of always living in public housing apartment buildings (Housing & Development Board, 2000c). Attracted by unblocked city views and natural ventilation, many households have expressed a willingness to live on high floors, even in the proposed 50-story public housing buildings (Ong, 2005). Response to the initial launch of the first 50-story public housing development in May 2004 was so overwhelming that all 1,848 units (instead of the original planned batch of 528 units) in 7 blocks were released for public application (Housing & Development Board, 2004). As a recent survey confirmed, one in three public housing residents are willing to live on the 40th story or higher (Loo, 2005).

Repeatedly, the main attractions of highrise living appear to pivot around good views, breeziness, and air quality (Chew, 2005; Housing & Development Board, 2005; Yuen et al., 2006). Among younger residents and higher income households, living in taller buildings is perceived as a

desirable choice—a prestigious lifestyle. As Turner has long argued, housing is “an existentially significant activity” (Turner, 1972: 153), offering various opportunities for its residents, including identity and security, and “as a vehicle for personal fulfilment.” Even so, as with most forms of housing, not everyone is equally enthusiastic about highrise living. Those not so keen on highrise living have expressed concerns that include personal fears (such as fear of height), potential difficulty of escaping in case of emergency, elevator breakdown, and high density that would result from more people living in taller blocks. Findings from our study of residents’ living experiences indicate much ambivalence about highrise living concerns because experiences vary from individual to individual. As illustrated in exhibit 6, respondents seem to be most worried about a lack of neighborhood facilities, elevator breakdowns, and who their neighbors are. Presenting the realities of highrise living, these concerns ground the sensibility of attending closely to residents’ living experiences. If not addressed, these concerns might detract from the highrise living experience.

Over the past four decades, Singapore has turned the modern highrise apartment building into the city-state’s most prevalent form of housing. Highrises are built in large concentrations and at increasing heights throughout Singapore. More and more people choose to live in highrises. Unlike residents’ experiences elsewhere, highrise public housing in Singapore offers many people a satisfying living environment. These structures have not, with the passage of time, become, as Forrest

**Exhibit 6**

**Respondents’ Concerns About Living Arrangement in Highrise Housing**

Concern	Respondent is concerned...				
	Not at All (%)	A Little (%)	Fairly (%)	Much (%)	Very Much (%)
Traveling time in elevator (n=348)	42.2	9.2	24.1	14.9	9.5
Crime in elevator (n=348)	32.2	13.2	20.1	17.5	17
Elevator breakdown (n=348)	30.7	14.9	14.7	18.7	21
Who you have as your neighbors (n=347)	34.3	10.7	18.7	19.3	17
Accidental falling of family members from the highrise flat (n=346)	33.8	18.2	23.1	12.4	12.4
Height of the building (n=348)	40.5	17.5	26.4	12.1	3.4
Fire risk (n=348)	31	17.2	21.3	20.4	10.1
Power failure (n=348)	34.2	19	17.8	19.8	9.2
Collapse of the building (n=347)	40.3	21.3	14.4	11.5	12.4
Walking along common corridor to reach your flat (n=348)	45.7	20.4	21.8	8.6	3.4
Lack of neighborhood facilities (n=347)	25.6	8.4	19.6	27.1	19.3
Other worries (for example, killer litter*, dumping arrangement, problems with insects, electrical bills) (n=14)	35.7	14.3	7.1	21.4	21.4

*\*Highrise littering, from televisions to bicycles to coffee mugs, can pose a danger to life and property and can maim or kill people; thus, it has earned the name killer litter.*

and Williams described of other mass housing estates, “holding camps for the unemployed and a mechanism for destroying hope and personal esteem” (Forrest and Williams, 2001: 100). Without seeming to exaggerate, the Singapore highrise public housing system, if anything, converges toward providing affordable housing of high quality, the good life, and asset enhancement (Teo and Kong, 1997; Yuen, 2002). The analysis indicates that, at a broad level, the Singapore case strengthens the argument of positive discourse that celebrates highrise living. More specifically, highrise housing can also contribute to and uplift the standard of living for the masses. Several factors have been reasserted as critical to this outcome: a housing delivery system that seeks a high-quality total living environment, emphasizes a sense of belonging, and, most importantly, puts residents at its center. These factors are key pillars in producing sustainable housing.

## Author

Belinda Yuen is associate professor in the Department of Real Estate, School of Design and Environment, at the National University of Singapore.

## References

- Abel, Chris. 2003. *Sky High: Vertical Architecture*. London, United Kingdom: Royal Academy of Arts.
- Ali, Mir M., and Paul J. Armstrong, eds. 1995. *Architecture Of Tall Buildings*. New York: McGraw-Hill.
- Castells, Manuel, Lee Goh, and Reginald Y.W. Kwok. 1990. *The Shek Kip Mei Syndrome: Economic Development and Public Housing in Hong Kong and Singapore*. London, United Kingdom: Pion Ltd.
- Chew, King Mun. 2005. Perception of High-Rise Living From the Low-Rise. Unpublished undergraduate diss. National University of Singapore, Department of Real Estate.
- Conway, Jean, and Barbara Adams. 1977. “The Social Effects of Living off the Ground,” *Habitat International* 2 (5/6): 595–614.
- Costello, Lauren. 2005. “From Prisons to Penthouses: The Changing Images of High-Rise Living in Melbourne,” *Housing Studies* 20 (1): 49–62.
- Delamonica, Enrique, and Santosh Mehrotra. 2006. A Capability Centred Approach to Environmental Sustainability: Is Productive Employment the Missing Link Between Micro and Macro Policies? United Nations Development Programme, International Poverty Center Working paper No. 13. Brasilia, Brazil: United Nations Development Programme, International Poverty Center.
- Devas, Nick, and Carole Rakodi, eds. 1993. *Managing Fast Growing Cities*. New York: Longman.
- Doling, John. 1999. “Housing Policies and the Little Tigers: How Do They Compare With Other Industrialized Countries?” *Housing Studies* 14 (2): 229–250.
- Field, Brian G. 1989. “Public Housing and the Promotion of Homeownership.” In *Innovative Housing Practices*, edited by Vitor Abrantes and Oktay Ural. Oxford, United Kingdom: Pergamon Press.

- Ford, Larry R. 1994. *Cities and Buildings: Skyscrapers, Skid Rows, and Suburbs*. Baltimore: The Johns Hopkins University Press.
- Forrest, Ray, James Lee, and Kam Wah Chan. 2000. "Editors' Introduction: Focus on Housing in South-East Asia," *Housing Studies* 15 (1): 7–10.
- Forrest, Ray, and Peter Williams. 2001. "Housing in the Twentieth Century." In *Handbook Of Urban Studies*, edited by Ronan Paddison. London, United Kingdom: SAGE Publications.
- Gershuny, Jonathan. 2000. *Changing Times: Work and Leisure in Postindustrial Society*. Oxford, United Kingdom: Oxford University Press.
- Helleman, Gerben, and Frank Wassenberg. 2004. "The Renewal of What Was Tomorrow's Idealistic City: Amsterdam's Bijlmermeer High-Rise," *Cities* 21 (1): 3–17.
- Housing & Development Board. 2005. *Public Housing in Singapore: Residents' Profile & Physical Aspects*. Singapore: Housing & Development Board.
- . 2004. "HDB Releases All Apartment Blocks at The Pinnacle @ Duxton For Sale." Press release. Singapore: Housing & Development Board.
- . 2000a. *Facts on Public Housing in Singapore*. Singapore: Housing & Development Board.
- . 2000b. *Social Aspects of Public Housing in Singapore*. Singapore: Housing & Development Board.
- . 2000c. *Residential Mobility and Housing Aspirations*. Singapore: Housing & Development Board.
- . 1995. *The Public Housing Design Handbook*. Singapore: Housing & Development Board.
- Huxtable, Ada Louise. 1984. *The Tall Building Artistically Reconsidered*. New York: Pantheon.
- Jacquemin, Alain R.A. 1999. *Urban Development and New Towns in the Third World: Lessons from the New Bombay*. Aldershot, United Kingdom: Ashgate Publishing.
- Keys, Peter. 1981. "Conservation as an Integral Part of Urban Renewal," *Journal of the Singapore Institute of Planners* 8: 39–49.
- Koolhaas, Rem, and Bruce Mau. 1995. *S,M,L,XL*. Rotterdam, The Netherlands: 010 Publishers.
- Lacayo, Richard. 2004. "Kissing the Sky," *TIME* magazine, January 3.
- Lam, S.C., K.C. Chung, and S.W. Sham. 2005. "A Breakthrough in Precasting of Public Housing Blocks in Hong Kong." In *Tall Buildings: From Engineering To Sustainability*, edited by Y.K. Cheung and K.W. Chau. Singapore: World Scientific.
- Lang, Jon. 1994. *Urban Design: The American Experience*. New York: John Wiley.
- Lau, Woh Cheong. 1998. "Renewal of Public Housing Estates." In *Planning Singapore: From Plan to Implementation*, edited by Belinda Yuen. Singapore: Singapore Institute of Planners.

Lee, Kuan Yew. 2000. *From Third World to First: The Singapore Story: 1965-2000*. Singapore: Times Editions.

Leow, Bee Geok. 2001. *Census of Population 2000: Advance Data Release*. Singapore: Ministry of Trade and Industry, Department of Statistics.

Liu, Thai Ker. 1975. "The Making of a Viable Public Housing Programme for Singapore." Paper presented at the Symposium on Science and Development, Singapore, August 20–22.

Loo, Daryl. 2005. "One in Three HDB Dwellers Ready To Give High Life a Try," *The Straits Times*, June 22.

Millennial Housing Commission. 2002. *Meeting Our Nation's Housing Challenges*. Report of the Bipartisan Millennial Housing Commission, appointed by the Congress of the United States. Washington, DC: Millennial Housing Commission.

Moser, Moira M. 1981. "Philosophy of Tall Buildings." In *Planning and Design of Tall Buildings*, edited by Roy C. Herrenkohl, Walter Henn, and Christian Norberg-Schulz. Reston, VA: American Society of Civil Engineers.

Motha, Philip, and Belinda Yuen. 1999. *Singapore Real Property Guide*, 4th ed. Singapore: Singapore University Press.

Moughtin, Cliff. 1996. *Urban Design: Green Dimensions*. Oxford, United Kingdom: Butterworth-Heinemann.

Norberg-Schulz, Christian. 1985. *The Concept of Dwelling: On the Way to Figurative Architecture*. New York: Rizzoli International Publications.

Ong, Swee Chin. 2005. Public Perception of Sky High Living. Unpublished undergraduate diss. National University of Singapore, Department of Real Estate.

Palen, John J. 1990. "Singapore." In *International Handbook of Housing Policies and Practices*, edited by Willem Van Vliet. New York: Greenwood Press.

Robinson, John P., and Geoffrey Godbey. 1997. *Time for Life: The Surprising Ways Americans Use Their Time*. University Park, PA: The Pennsylvania State University Press.

Singapore Planning Department. 1965. *Revised Master Plan*. Singapore: Ministry of National Development, Planning Department.

Teh, Cheang Wan. 1983. Forum on HDB Policies and Directions, Singapore, March.

Teo, Siew Eng, and Lily Kong. 1997. "Public Housing in Singapore: Interpreting 'Quality' in the 1990s," *Urban Studies* 34 (3): 441–452.

Teo, Siew Eng, and David R. Phillips. 1989. "Attitudes Towards Service Provision in Public Housing Estates and New Towns in Singapore," *Singapore Journal of Tropical Geography* 10 (1): 74–94.

- Tibbits, George. 1988. "The Enemy Within Our Gates: Slum Clearance and High-Rise Flats." In *New Houses for Old: Fifty Years of Public Housing in Victoria, 1938-1988*, edited by Renate Howe. Melbourne, Australia: Ministry of Housing and Construction.
- Turner, John F.C. 1972. "Housing as a Verb." In *Freedom To Build: Dweller Control of the Housing Process*, edited by John F.C. Turner and Robert Fichter. New York: Macmillan Publishing.
- United Nations Centre for Human Settlements (UNCHS). 1998. *The Istanbul Declaration and the Habitat Agenda*. Nairobi, Kenya: United Nations Centre for Human Settlements–Habitat.
- . 1996. *An Urbanizing World: Global Report on Human Settlements 1996*. Oxford, United Kingdom: Oxford University Press.
- Urban Redevelopment Authority. 2002. *Duxton Plain Public Housing*. Singapore: Urban Redevelopment Authority.
- . 2001. *Concept Plan 2001*. Singapore: Urban Redevelopment Authority.
- Wong, Aline, and Stephen H.K. Yeh, eds. 1985. *Housing a Nation*. Singapore: Maruzen Asia.
- Wong, K.C., et al. 1984. *Report of the Tourism Task Force*. Singapore: Ministry of Trade and Industry.
- World Bank. 1993. *Housing: Enabling Markets To Work*. Washington, DC: World Bank.
- Yeh, Stephen H.K., and Yoke San Lee. 1968. "Housing Conditions in Singapore," *Malayan Economic Review* 8 (1): 11–38.
- Yeung, Yue Man. 1987. "Cities That Work: Hong Kong and Singapore." In *Urbanisation and Urban Policies in Pacific Asia*, edited by Roland J. Fuchs, Gavin W. Jones, and Ernesto M. Pernia. London, United Kingdom: Westview Press.
- Young, Susan. 1976. *Social and Psychological Effects of Living in High-Rise Buildings*. Ian Buchan Fell Research Project on Housing. Sydney, Australia: University of Sydney.
- Yuen, Belinda. 2005a. "Romancing the High-Rise in Singapore," *Cities* 22 (1): 3–13.
- . 2005b. "Squatters No More: Singapore Social Housing." Paper presented at the World Bank Third Urban Research Symposium, Brasilia, Brazil, April 4–6.
- . 2004a. "Planning Singapore Growth for Better Living." In *Enhancing Urban Management in East Asia*, edited by Mila Freire and Belinda Yuen. Aldershot, United Kingdom: Ashgate Publishing.
- . 2004b. "Safety and Dwelling in Singapore," *Cities* 21 (1): 19–28.
- . 2002. "Singapore." In *Housing Policy Systems in South and East Asia*, edited by Razali Agus, John Doling, and Dong-Sung Lee. New York: Palgrave Macmillan.
- Yuen, Belinda, Ho Pin Teo, and Giok Ling Ooi. 1999. *Singapore Housing: An Annotated Bibliography*. Singapore: National University of Singapore.
- Yuen, Belinda, Anthony Yeh, Stephen J. Appold, George Earl, John Ting, and Lanny K. Kwee. 2006. "High-rise Living in Singapore," *Urban Studies* 43 (3): 583–600.



# Land Takings in the Private Interest: Comparisons of Urban Land Development Controversies in the United States, China, and Vietnam

Annette M. Kim

Massachusetts Institute of Technology

---

## Abstract

*Land-taking controversies around the globe have been making headline news recently. This article examines the similarities, differences, and ironies in what has been happening in China, Vietnam, and the United States. Even though these countries are different on many levels, their fiscal constraints and land management responses have led to strikingly similar public debates about the very nature of property rights and the legitimacy of local government.*

## Introduction

One week in June 2005, the news reported two land-taking controversies occurring on opposite sides of the globe. In the United States, communities debated the 2005 *Kelo v. New London* Supreme Court decision in which private homeowners and small business owners in New London, Connecticut, challenged their city's right to take their land for upper scale, private land redevelopment projects. Despite decades of case law supporting the use of eminent domain for economic development, the city's rationale that large business land users would revitalize the economy and generate more public revenues and, therefore, better serve the public interest seemed to now offend moral sensibilities. As a result of popular backlash, most states considered new legislation

limiting urban planning powers.<sup>1</sup> The same week that people rallied in New London to protest the Supreme Court decision, international news services gave reports about one of the most violent clashes over land takings in China. The confrontation in Shengyou was not an isolated incident but part of a growing number of protests in the Asian transition countries<sup>2</sup> as state planners expropriated land at astounding scales to feed historic rates of urbanization. One report estimates that in China, 70 million farmers had been relocated in 10 years (Yardley, 2004). Rather than being a coincidence, similar controversies are occurring in cities around the world.

This article offers a perspective on this global trend by examining the similarities, differences, and ironies between the land-taking controversies in China and Vietnam and what is currently happening in the United States. The increased and heightened public protests here and abroad are questioning the legitimacy of local government and its ability to identify the public interest in the face of increasing public-private partnerships. The political turmoil also indicates that societies around the globe are actively in the process of renegotiating and reconstructing their fundamental principles about property rights: the boundaries between private rights and residual public rights, and *who* deserves to have private property rights (Jacobs, 2003; Krueckeberg, 1995; Marcuse, 1996; Strong, Mandelker, and Kelly, 1996).

Studying this issue now in China or Vietnam is a politically sensitive topic. State-run media are often not allowed to cover protest incidents, and interviewing protesters could violate research protocols here in the United States. Interestingly, however, censorship ebbs and flows and certain local newspapers push the boundaries of what the state will allow. For example, the bloody clash in Shengyou was reported in the *Beijing News*, a state-run tabloid known for testing party censors, just 2 days after the incident (Pan, 2005). In addition, the international press and activist organizations outside these countries regularly report on the incidents. I collected media coverage about land-taking controversies in these two countries. I also interviewed key informants involved in urban land development in these countries during various fieldtrips between 1997 and 2008 and analyzed whatever data I could find about recent takings. Within these limitations, I found several interesting insights through comparative analysis.

## **Similarities: The Privatization of Public Finance, Conflicts of Interest, and the Social Reconstruction of Property Rights**

Over the past several decades, both in the United States and in the Asian transition countries, central government transfers to local government for economic development have decreased. Meanwhile, economists and politicians have lauded the trend toward fiscal decentralization as being more efficient because it decreases the size of the public sector and better tailors services to

---

<sup>1</sup> Also, at the 1-year anniversary of the decision, President George W. Bush issued an Executive order prohibiting federal agencies from seizing private property except for public use. (See Bush, George W., *Executive Order: Protecting the Property Rights of the American People*, June 23, 2006.)

<sup>2</sup> Transition countries include a diverse group of nations that have been fundamentally reforming their economic institutions away from central planning to more decentralized, market-oriented institutions.

local preferences. Rather than rely on public coffers, cities are seen as being innovative if they engage in public-private partnerships to spur economic growth and finance public service provision.

In the transition countries, local government collaboration with the newly emerging private sector initially surprised many, given the nontransitioning Communist political institutions. It can be understood, however, as a coping mechanism. China's and Vietnam's rapidly growing cities have experienced explosive demand for urban public services. For example, in Vietnam's principal city, Ho Chi Minh City, the population increased by at least 1 million in 7 years, from 1993 to 2000, and average household incomes tripled. With little local revenue-raising authority and expenditures still being highly regulated by the central government, however, in essence, the local governments have an unfunded mandate to service their urban areas. What they do have control over, however, is land use. As part of the transition reforms, the centrally planned economies devolved land use authority down to not only the city government but, at times, to the subcity district levels of government. With their greater autonomy, district governments have devised their own detailed master plans and local economic development strategies.

In what I call fiscal socialism, Vietnamese local governments have leveraged this urban planning control to negotiate with the private developers to provide many of the public services and amenities. Local officials can require that private developers build the infrastructure the city has planned in exchange for approval of the developer's investment project and the administration of land titles. Because of the shortage of land with urban infrastructure and clear title, the huge increase in land values that can be derived from fiscal socialism is sufficient to overcome the up-front investment costs and risks (Kim, 2004). Development exactions can include roads, pavement, concrete sewer and drainage pipes, water supply, electricity, landscaping, and facilities such as schools. In Vietnam, infrastructure development accounted for 50 to 60 percent of the budget for projects producing parcels of vacant urban land in 2000 (Kim, 2008).

Compared with public-private partnerships in the United States, fiscal socialism involves greater investment risks for firms and consumers because of the lack of regulatory and institutional development. The firms may start construction and begin selling parcels, only to find that the project will not be approved or that land compensation negotiations have stalled. Consumers may pay for houses that are delayed in construction, rising in price, or never built. Because the official transfer and titling of the properties occur at the end of construction, which is financed along the way by customers and the firms' equity, the sunk costs provide some incentives for the developer and the customer to stay with the project as problems arise. The unabated growth of property values also acts as a deterrent in abandoning the project. To work successfully, however, this system requires detailed coordination between local government and the firms and effective intergovernmental communication. If all goes smoothly, fiscal socialism produces public infrastructure, the local government bolsters its legitimacy, the firms make a profit, and citizens can purchase houses that are better than what they had in the centrally planned economy.

Scholars have noted a similar situation in China, where the local governments have been called entrepreneurial states (Duckett, 1998; Oi, 1995; Wu, 2002; Yu, 1997; Zhu, 2004). Others have looked at the alliances that have been formed between the local government and the emerging urban elite into growth coalitions (Zhu, 1999). In any case, area scholars indicate that considerable extra-budgetary sources of public finance are drawn through fiscal socialism.

With both fiscal socialism and American fiscal decentralization, the increased involvement of corporate business capital in funding public services has led to serious conflicts of interest. Although land takings are always difficult, usually they are more understandable if the new use involves publicly funded works such as roads and infrastructure development. Suspicion and discontent arise when it appears that the state's police power is being used to profit private land development. Invoking the claim that these land takings are in the general public's interest becomes strained and the local government's legitimacy is called into question as news of these cases spreads. These sentiments were expressed in the United States when critics of the *Kelo v. New London* Supreme Court decision pointed out that, because the New London Development Corporation's board included a Pfizer corporation executive and an executive's spouse as members, it is unsurprising that one of its stated objectives was to design a plan that would "complement the facility that Pfizer was planning to build,"<sup>3</sup> thus compromising its ability to serve the larger public. As is well known now, this case touched off a national backlash in which most of the states in the union proposed legislation limiting the power of eminent domain.

Similarly, in the Asian transition countries, the most vehement protests involved the sentiment that the public sector has been pandering to corporate interests. For example, a major Vietnamese protest case that I investigated in Ho Chi Minh City involved the Binh Chanh district government, which altered its land use plan and increased the amount of land taken in order to extend the size of the parking lot of a French supermarket (Quynh, 2000a). In a city that had few cars at the time and for which the imported cheese and wine available at this supermarket would be unaffordable to most of the population, the displaced households were so outraged that they camped out on one of the city's most prominent boulevards for weeks. This demonstration was a remarkable sight in Vietnam, a country that does not normally allow such forms of dissent.

In the late 1990s, public protests about land conversion issues started occurring in various parts of Vietnam. The state-run media were not allowed to cover any violent protests. For example, from May to September of 1997, a media blackout occurred on the protests in Thai Binh province near Hanoi, where farmers had protested against local government corruption, punitive taxes, land disputes, compulsory labor contributions, and unfair rice prices. Similarly, in November 1997, foreign journalists were banned from covering violent protests in Dong Nai province, near Ho Chi Minh City, that occurred in response to the local authorities' expropriation of the Catholic Church's land in Tra Co commune (Human Rights Watch, 1997).

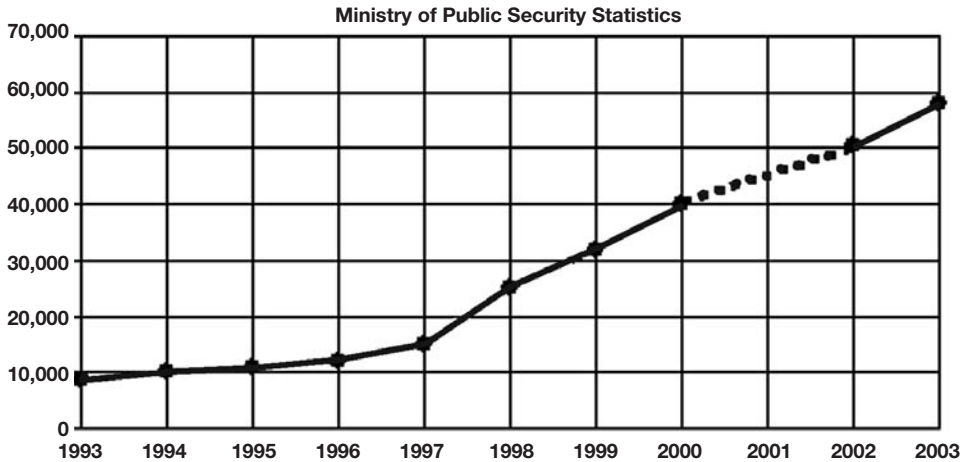
Protests against local governments have been on the rise in China as well. The government keeps statistics of such incidents, which are usually inaccessible, but the chart in exhibit 1 was made public and shows some sense of the increase. The "mass incidents" can range in number from eight people to hundreds of people and can range from peaceful sit-ins to violent protests. Although we cannot tease out the number of protests that concerned land takings, by many accounts, most of these protests are at their base about land control. Also of concern is not only the increase in the number of protests but also the increase in violence. Meanwhile, the protesters have shown increased savvy; even farmers use cell phones and video cameras to quickly link to outside media

---

<sup>3</sup> O'Connor, Sandra Day, *Kelo v. New London*, dissenting opinion. 545 U.S. (2005): 2.

## Exhibit 1

### Chinese Social Protest (“Mass Incidents”), 1993–2003



Note: 2001 data unavailable.

Source: Murray Scot Tanner testimony before U.S.-China Economic and Security Review Commission

sources, bringing worldwide attention to their cause. Although most protests may not be violent, the number of protests has clearly increased and the local government faces increasing opposition and criticism.

As in the American case, the increased role that private funds play in public finance fosters an environment for more conflicts of interest in cities that desperately need financing but are supposed to serve the public's interest. In cases in which the benefits seem to fall disproportionately on the wealthy or privileged and the costs fall disproportionately on the poor and unprofessional, sentiments of injustice inevitably occur.

To cope with this unrest, the central governments in the Asian transition countries carefully craft the connection between economic growth and the public interest, emphasizing the need for new jobs and relief of the urban housing shortages. This argument is balanced by official documents that reemphasize that adequate compensation should be paid to those who are forced to relocate. The central government also vilifies local government officials who violate the public trust in their land management practices through their demotion, imprisonment, and capital sentencing.

In Vietnam, beginning at the end of the 1990s, it became a permissible and regular occurrence for journalists and citizens to publicly criticize lower level government officials in newspaper editorials (Quynh, 2000c; Trung, 2000). Also in China, my research shows a spike occurred in media coverage over land-taking controversies during the 2003–04 period. It is not clear what happened to allow this change in media coverage. An event can spark the reframing of a situation with long-dormant contradictions (Zald, 1996) as it did in the United States with the *Kelo v. New London* case. I could not locate any such single event, however, in China or Vietnam. Rather, there appears to have been a growing groundswell of dissatisfaction about the increasing wealth disparities. The social

movement literature suggests that agents can take advantage of political opportunities by strategically appealing to the central government's stated policies (for clean government, rule of law, and village-level democratic reform) as a shield (Li and O'Brien, 1996), which we can find being invoked in both countries. On the other hand, if we assume that irregularities in the handling of land conversions are commonplace, media attention to particular cases and officials may also be a function of internal governmental politics, especially because the state owns all the domestic media outlets.

Although the legitimacy of local government decisionmaking is often criticized in these land disputes, these controversies also have wider implications. They are indicating that society is reconstructing its basic principles about property rights. In the United States, some constitutional legal scholars viewing the *Kelo v. New London* case wondered why there had been so much fuss about the Supreme Court rulings. More than 50 years of precedent had been set, making the decision in this case predictable and actually surprising that the decision was not unanimous. Although the court decisions may be consistent, the public outcry indicates that the society in which the law is being applied has experienced significant changes.

In the past, the justification of land takings was utilitarian—more people in society would benefit from a change in land use (and land users). Previous U.S. cases outlined that these new land uses could include public works, privately operated but publicly used operations such as railroads, and situations that would rectify a public harm such as blight and land monopoly. The property rights of the few could be forced to defer to the benefit of the majority. With this latest turn of land takings for economic development, however, when public finances are driving the measure of public interest, the fear is that the main constituency that the city would serve would be the largest taxpayers. This concern was voiced by one of the dissenting U.S. Supreme Court members whose opinion was quoted more often than the opinion of the majority.<sup>4</sup> If a subset of private interests becomes the “public interest,” the legitimacy behind land takings erodes.

## **Contextual Differences: Social Norms About Property Rights, Political Spaces for Dissent, and Development Imperatives**

Although the changes in public finance, the resulting conflicts of interest, and the social reconstruction of property rights principles are similar in the United States and Asian transition countries, important differences also exist.

One difference involves how the property rights issue has been framed. In the United States, one argument of those opposing land takings involves the symbolic value of home and ownership, something that cannot be entirely compensated monetarily. For example, one of those refusing to move in the *New London* case was Bill Dery's family. The family's ancestors had owned the house for more than 100 years, and Mrs. Dery had been born in the house. Meanwhile, Suzette Kelo had

---

<sup>4</sup> Sandra Day O'Connor wrote: “Any property may now be taken for the benefit of another private party, but the fallout from this decision will not be random. The beneficiaries are likely to be those citizens with disproportionate influence and power in the political process, including large corporations and development firms” (O'Connor, Sandra Day, *Kelo v. New London*, dissenting opinion. 545 U.S. (2005): 12–13).

bought her house only 2 years before the city attempted to take it, and eventually she was offered double the market value. Still, she refused to sell, saying that the city fundamentally does not have the right to take her home for another private user when her house was in perfectly good condition. In fact, the final settlement included the city's physically moving her house to a new location. No monetary value could compensate the last seven holdouts in the New London case. The strong attachment and value that American society places on one's house have been constructed for hundreds of years, with the support of government policies, which have produced one of the highest rates of private homeownership in the world.

Meanwhile, in the Asian transition countries, the main point of contention in reports about land disputes involves inadequate compensation.<sup>5</sup> Determining a fair market value would be challenging in these countries, where plans usually involve a drastic change in land use from agricultural to commercial, and especially in the early years of transition when real estate markets were still being established and prices were not competitive. It is difficult to get exact figures on compensation levels offered and the price that private developers pay to local government for land use rights, because these records are not publicly available. Anecdotal accounts, however, recount figures that are fractions of their original property value (Liu, 2003; Sanli and Shilin, 1996). In any case, the disparity between compensation levels and private profits and government revenues is the main point of contention in these protests. Castle coalition arguments do not emerge in the Asian transition countries, because private property has been deconstructed for decades. First, of course, according to the constitutions of both countries, the state owns all land. This land ownership was implemented through mass land expropriations and "donations" during the Communist revolution. In China, in particular, agricultural collectives have remained strong during the transition. Furthermore, they have practiced a policy of "land readjustment," in which families would be allotted new parcels or their parcel boundaries would shift as a loss-sharing device during years of low agricultural output, thus limiting attachment to particular land parcels (Schwarzwalder et al., 2002). With China's history and institutional context, the idea of a sacred right to one's property does not entertain an audience in the same way that it does in the United States.

Of course, another basic difference between the United States and these two countries is in their political institutions. In the United States, those challenging the city of New London had the opportunity to sue the city and halt the plan from going forward. The Supreme Court decided against Suzette Kelo because her local officials had been democratically elected, the plan had been introduced in public hearings, and the local court had approved the plan. That is, the majority of the public supported the plan. In China and Vietnam, with a one-party government and top-down urban planning process, protesters do not have much participation in urban development plans nor do they have many institutionalized venues for voicing their dissent. Petitions may be filed and appealed to higher and higher bureaus. Again, figures for the number of petitions would be helpful but are not publicly available. By some accounts, petitions are ineffectual and, at worst, if local of-

---

<sup>5</sup> For the China case, I built a database of 83 publicly reported land-taking controversies that were published in newspapers from 1995 through 2006. More than one-half of these reports were published in 2003 and 2004, which suggests that presses were relatively open during this period. Although one must consider the bias of activist organizations, their reports can still be useful in gaining a sense of how these groups frame land-taking issues.

officials are reprimanded, revenge is meted on the complainants (Kahn, 2004). Thus, one of the few methods to protest redevelopment has been to physically block the construction from occurring through “squatting,” sit-ins, and blockades. The limited institutionalized opportunities for voice help to explain the rise in the number of popular protests over land takings in Asian transition countries.

Another reason for the more turbulent nature of opposition in the Asian transition countries is related to another obvious difference between the two contexts: income levels. Although both the United States and the Asian transition countries take land for economic development, the former is primarily urbanized with relatively developed markets, whereas the latter is experiencing huge conversions of agricultural land into unregulated urban property markets. In the United States, the most controversial cases have usually involved declining and “blighted” urban centers that were in need of economic revitalization. The hope was that a new set of land uses might attract new populations and economic activity. On the other hand, in the Asian transition countries, which are in the midst of rapid industrialization and urbanization, the conflicts revolve around the unequal shares of rapid economic growth and, in particular, the increasing economic divide between rural and urban populations. Much of the land development has been occurring in the periurban and urban fringe areas because it is easier and cheaper to consolidate land parcels. The populations in these areas also are usually lower income populations than are their urban neighbors. With rapid urban population and income growth, the urban development pressures are great and the resulting potential for windfall gains more highly contested, which present a different dynamic from the urban renewal endeavors in the United States.

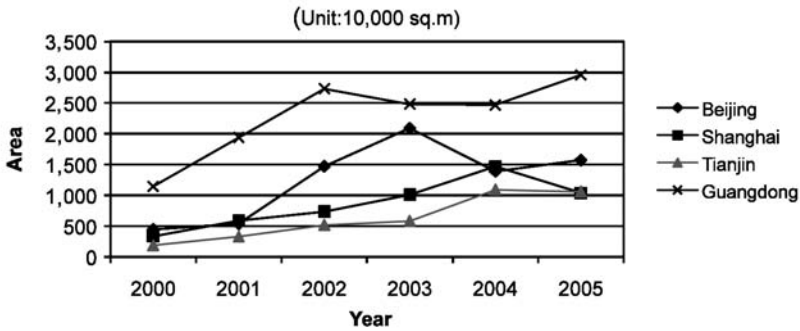
At the beginning of their respective transitions, China and Vietnam were among the poorest countries in the world, which made it easier for their governments to legitimate land takings. As in most developing countries, their overarching national agenda is economic development (Grindle and Thomas, 1991), which can trump almost any other public issue or right. In the early years of their transition, economic growth was a unifying issue among the population. This sense of mission helped fuel the massive scale in which land was taken. Requisitioning land was also aided by the lack of limits on how much land could be taken for proposed projects; with many debts now in arrears, clearly little accountability exists on the financial viability of projects, both public and private. Many instances of overbuilding and vacancies exist among the hundreds of local governments that have built industrial and import-export processing zones, new towns, and other ventures. Exhibits 2 through 4 give a sense of the overtaking of land by the government in China. These statistics were taken from the central government’s statistical yearbook. I chose to focus on the four major urban and fastest growing regions in China. Exhibit 2 shows that the land area taken, in general, has been increasing over the years. Exhibit 3 shows how much of this land was developed or under development, illustrating a decreasing trend starting in 2002, except in the province of Guandong, which started slowing in 2004. Exhibit 4 shows the amount of land taken that has been lying idle.

Now that China and Vietnam are two of the fastest growing economies in the world, however, disenchantment with the unevenness of economic gains has grown and popular protests have been gaining momentum, threatening the stability and legitimacy of the government. This scenario has become a serious enough issue that it is now difficult to research the topic and media outlets have been censured. In both China and Vietnam, the national government has attempted to distance



**Exhibit 2**

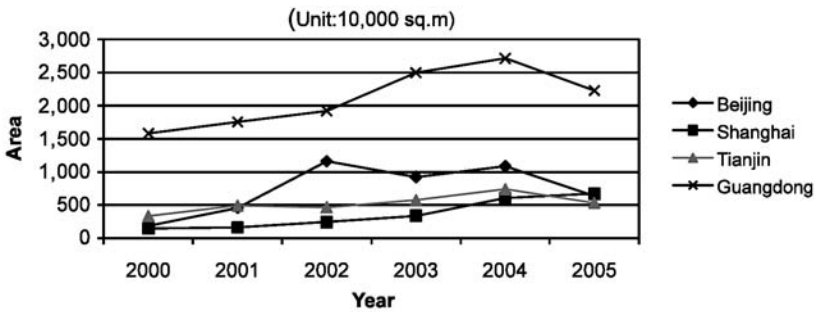
Area of Land Use Right Acquisitions, Four Regions in China, 2000–05



Source: Chinese National Statistics Yearbook, 2000–05

**Exhibit 3**

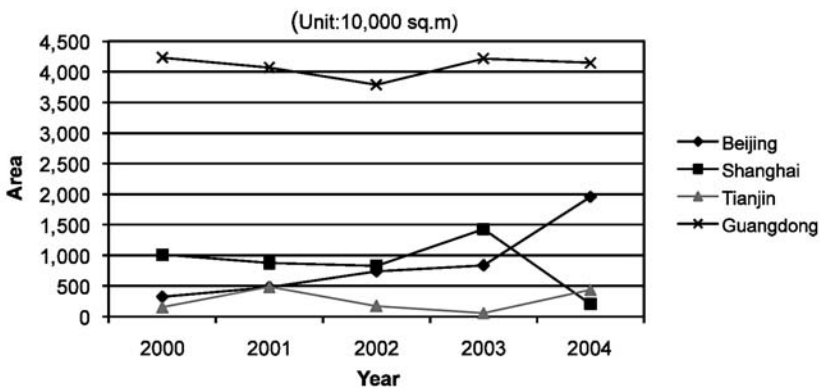
Area of Developed Land: Four Regions in China, 2000–05



Source: Chinese National Statistics Yearbook, 2000–05

**Exhibit 4**

Area of Recently Acquired Land Without Any Development Activity: Four Regions in China, 2000–04



Source: Chinese National Statistics Yearbook, 2000–05

itself from these incidents. China also ordered a temporary freeze on economic development zone land takings in 2004 in the interests of food security. In Vietnam, the social discontent over urban land development was so widespread and carried enough legitimacy that a landmark political event occurred in 2000. The central government dispatched five legal teams around the country to settle some of the most controversial land disputes. Farmers were given an opportunity to have an audience with these central government representatives and to present their evidence. In most of the cases, the central government representatives sided with the farmers (Quynh, 2000b).

In comparing these two Asian transition countries, resistance in Vietnam appears to have had marginally more effect in altering the terms of fiscal socialism to benefit the displaced. Because of the civil unrest over land compensation controversies, the government revised the official land compensation regulations. Originally, Decree 22 gave much authority in the land compensation councils to the district authorities who had incentives to help the firms and pressured farmers to sell cheaply. In 2004, Decree 197 revised these guidelines, giving the city more oversight of this process. It also introduced new language directing the district authorities “to settle citizens complaints, denunciations related to compensation, support and resettlement” and “to guarantee impartiality and equity when considering and deciding on the compensation, support, and resettlement.”<sup>6</sup> As a result, private investors now negotiate directly with the farmers and agree on a price usually without the active intermediation of district governments. Officially, if the negotiations come to an impasse, the city can ultimately determine the price. But as a result of Decree 197 and the shifting political tide, the city government has become wary of entering into land compensation negotiations between private firms and farmers. In addition to this decree, around 2003, the newly installed top bureaucrats in Ho Chi Minh City started enforcing a more formal and exact reading of the regulations and instituting closer oversight of district government activity. Ho Chi Minh City’s fiscal socialism system of land development slowed to a crawl, if not a halt. The terms of fiscal socialism have shifted so that individual farmers have the ability to hold up projects by refusing to agree to a compensation price, much to the chagrin of private developers. “If the farmer protests and petitions, the government is on the farmer’s side. By law, the state could force them to sell, but so far it is impossible to do,” said one of the developers I interviewed. To cope, developers will now either offer above-market compensation prices, decrease the size of their project, and/or compensate farmers with future developed parcels. Another strategy has been to move development projects farther away from the city and to move to newer markets within the country, where provincial governments are more eager to help private developers.

Interestingly, in comparing China’s and Vietnam’s fiscal socialism, some critics of China’s government have framed Vietnam’s transition as the more progressive and democratic. For example, Chinese newspaper reports focus on Vietnam’s political institutions, which are said to be more accountable to citizens than China’s. Some also marvel at how Vietnam’s land and real estate markets seem to represent a genuinely open market in comparison with China’s. China’s markets are dominated by very large firms, with few small and medium enterprises, making it more difficult for new firms to enter these markets, whereas new entrants and firms varying in size have characterized Ho Chi Minh City’s land and real estate markets. In any case, this backhanded way of criticiz-

---

<sup>6</sup> Article 43 of Decree 197/2004/ND-CP.

ing the Chinese government by praising a smaller, lower income country has not gone unnoticed; the Chinese Communist Party has now banned public discussion of Vietnam's transition (Abrami, Malesky, and Zheng, 2007).

In October 2008, China's Communist Party Central Committee announced a major policy change that allows farmers to individually sell their land use rights into the market. Although the intention of the policy is to improve farm efficiency and food security by consolidating parcels into larger farmer operations with scale economies, this land has also been susceptible to urban development. Because another goal of President Hu Jintao is to assuage the increasing wealth gap, the individually alienable property rights should improve the farmers' bargaining positions in compensation negotiations.

## **Ironies**

The conflation of public and private interests has led to ironies, curious for some and bitter for others. One pillar of the Communist revolutions involved redistributing wealth through mass expropriations and "donations" of property to the state, in the name of the public. Now, one could loosely say that in these Asian transition countries, where the state retains ownership of all land in name, public property is being taken for private use. Planners in these countries have played such a dominant and sometimes coercive role in relocating lower income people to make way for privately funded development. Although these actions cannot be called land takings in the sense that the state owns all land to begin with and users do not have as strong a sense of private property rights as they do in the United States, the dynamic is the same in that people are resisting being moved and have a sense of injustice directed particularly at local governments.

Further ironies in both the United States and the Asian transition countries involve strange political bedfellows. What it means to be at the political "left" has changed. According to one colleague in Beijing, the "left" has become a dirty word among those who might have wanted to help common people through government welfare programs in other contexts. Instead, neoliberal market policy advisers who are advocating reforms on "scientific" or technical grounds are the main oppositional discourses against a government whose policies seem to be favoring the rich and powerful. In addition, disenfranchised and relocated people, as well as historic preservationists, are pushing for property title reform as a means to limiting government power rather promoting free markets.

Meanwhile, in the United States, several observers have noted the ironies of libertarian property rights advocates asking for stronger, top-down protection of property rights from the courts and accusing the private sector of public harms. Curiously, in the *Kelo v. New London* case, these advocates joined the left in trying to limit the powers of eminent domain in cases of urban renewal. Of course, the more general issue is dissatisfaction with how local government is using its tremendous power of eminent domain.

This article has argued that the source of the conflicts of interest and the debate over property rights and social justice emanate from structural constraints. A core dilemma is the amount of independent funding available to public servants in planning economic growth that will benefit their community. Although important differences exist in institutional contexts, planners around the globe share these constraints.

## Acknowledgments

The author thanks colleagues who gave constructive feedback on an earlier version of this article, presented as a paper at the American Collegiate Schools of Planning conference: Harvey Jacobs, Jerold Kayden, Dennis Keating, Karen Polenske, and Jieming Zhu. She is also grateful for the collegial discussion of some of the ideas contained in the article with Daniel Abramson, Yu-hung Hong, Lan-chih Po, Andre Sorensen, Terry Szold, and Chris Webster and appreciates the research assistance of Li Li, Tran Le, Phuong Anh Bui, and Xiaodong Wang and the support of the School of Architecture and Planning at the Massachusetts Institute of Technology.

## Author

Annette M. Kim is associate professor of urban studies and planning in the Department of Urban Studies and Planning at the Massachusetts Institute of Technology.

## References

- Abrami, Regina, Edmund Malesky, and Yu Zheng. 2007. "Vietnam Through Chinese Eyes: Comparing Vertical and Horizontal Accountability in Single-Party Regimes." Paper presented at Why Communism Didn't Collapse: Exploring Regime Resilience in China, Vietnam, Laos, North Korea, and Cuba, Dartmouth College.
- Duckett, Jane. 1998. *The Entrepreneurial State in China: Real Estate and Commerce Departments in Reform Era Tianjin*. London: Routledge.
- Grindle, Merilee S., and John W. Thomas. 1991. *Public Choices and Policy Change*. Baltimore: Johns Hopkins University Press.
- Human Rights Watch. 1997. *Rural Unrest in Vietnam*. Human Rights Watch Report.
- Jacobs, Harvey M. 2003. "The Politics of Property Rights at the National Level: Signals and Trends," *American Planning Association Journal* 69 (2): 181–189.
- Kahn, Joseph. 2004. "China Crushes Peasant Protest, Turning 3 Friends into Enemies," *New York Times*, October 13, A1.
- Kim, Annette M. 2004. "A Market Without the 'Right' Property Rights: Ho Chi Minh City, Vietnam's Newly-Emerged Private Real Estate Market," *Economics of Transition* 12 (2): 275–305.
- \_\_\_\_\_. 2008. *Learning to be Capitalists: Entrepreneurs in Vietnam's Transition Economy*. New York: Oxford University Press.
- Krueckeberg, Donald A. 1995. "The Difficult Character of Property: To Whom Do Things Belong?" *American Planning Association Journal* (Summer): 301–309.
- Li, Lianjiang, and Kevin J. O'Brien. 1996. "Villagers and Popular Resistance in Contemporary China," *Modern China* 22 (1): 28–61.

- Marcuse, Peter. 1996. "Privatization and Its Discontents: Property Rights in Land and Housing in Eastern Europe." In *Cities After Socialism: Urban and Regional Change and Conflict in Post-Socialist Societies*, edited by Gregory Andrusz, Michael Harold, and Ivan Szelenyi. London: Blackwell: chapter 5.
- Oi, Jean C. 1995. "The Role of the Local State in China's Transitional Economy," *China Quarterly* 144: 1132–1149.
- Pan, Philip P. 2005. "Chinese Peasants Attacked in Land Dispute: At Least 6 Die as Armed Thugs Assault Villagers Opposed to Seizure of Property," *Washington Post*, June 14. (Also available at <http://www.washingtonpost.com>.)
- Quynh, Vo Hong. 2000a. "Final Decision on Complaints About 'An Lac' Supermarket To Be Announced in October," *Tuoi Tre*, September 22, 14.
- . 2000b. "State General Inspector Ta Huu Thanh: Resolving Complaints Must Be in Accordance With Both Feeling and Reason/Sensibility," *Tuoi Tre*, September 23, 3.
- . 2000c. "We Ask for Justice," *Tuoi Tre*, September 26, 13.
- Sanli, Ren, and Zhong Shilin. 1996. "City Residents Fight for a Say in Redevelopment," *China Rights Forum* (Summer): 18–21.
- Schwarzwalder, Brian, Roy Prosterman, Jianping Ye, Jeffrey Riedinger, and Ping Li. 2002. "An Update on China's Rural Land Tenure Reforms: Analysis and Recommendations Based on a Seventeen-Province Survey," *Columbia Journal of Asian Law* 16 (1): 141.
- Strong, Ann Louise, Daniel R. Mandelker, and Eric Damian Kelly. 1996. "Property Rights and Takings," *Journal of the American Planning Association* (Winter): 5–16.
- Trung, Xuan. 2000. "Three Cross-Sector Governmental Delegates Worked in Ha Tay, Dong Nai, HCM City: Listens to Complaints About the Anlac Supermarket Project," *Tuoi Tre*, September 26, 3.
- Wu, Fulong. 2002. "China's Changing Urban Governance in the Transition Towards a More Market-Oriented Economy," *Urban Studies* 39 (7): 1071–1093.
- Yardley, Jim. 2004. "Farmers Being Moved Aside by China's Real Estate Boom," *New York Times*, December 8, A1.
- Yu, Tony Y. 1997. "Entrepreneurial State: The Role of Government in the Economic Development of the Asian Newly Industrializing Economies," *Development Policy Review* 15 (1): 47–64.
- Zald, Mayer N. 1996. "Culture, Ideology, and Strategic Framing." In *Comparative Perspectives on Social Movements: Political Opportunities, Mobilizing Structures, and Cultural Framings*, edited by Doug McAdam, John D. McCarthy, and Mayer N. Zald. New York: Cambridge University Press.
- Zhu, Jieming. 2004. "Local Developmental State and Order in China's Urban Development During Transition," *International Journal of Urban and Regional Research* 28 (2): 424–447.
- . 1999. "Local Growth Coalition: The Context and Implications of China's Gradualist Urban Land Reforms," *International Journal of Urban and Regional Research* 23 (3): 534–548.

---

# Enabling the Voluntary Sector in Third World Housing

Sukumar Ganapati  
Florida International University

---

## Abstract

*In addressing Third World housing problems, the voluntary sector, characterized by voluntarism and community involvement, plays a crucial role in filling the gaps left by the public and private sectors. Although the voluntary sector is more flexible than public bureaucracy and is not constrained by profit-making goals of the private sector, it suffers from voluntary failure and faces accountability issues.*

*In this article, I argue that enabling the voluntary sector requires building synergistic relationships among the three sectors. I propose that intersectoral and intrasectoral institutional structures are crucial in building the synergy. Two aspects of the institutional structures need to be taken into account in this respect. First, the structures should allow for voluntarism and autonomy. Second, the structures should support the voluntary sector in financial, administrative, legal, and technical issues. I illustrate these structures by drawing on cases from Thailand, India, and the United States.*

## Introduction

In addressing Third World housing problems, the voluntary sector plays a crucial role in filling the gaps left by the public and private sectors. The voluntary sector covers a broad array of organizations, which are characterized by voluntarism and strong local community involvement. It is more flexible than the bureaucracy of the public sector, and, unlike the private sector, it is not motivated by profit-making goals; however, it faces voluntary failure and accountability issues.

Although the characteristics of the voluntary sector are distinctive, its functioning is not independent of the public and private sectors. I argue that enabling the voluntary sector requires building synergistic relationships with the other two sectors to mutually reinforce each other's capacity to address housing problems. Fostering synergistic relationships with the voluntary sector helps expand the welfare arm of the public sector and builds social capital. Synergy with the private

sector helps expand the capital base of the voluntary sector. In this sense, partnerships between the public sector and voluntary sector, between the private sector and voluntary sector, or among all three sectors enhance the capacity of the voluntary sector.

Synergy, however, cannot be taken as a given. Partnerships could be productive if sectors mutually reinforced each other's strengths, but partnerships could also become unproductive if relationships among sectors became adversarial. Furthermore, state involvement in enabling the voluntary sector is inherently paradoxical because voluntarism cannot be mandated. Because of these limitations, I propose that the state policies should focus on building institutional structures that can foster the synergy. *Institutional structure* refers to the manifest forms of relationships among organizations (for example, horizontal networks, hierarchical structures). The structure could be intersectoral or intrasectoral, and it could be formal or informal. Appropriately designed institutional structures could aid in both enhancing the strengths and mitigating the weaknesses of the voluntary sector. In this respect, I examine three cases: Community Organizations Development Institute (Thailand), Society for Service to Voluntary Agencies (India), and Community Development Corporations (United States). I argue that two aspects of the institutional structures are significant. First, the structures should allow for voluntarism and autonomy of the voluntary sector; they should encourage flexible accountability mechanisms of the voluntary sector. Second, institutional structures should support the voluntary sector in financial, administrative, legal, and technical issues. The forms of institutional structures could differ between countries, depending on the political and historical contexts.

The remainder of the article is organized as follows. The second section outlines the characteristics of the voluntary sector. The third section explores the need for synergy in reinforcing voluntary sector activities. The fourth section explores the role of institutional structures in building the synergy. The fifth section gives case illustrations of how the synergy is achieved through institutional structures in Thailand, India, and the United States. The sixth section outlines the significant features of the institutional structures to enable the voluntary sector. The seventh section concludes with the major lessons.

## Characteristics of the Voluntary Sector

The voluntary sector encompasses a broad range of organizations, including nongovernmental organizations (NGOs), philanthropic organizations, community-based organizations (CBOs), grass-roots organizations (GROs), nonprofit organizations (NPOs), and cooperatives. These organizations differ in terms of their membership characteristics, financial sources, and groups they serve. For example, NGOs, NPOs, and philanthropies are typically voluntary organizations funded by other agencies (public, private, or philanthropic) to provide housing-related services to the homeless and slumdweller. CBOs, GROs, and cooperatives are typically membership organizations that promote the collective interests of their members. Their funding is often internally generated through their members. Whereas CBOs and GROs are loosely structured local associations, cooperatives are structured on collective ownership.

Voluntary sector organizations differ in their scope and type of activities. The scope of their activities ranges from international to national to local levels. The nature of activities at these three



levels differs. For example, international organizations typically provide financial support to local organizations; national organizations act as umbrella organizations or networks of locally based organizations. Furthermore, voluntary sector organizations could be involved in advocacy (that is, defending a cause) or operational activities (that is, direct provision of services). These divisions, however, are not mutually exclusive; that is, some organizations could be involved in both advocacy and operational activities (for example, they could protest eviction of slumdwellers, champion for slumdwellers' rights to housing, provide basic infrastructure and health services in slums, and so on). Furthermore, voluntary sector organizations are contextual, based on the country's legal framework. For example, in the United States, the sector comprises mainly the tax-exempt non-profits, which cannot distribute their profits to their principals. Indeed, because of the voluntary sector's varied nature, defining and classifying the voluntary sector is a problematic issue (Morris, 2000; UNCHS, 1992; Vakil, 1997).

Despite the variations among voluntary sector organizations, it is useful to broadly distinguish them from the public and private sectors for international comparative studies (Gidron, Kramer, and Salamon, 1992; Salamon and Anheier, 1997). Whereas public and private sector agencies are based on the principles of vocation and income maximization, respectively, voluntary sector organizations are based on the principle of voluntarism (Brett, 1993). Public sector agencies are broadly governed by the polity and can invoke the coercive power of law to commandeer resources (for example, through eminent domain, zoning, taxation, preferential regulations). Private sector agencies are governed by market forces, and their resources depend on their profitability. Voluntary sector organizations promote the interests of their own members or other vulnerable groups. They usually are self-governing, depend on charitable donations, and are not motivated by profits. Hence, "in the public sector, this means bureaucratic hierarchy associated with democratic accountability and, in the private sector, profit and accountability to the market," while voluntary organizations are private bodies motivated by "principles of obligation and reward based on solidarity or purposive incentives" (Brett, 1993: 276).

The voluntary sector has been especially useful in filling the gaps left by failures of the public and private sectors. Public sector intervention is typically prompted due to the private housing market failures; however, public sector agencies also fail and do not fully compensate for housing market failures. Private housing markets fail due to externalities of urban housing and land markets (Whitehead, 1983), lag time in reaching equilibrium between housing supply and demand, and information asymmetry between sellers (developers) and buyers (households). Public sector intervention to correct these housing market failures could also fall short of expectations. Public bureaucracies are inefficient because of their rigidity and inflexibility. Government failures are most evident in public housing, which, in addition to suffering from poor construction and bad management, also incurs higher costs. Indeed, inefficiency of the "top-down" public housing programs paved the path for "bottom-up," self-help housing approaches during the 1970s (Rodwin and Sanyal, 1987; Turner, 1976).

Since the late 1980s, a renewed policy interest in voluntary sector organizations has occurred with the emergence of the *enabling* approach. This approach emerged essentially in response to the failure of conventional public-sector strategies in addressing housing problems (UN-HABITAT, 2005). It seeks to remove institutional constraints hindering the efficiency of housing markets,

thus enhancing the role of the private sector (World Bank, 1993). Following this approach, several countries cut back on the public provision of housing; however, the private market has not been able to fulfill these housing needs either because of the peculiar features of the land or because of housing market externalities (Baken and Linden, 1992). In the face of the public-sector retreat and the market inefficiency, voluntary sector organizations have a greater onus in extending the welfare arm of the state to fulfil the housing needs of those excluded from the formal housing market.

The voluntary sector fills the gaps left by market and government failures by acting as private producers of collective goods (Weisbrod, 1975). For example, in many developing countries, NGOs, CBOs, and cooperatives have taken up the task of providing collective goods such as streets, playgrounds, water supply, sewage, and sanitation. The voluntary sector also extends the welfare state to the benefit of the poor in at least three ways. First, voluntary action complements public-sector efforts in targeting services to the poor who are left out of the private housing market. Second, voluntary sector organizations empower local communities by mobilizing collective action. For example, NGOs have mobilized collective action among slum and pavement dwellers in developing countries to obtain tenure security and basic services. Third, voluntary sector organizations have been able to implement nontraditional housing finance systems such as microcredits and group-lending programs to provide credit to the poor (who are usually not catered to by formal banks because of their lack of collateral, unstable income, and high transaction costs) (Mitlin, 1997).

Voluntary sector organizations that have strong ties with the local community can design and implement programs that are more responsive to the local needs. They are more flexible than the public sector. The United Nations Centre for Human Settlements (UNCHS) (1996) identified three roles for NGOs as agents of the local community:

- *Enablers* (that is, community developers, organizers, or constituents) alongside CBOs.
- *Mediators* between the people and the authorities that control access to resources, goods, and services.
- *Advisers* to state institutions on policy changes to increase local access to resources and to use these resources in locally determined ways.

Voluntary sector organizations have a much broader role, however, than fulfilling these three responsibilities. They provide exemplary norms of civic conduct through their public involvement. They enhance the community's stock of *social capital*. Social capital implies "social networks, norms of reciprocity, mutual assistance, and trustworthiness." (Putnam and Feldstein, 2003: 2) Social capital is a productive feature intrinsic to voluntary groups, networks, associations, and so on (Coleman, 1990). In economic terms, social capital reduces transaction costs and, in political terms, it increases public involvement to support informal and formal decisionmaking processes (Fukuyama, 2001). In membership organizations such as CBOs and cooperatives, norms of trust and reciprocity are contained within the group; in other organizations such as NGOs and NPOs, such norms extend beyond the organizational circles. Several scholars have emphasized the significance of social capital for housing and community development, particularly through the voluntary sector organizations (Ganapati, 2008a; Gittell and Vidal, 1998).

As with the public and private sectors, the voluntary sector has its weaknesses. These weaknesses stem from voluntary failure. Salamon (1987) identified four sources of such failure. First, voluntarism suffers from *philanthropic insufficiency*; that is, the voluntary sector cannot raise enough resources to provide collective goods adequately. Second, voluntarism suffers from *philanthropic particularism*; that is, the voluntary sector focuses on particular subgroups of the population, so that other deserving subgroups may not be adequately represented. Third, voluntarism suffers from *philanthropic paternalism*; that is, the voluntary sector may assist in such areas where it perceives a need, rather than providing assistance based on assessed local community needs. Fourth, voluntarism suffers from *philanthropic amateurism*; that is, the voluntary sector may not be capable of professionally dealing with local community problems.

In addition to voluntary failure, the voluntary sector faces accountability issues. While the public and private sectors are accountable to the polity and the market, respectively, accountability in the voluntary sector is more ambiguous. Accountability issues are less problematic in membership organizations such as CBOs and cooperatives—these organizations are accountable to their members, who are usually both the fund providers and the beneficiaries of services. Other organizations such as NGOs and NPOs face multiple accountabilities because the fund providers are not the beneficiaries of services (Edwards and Hulme, 1995). These organizations must be financially accountable to donors (upward accountability) and politically accountable to beneficiaries (downward accountability). Accountability becomes critical when the state is the donor, because state-funded NGO/NPO activities need to be broadly justifiable to the polity. In comparison to programs receiving philanthropic and private funding, state-funded programs usually involve more red tape, cumbersome procedural requirements, and regulatory control. Overemphasizing accountability at the cost of flexibility, however, threatens the voluntary sector. Edwards and Hulme (1996) argued that the dependence of NGOs on official funding may compromise their performance, distort accountability, and weaken their legitimacy. Indeed, a degree of flexibility is required in directing funds according to the assessed community needs. In this respect, the private sector holds promise, because it can be more flexible in its lending accountability procedures. By approaching the private sector and other philanthropic groups with similar goals, voluntary sector organizations could potentially expand their capital base while maintaining their flexible accountability.

## **The Need for Synergy in Reinforcing Voluntary Sector Activities**

Although housing activities of voluntary sector organizations have grown over the past decade, considerable scope exists for further expansion. Enabling a concerted growth of these organizations is required for two reasons. First, this growth is fundamentally required to expand the welfare state to benefit the poor. Although a reduction in the state provision of public housing is justified, an overall decrease in state funding for housing has shrunk the welfare state. At the same time, the formal private sector has failed to cater to the housing needs of the poor in developing countries. The voluntary sector could complement the public sector in extending housing services for those not served by the private sector. Second, the inherent voluntary characteristic of voluntary sector organizations enhances the stock of social capital. Voluntary sector organizations provide exemplary norms of civic conduct while also acting as enablers of local community groups, mediators between local community and public authorities, and policy advisers to state agencies.

Although enabling the voluntary sector is desirable, state involvement in the enabling process is paradoxical because voluntarism is hard to achieve through coercive power of the state. Governments establish the legal and political framework within which voluntary organizations emerge. Voluntarism cannot be mandated; it needs to be nurtured. Unlike the public sector organizations, voluntarism is not based on political mandate. Unlike private sector organizations, the incentives for profit making do not exist. Voluntary organizations are curtailed if governments perceive them to be competitors in delivering services, or as critics of state programs (Bratton, 1989). Overt regulatory controls (for example, in authoritarian regimes) have the unintended effect of reducing voluntary activities (Ganapati, 2008b; Ho, 2007). State regulations need to provide a nurturing environment for voluntary sector activities to expand (Bratton, 1989).

Rather than regulate the voluntary sector, enabling policies should realize the synergistic relationship between the state and the voluntary sector. Synergy calls for mutually reinforcing relationships among the sectors, which is characterized by not only *complementarity* (that is, one sector fulfilling the gap left by the other) but also *embeddedness* (that is, mutual interdependence) (Evans, 1996b). Synergy enhances the voluntary sector's capacity in providing collective goods and in extending welfare services. Synergy is based on ties that span the public, private, and voluntary sectors to create productive, informal networks of bureaucrats, entrepreneurs, and volunteers. The networks build social capital by spawning informal norms of trust and reputation among the sectors. While maintaining the comparative advantage of each sector, synergy builds partnerships based on mutual advantage. Mutual relationships among the three sectors are important for effective voluntary sector intervention. As Edwards argued:

Making a difference to livelihoods and capacities among poor people depends on NGO successes in fostering autonomous grassroots institutions and linking them with markets and political structures at higher levels. (Edwards, 1999: 361)

Synergy, however, cannot be fostered based on the normative basis of comparative advantage alone. Fostering synergy requires sensitivity to the political and historical context of relationships among the sectors. Criticizing the comparative advantage approach, Sanyal (1998) argued that different institutional motivations could exist among sectors. For example, the state could collaborate with NPOs to appear neutral in its project implementations; on the other hand, NPOs could collaborate with the state to create a track record of their activities or to influence government programs. Sanyal (1998: 81) identified three variables in the relationship between the state and NPOs: (1) nature of the political system (NPOs may find allies in a multiparty democratic system); (2) political affiliation and sympathies of NPO leaders; and (3) the internal management and political coherence of the political party in power (systems with centralized decisionmaking could "deter the party from effectively mobilising the poor at the grassroots level, leaving room for NPOs to fill the void").

Indeed, synergy cannot be taken for granted and the evolution of productive relationships is not automatic (Rosenau, 1999). Several types of relations among the public, private, and voluntary sectors have been identified in scholarly literature. Gidron, Kramer, and Salamon (1992) identified four models of political relationships between the state and the voluntary sector in Europe: state-dominant, voluntary-sector dominant, dual, and collaborative. Coston (1998) identified eight modes of relationships between the state and NGOs depending on the state's attitude toward institutional pluralism. On an increasing scale of tolerance toward institutional pluralism (that is,

authoritarian to decentralized governments), these modes are repression, rivalry, competition, contracting, third party, cooperation, complementarity, and collaboration. Furthermore, differences could exist among institutional interests of the sectors. Najam (2000), for example, identified four possible relationships between the state and the voluntary sector based on institutional interests and preferences for policy ends and means: cooperation in case of similar ends and means, confrontation in the case of dissimilar ends and means, complementarity in case of similar ends but dissimilar means, and co-optation in case of dissimilar ends but similar means. In such a range of plausible scenarios, Evans (1996b: 1119) argued that synergy is “most easily fostered in societies characterised by egalitarian social structures and robust, coherent state bureaucracies.”

Although a range of relationships exists among the three sectors depending on the context, these relationships are not static—they are dynamic and evolve over time. In his comparison of government-nonprofit relations in four countries (the United States, the United Kingdom, Israel, and Japan), Young (2000: 168) argued that “the emphasis on supplementary, complementary, and adversarial relationships has changed over time within all four countries.” Synergy could arguably be said to increase as more collaboration exists among sectors and as the political economic environment exhibits more tolerance for institutional pluralism. Some authors argue that the seeds for synergy could be sown even in unfriendly circumstances by creating sustainable long-term relationships. In his comparative study of four NGOs in Asia, Edwards, for example, claimed the following:

When the right organizational characteristics and a supportive relationship with donors come together, NGOs have more chance of improving the context in which they work... Over time, the process becomes self-reinforcing—NGO success breeds confidence, and confidence makes more room for effective civic action. The lesson to be learned—even in more difficult contexts—is that NGO networking, constructive engagement with different levels of the state, and building demand among poor people for improvements in services and governance, can improve the legal and regulatory framework, and change donor practice, in ways which are crucial for sustainable development on the ground. (Edwards, 1999: 372)

## **The Role of Institutional Structure in Building Synergy**

I propose that the core element in mediating the relationship among sectors is the institutional structure, which is a key factor in building synergy. Institutions refer to the matrix of rules (formal and informal) that forms the framework of constraints and of opportunities. The matrix provides a behavioral guide to individuals and organizations through rules that “refer to which actions are required, prohibited, or permitted” (Ostrom, 1986: 5). Although formal institutions (laws, policies) are designed and enforced by the state, informal institutions (cultural norms, conventions) evolve over time in the course of social interactions; informal institutions are less defined but more persistent than formal institutions. Together, they reduce uncertainty by providing a structure for daily life. They provide stability to relationships among organizations. The evolution of organizations is intricately linked with the institutional framework. As North (1990: 5) argued, “Both what organizations come into existence and how they evolve are fundamentally influenced by the institutional framework. In turn they influence how the institutional framework evolves.”

*Institutional structure* refers to the manifest arrangement of relationships among the three sectors fostered by the institutions. It mediates functional and power relationships among organizations. The structure could be formal or informal. A formal structure is based on legally binding relationships (for example, contractual relationships), while the informal structure is based on customary relationships (for example, reciprocity, trust, promise). Furthermore, the institutional structure could be intrasectoral (that is, *endogenous*—within each sector) or intersectoral (that is, *exogenous*—spanning the three sectors). Intrasectoral structure in the public sector may range from hierarchical authority to more decentralized decisionmaking at local levels; in the private sector, the structure could range from a corporation to an informal market; in the voluntary sector, the structure could be anything from a loosely knit organization to well-established networks. The intersectoral structures are more complex, ranging from monitoring to partnering among the three sectors. The intersectoral and intrasectoral structures, however, are not entirely independent of each other.

Institutional structures offer opportunities for building synergistic relationships among the sectors. Cooperation in formal structures is based on legal enforcement and in informal structures is based on social capital. Intersectoral structures span the three sectors for productive relationships, and intrasectoral structures build productive relationships among organizations within the sector. Taken together, institutional structures (intersectoral and intrasectoral) aid in mutually reinforcing the productive capacities of the three sectors. Appropriately designed institutional structures could preserve the voluntary sector's strengths and mitigate its weaknesses in the process of promoting productive intersectoral relationships. Thus, reforming the institutional structure is a key aspect of building the synergy.

Although characteristics of institutions and institutional structure are politically and historically contextual, the state, by virtue of its authority, has an important role in designing and enforcing institutions and institutional structures. Hence, the state could play a key role in catalyzing synergistic relationships. Also, the process of collaboration among public, private, and voluntary sectors to identify institutional constraints and define opportunities can, by itself, produce synergy and strengthen intersectoral relationships. Catalyzing key features of the institutional structure that promotes synergy could enable the voluntary sector. As Evans (1996a: 1036) argued, “the imaginative application of ‘soft technologies’ of institution building and organizational change can produce synergistic relations even under unlikely circumstances.” In his analysis of local organizations and institutions (LOIs), Nugent similarly observed the following:

...there is evidence that the existence of the state and the rules it establishes and enforces can strengthen and increase the efficiency of LOIs and that, at least in coalitions with other urban based groups, LOIs can give rise to collective action increasing the power of the state. Similar statements could be made about the relationship between markets and LOIs. (Nugent, 1993: 629)

## Case Illustrations of How Synergy Is Achieved

The following three cases illustrate how institutional structures could help build synergy. These cases were selected from across different political and economic contexts. They are the Community Organizations Development Institute in Thailand, the Society for Service to Voluntary Agencies in

India, and Community Development Corporations in the United States. The cases show that the manifest forms of the institutional structures could vary among countries yet be supportive of the voluntary sector. Although none of these cases provides an ideal model, they all offer useful lessons for fostering institutional structures that enable the voluntary sector.

### **Community Organizations Development Institute, Thailand**

The Community Organizations Development Institute (CODI) in Thailand is a state-initiated, intersectoral institutional structure established to promote the voluntary sector. The state government established the Urban Community Development Office (UCDO) in 1992 with a grant of 1250 million baht through the National Housing Authority. The UCDO's main purpose was to manage the disbursement of the Urban Community Development Fund to community organizations. The UCDO promoted community savings and loan groups and provided subsidized loans to community organizations for new housing and income generation. The community organizations lent the money to their members. After the 1997 Asian financial crisis badly hit Thailand's economy, the UCDO was reorganized. In 2000, the UCDO merged with the Rural Development Fund to become CODI. CODI facilitates community organizations in both rural and urban areas of Thailand.

Although the UCDO was initially set up under the National Housing Authority, it (and, subsequently, CODI) has been governed by an independent board. The board comprises government and community representatives: four representatives from government organizations (the Bank of Thailand, the Finance Ministry, the National Housing Authority, and the National Economic and Social Development Board), four elected community leaders, and three professionals from NGOs and the private sector. The governor of the National Housing Authority chairs the board, and the CODI managing director is secretary to the board (Boonyabancha, 2004).

The UCDO and later CODI have helped establish a range of community networks—national, regional, intracity, zonal, and districtwide—focusing on similar development issues and common interests. More than 100 such community networks have been established (Boonyabancha, 2004). These networks include the following:

- Bangkok Co-operative Housing Network—a network of 17 groups with more than 14,000 households, established in 1994.
- Buri Ram Community Network—a network of 11 groups with more than 1,000 households, established in 1999 in the poor city of Buri Ram.
- Bangkok Taxi Co-operative Network—a network of 214 taxi drivers that enables members to buy taxis rather than rent them from agents.
- Khon Kaen Community Network—a network of 21 groups with more than 1,200 households, mostly living in squatter settlements in the city of Khon Kaen.
- Chiang Mai Network—a network of 26 groups and more than 3,000 households, established to undertake environmental and housing activities.

In 2000, CODI spread its activities into 53 of Thailand's 75 provinces. It helped establish 950 community savings groups. Since 2003, CODI has undertaken the Baan Mankong program, which



upgrades slums through infrastructure subsidies and housing loans given directly to poor communities. The program is managed by community-based networks (Boonyabancha, 2005).

### **Society for Service to Voluntary Agencies, India**

The Society for Service to Voluntary Agencies (SOSVA) in India illustrates the intrasectoral institutional structure, which emerged within the voluntary sector. SOSVA is not directly linked with housing per se; however, many NGOs in Mumbai working with slum and pavement dwellers have benefited from SOSVA (Desai, 1999). SOSVA is a broad umbrella organization for supporting NGOs and other voluntary agencies. It emerged in 1984 as a result of informal social capital among medical professionals working on community health in rural Maharashtra. It received initial financial assistance from the U.S. Agency for International Development and the Indian government to support its activities. SOSVA's aim is to assist voluntary agencies by filling gaps in information, resources, and skills. Its four goals include (1) promoting new and existing voluntary agencies, (2) improving and expanding those agencies' activities, (3) establishing interlocking support-service institutions, and (4) advocating for a promotional policy framework for the sector. SOSVA's activities have since expanded to other states, including Haryana, Karnataka, New Delhi, and Punjab (SOSVA, 2008).

In 1991, SOSVA initiated intermediary programs to help NGOs promote their projects and obtain financing and to provide the NGOs with technical, managerial, and procedural assistance. It established a separate project promotion and training program under the SOSVA Training and Promotion Institute in 2001. Another affiliated unit, the Centre for Voluntary Action, provides training to NGO personnel. The training programs cover a range of NGO management issues, including fundraising, project proposal writing, accounting, budgetary control, taxation and charity commission matters, public relations, and managing information systems. The central government also built on the SOSVA model to provide similar services in other areas. Such organizations, referred to as "mother" NGOs, have the maturity and experience to guide fledgling NGOs. Similar agencies have emerged to assist NGOs' operations in major urban areas, such as Mumbai, particularly in providing welfare services to the poor in urban slums (Desai, 2003).

### **Community Development Corporations, United States**

The case of Community Development Corporations (CDCs) in the United States illustrates an integration of intersectoral and intrasectoral institutional structures that harness the synergy among the public, private, and voluntary sectors. In broad terms, CDCs are nonprofits governed by a community-based board; they serve low-income communities by sponsoring economic, social, or physical development projects. CDCs are well institutionalized in the American housing system and have become significant players in nonprofit housing. They have grown phenomenally since their inception. In 2005, there were nearly 4,600 CDCs, which had produced more than 1.2 million housing units (National Congress for Community Economic Development, 2005).

Gittel and Wilder (1999) argued that four factors are key to the success of CDCs: mission, organizational competency, political capital, and funding. The institutional structure supporting CDCs on these fronts is very advanced, with a range of national- and local-level support structures. Stoutland (1999: 205) contended that "three types of external resources—financial, technical, and



political—have been crucial in what the organizations are able to do.” On the political front, CDCs are supported by umbrella organizations such as the National Neighborhood Coalition, the Low-Income Housing Coalition, and the National Association of Neighborhoods, which lobby on behalf of CDCs (Rohe, 1998). These lobbying activities have been partly responsible for federal housing and tax-credit programs. Financially, CDCs are financed through various federal government housing programs. CDCs have benefited from the Community Reinvestment Act, a law designed to encourage banks to invest in the local communities in which they operate. Intermediary nationwide organizations such as the Local Initiatives Support Corporation (LISC) and Enterprise Foundation also channel funding from other foundations. Rohe highlighted the importance of intermediaries as follows:

...the advantage of relying on intermediaries is that they are in a better position to assess both overall strength of individual CDCs and the feasibility of specific projects. They can also combine funding with technical assistance, which is likely to lead to more successful initiatives. (Rohe, 1998: 194)

LISC and Enterprise, through their network of field offices in nearly 60 U.S. cities, have aggressively promoted CDCs through direct investment in the organizations’ projects (Walker, 2002). Their share of financial support for CDCs rose from 27 percent 1994 to 44 percent in 2005 (National Congress for Community Economic Development, 2005). At the local level, support also comes from local government, other community nonprofits, community foundations, and major institutions such as universities, hospitals, and corporations. Regional- and state-level networks provide capacity building support to local CDCs.

## **Significant Features of Institutional Structures for Enabling the Voluntary Sector**

Although the forms of institutional structures differ in the three countries, they offer useful lessons for designing appropriate institutional structures to enable the voluntary sector. The institutional structures should preserve the strengths while minimizing the intrinsic weaknesses of the voluntary sector. Two aspects of the institutional structure gain importance in this context. First, institutions should allow for voluntarism—the core feature of the voluntary sector. Autonomy provides space for such voluntarism and allows voluntary sector organizations to emerge. In this, the institutional structures should facilitate accountability mechanisms while maintaining the voluntary sector’s flexibility. Second, the institutional structures should support the voluntary sector in financial, administrative, legal, and technical issues. The manifest forms of these institutional structures could vary among countries depending on local political and historical context.

### **Institutional Structures for Voluntarism and Autonomy**

Since voluntarism is the core feature of the voluntary sector, it needs to be encouraged to enhance the sector’s activities. Promoting voluntarism is a subtle process, however. The state has a particularly delicate role to play in encouraging voluntarism, because regulatory controls could limit voluntary activities. Furthermore, autonomy is required to maintain voluntarism, else the

voluntary sector is susceptible to political co-optation. In such a scenario, the state's regulatory role should be redefined to provide the required political space for voluntarism to emerge. Excessive state regulations could stifle the activities of the voluntary sector. In this, voluntary sector organizations themselves have a significant role in the advocacy of regulations that preserve their autonomy (Bratton, 1989; Clarke, 1998). In Thailand, despite periods of suppressive regulations after World War II, voluntary organizations have actively advocated for their causes and have become more vibrant over the years (Pongsapich, 1997). NGOs advocating for secure land tenure in slums have particularly become strident. India is a stable democracy that gained its independence from the British in 1947. Voluntary sector organizations have diversified and grown since then. Many of these voluntary organizations in major cities (for example, in Mumbai, Kolkata, New Delhi, and Chennai) have ardently championed the causes of slumdweller's housing rights and access to services, often at odds with the local government officials (Desai, 1999; Sen, 1998, 1999). The United States has had a long history of independent community organizations and nonprofits.

Institutional structures should encourage productive voluntary activities, rather than discourage them. Cumbersome procedures stifle the formation and functioning of formal voluntary sector organizations; informal organizations emerge in such contexts. In this respect, CODI and SOSVA provide logistic support to the voluntary sector to overcome procedural problems. Vakil (1996) and Ganapati (2001) argued that cumbersome registration procedures could reduce the activities of voluntary sector organizations such as CBOs and housing cooperatives. Clear definitions of the forms of association and streamlined procedures (regarding documentation, fewer steps for clearances from public authorities, and bureaucratic cooperation) would enable voluntary sector development.

Voluntarism in voluntary sector organizations acts at two levels, both of which build social capital. The first level is the internal organizational level, in which collective voluntary services benefit the group as a whole. At this level, self-help and community participation activities are internal to the group, so that social capital is limited within the group (for example, in cooperatives and CBOs). The second level is the broader community level, in which external voluntary services provided by voluntary sector organizations leverage additional resources for the group. At this level, social capital is weakly distributed beyond the group (for example, in NGOs). At the first level, voluntary sector organizations face free-riding problems, which is inherent to the provision of collective goods. In such cases, intrasectoral institutional structures to overcome free riding are developed within the group (for example, through peer monitoring and internal sanctions). At the second level, voluntary sector organizations face "multiple accountability" issues. Mediating accountability across sectors and within the voluntary sector requires both intersectoral and intrasectoral institutional structures. At the intersectoral level, imposing the same standards of accountability on the voluntary sector as on other sectors undermines its voluntarism, flexibility, and autonomy and results in bureaucratic structures (Edwards and Hulme, 1996). At the intrasectoral level, voluntary sector accountability requires a delicate balancing between upward financial accountability toward donors and downward political accountability to beneficiaries. Often, voluntary sector organizations attempt to preserve the balance by diversifying their resource base (Froelich, 1999), but such strategies depend on the country context. Although CDCs in the United States can adopt such a strategy, in Thailand, community networks that are dependent on CODI's funding have few alternative sources.

Evolving a sustained synergy among the three sectors requires institutional structures of accountability that enhance partnerships. Partnerships begin with existing stock of social capital and enhance it through further participation and mutual learning. They are based on both formal (that is, relationships based on formal reporting procedures) and informal (that is, relationships based on trust, promise, reciprocity, and reputation) accountability mechanisms. Edwards and Hulme (1996: 969) argued that “a partnership approach which emphasizes participation, learning, reciprocity, and transparency may permit the problems that accompany organizational growth and donor funding to be managed: GRO/ NGO performance, legitimacy and accountability need not be eroded.” Emphasis on partnerships does not imply that such relationships are without conflicts. Indeed, partnerships entail both conflict and cooperation, but the emphasis is on forums of mutual participation and learning to encourage accountability.

Institutional structures to foster partnerships and enhance voluntary sector accountability differ among countries. Such structures could be catalyzed by the state or be established within the voluntary sector. The cases of Thailand, India, and the United States show how such structures emerge. In Thailand, CODI is a state-sponsored initiative but is managed by both the representatives of the government and the voluntary sector. This representation has ensured that the independence of the CODI board is maintained, which is crucial for the autonomy of the NGOs and community networks. CODI facilitated the formation of several community networks organized around similar interests and problems. Boonyabancha (2004: 39) argued that “community networking is a very powerful platform for larger-scale development—a platform that involves a synergy of learning, sharing of experiences, boosting of morale and mutual inspiration.” In India, SOSVA, an intrasectoral initiative within the voluntary sector, has facilitated several NGOs that extend the welfare arm of the state through the delivery of services to the urban slums. Organizations such as SOSVA and other powerful housing NGOs in Mumbai (including the Society for Promotion of Area Resources Centre, the National Slum Dwellers Federation, and Youth for Unity and Voluntary Action) have been crucial for the autonomy of NGOs. In her analysis of NGOs in Mumbai, Ramanath (2009) argued that, although NGOs may cooperate with the state government, they have been able to maintain their identity and have not been homogenized. In the United States, CDCs are autonomous organizations supported through both intersectoral and intrasectoral mechanisms and through intermediary and umbrella organizations.

Autonomy does not imply a loss of synergy. Rather, it implies a productive relationship based on sectoral strengths in which the institutional structure allows for autonomy while maintaining productive relationships. In this sense, the public, private, and voluntary sectors are delicately intertwined, with dense connections among bureaucrats, entrepreneurs, and voluntary activists. At the same time, all bring their relative strengths for mutual support. Evans (1995) portrayed the relationship as an embedded autonomy, which is an important trait for the institutional structure. Indeed, all three cases of CODI, SOSVA, and CDCs exhibit such embedded autonomy, albeit to different levels. In the context of Thailand, CODI is deeply embedded with the state but maintains its independence through representatives from the voluntary sector. In India, SOSVA officials are often professionals who have intimate links and deep knowledge of the government processes. Compared with Thailand and India, CDCs are much less embedded and far more autonomous in the United States.

## **Supportive Institutional Structures for Financial, Administrative, Legal, and Technical Issues**

Supportive institutional structures regarding financial, administrative, legal, and technical issues help overcome some key weaknesses of the voluntary sector. Synergistic partnerships with public and private sectors are especially crucial to overcoming some of these voluntary failures. Financial support could aid voluntary sector organizations in overcoming philanthropic insufficiency and philanthropic particularism and in widening their scope of activities; administrative, legal, and technical assistance could aid the organizations in overcoming philanthropic amateurism. Brown and Kalegaonkar (2003: 231) argued that the institutional structures are required to serve critical support functions “such as strengthening individual and organizational capacities, mobilizing material resources, providing information and intellectual resources, building alliances for mutual support, and building bridges across sectoral differences.”

Supportive institutional structures for financial, administrative, legal, and technical issues could be both intersectoral and intrasectoral. Intersectoral structures for financing are more common and are usually based on mobilization of resources from various sources for supporting voluntary sector organizations. CODI in Thailand is an example of such intersectoral structure for mobilizing finance. In India, SOSVA acts as a nodal agency and a mother NGO for providing financial and technical support to NGOs in rural and urban areas. LISC and Enterprise are intermediary organizations within the voluntary sector that support the CDCs in the United States.

A tradeoff exists, however, between autonomy and finance when obtaining external assistance. Voluntary sector organizations need to be wary of overt dependence on other sectors, which could compromise their autonomy. First, philanthropic paternalism may become more acute if organizations are required to provide services emphasized by donors, rather than those required by local communities. Such dependence creates a constant tension between upward and downward accountability. Second, as Edwards and Hulme (1996: 969) argued, “closer links with donors (and the suspicion of foreign influence this creates in government) may result in a move away from self-regulation to regulation from above by the state.” They suggest that it may be better to channel funds through an independent public institution (that is, an intersectoral structure) or via local voluntary sector networks that ensure quality control through self-regulation and peer pressure (that is, intrasectoral structure within the voluntary sector).

Similar to partnerships that provide financial support to the voluntary sector, institutional structures for providing administrative, legal, and technical assistance could be both intersectoral and intrasectoral. This support is essential for encouraging new voluntary sector organizations and for helping to sustain nascent voluntary sector organizations. These organizations may lack capacity to organize efficiently and may not have the specialization required for dealing with housing issues (for example, regarding land development, regulatory constraints, and building bylaws). Intersectoral structures for assistance in these areas could be based on the public sector or the private sector.

The cases of Thailand, India, and the United States illustrate the support institutional structures could provide for administrative, legal, and technical assistance. Although CODI is explicitly oriented toward providing financial support for savings and loan groups and community networks,

it also helps build local capacity. If the CODI funds were to dry out, however, the long-term sustainability of the savings and loan groups and the community networks would be uncertain. In the Indian context, SOSVA provides similar support to voluntary sector organizations. In the United States, the intermediary organizations (for example, LISC and Enterprise) not only channel funding but also provide capacity-building programs to strengthen CDCs. In his review of CDCs in the United States, Walker (2002: 1) observed, “These bodies linked CDCs to money, expertise, and political power.”

## **Conclusion**

In addressing Third World housing problems, the voluntary sector plays a crucial role in filling the gaps left by the public and private sectors. The voluntary sector is characterized by voluntarism and community involvement; it also faces voluntary failure and accountability issues. Enabling a concerted growth of the voluntary sector is desirable to extend the state’s welfare capacity and to build social capital. The state’s role in enabling the voluntary sector, however, is inherently paradoxical because it is difficult to mandate voluntarism. Enabling the voluntary sector requires building synergistic relationships among the three sectors. Institutions and institutional structures are key elements in building such synergy. The state can play a catalytic role in designing and enforcing such institutional structures.

In enabling the voluntary sector, institutional structures need to preserve the sector’s intrinsic strengths and mitigate its weaknesses while building productive relationships with public and private sectors. Two aspects of the institutional structures are significant in this respect. First, they should allow for maintaining the voluntarism and autonomy of the voluntary sector. The institutional structures provide a mechanism for ensuring the accountability of voluntary sector while maintaining its flexibility. Second, supportive institutional structures are required for the voluntary sector to overcome internal problems regarding financing, administration, legal affairs, and technical skills. These structures are required to sustain existing voluntary sector organizations and to promote new organizations.

The form of the institutional structures could differ among countries, depending on their political context. The cases of Thailand, India, and the United States illustrate the differences in institutional structure. In Thailand, the government sponsored the CODI, the board members of which are drawn not only from the government but also from the private and voluntary sectors. In India, the SOSVA emerged endogenously within the voluntary sector, based on the informal social capital among a few professionals in Mumbai. It has since grown and has been emulated as a “mother” NGO to support other voluntary sector organizations in India. In the United States, the CDCs have been supported through a range of national, state, and local organizations. Intermediary organizations within the voluntary sector, for example, have been crucial for providing financial and capacity-building support to the CDCs. In addition to these organizations, local governments also provide support for CDCs’ activities.

## Acknowledgments

The author thanks the editors of *Cityscape* for their editorial assistance.

## Author

Sukumar Ganapati is an assistant professor in the Public Administration Department at Florida International University.

## References

- Baken, Robert-Jan, and Jan Van Der Linden. 1992. *Land Delivery for Low Income Groups in Third World Cities*. Aldershot, United Kingdom: Avebury.
- Boonyabancha, Somsook. 2005. "Baan Mankong: Going to Scale With 'Slum' and Squatter Upgrading in Thailand," *Environment and Urbanization* 17 (1): 21–46.
- Boonyabancha, Somsook. 2004. "A Decade of Change: From the Urban Community Development Office to the Community Organization Development Institute in Thailand." In *Empowering Squatter Citizen: Local Government, Civil Society and Urban Poverty Reduction*, edited by Diana Mitlin and David Satterthwaite. London: Earthscan: 25–53.
- Bratton, Michael. 1989. "The Politics of Government-NGO Relations in Africa," *World Development* 17 (4): 569–587.
- Brett, E.A. 1993. "Voluntary Agencies as Development Organizations: Theorizing the Problem of Efficiency and Accountability," *Development and Change* 24 (2): 269–303.
- Brown, L. David, and Archana Kalegaonkar. 2003. "Support Organizations and the Evolution of the NGO Sector," *Nonprofit and Voluntary Sector Quarterly* 31 (2): 231–258.
- Clarke, Gerard. 1998. "Non-Governmental Organizations (NGOs) and Politics in the Developing World," *Political Studies* 156: 36–52.
- Coleman, James. 1990. *The Foundations of Social Theory*. Cambridge, MA: Harvard University Press.
- Coston, Jennifer M. 1998. "A Model and Typology of Government-NGO Relationships," *Nonprofit and Voluntary Sector Quarterly* 27 (3): 358–382.
- Desai, Vandana. 2003. "Emerging Staffing Issues in Grassroots Urban NGOs: The Case of Mumbai," *Global Built Environment Review (GBER)* 3 (1): 26–36.
- Desai, Vandana. 1999. "Anatomy of the Bombay NGO Sector," *Environment and Urbanization* 11 (1): 247–265.
- Edwards, Michael. 1999. "NGO Performance—What Breeds Success? New Evidence From South Asia," *World Development* 27 (2): 361–374.

Edwards, Michael, and David Hulme. 1996. "Too Close for Comfort? The Impact of Official Aid on Nongovernmental Organizations," *World Development* 24 (6): 961–973.

———. 1995. "NGO Performance and Accountability: Introduction and Overview." In *Non-Governmental Organizations—Performance and Accountability: Beyond the Magic Bullet*, edited by Michael Edwards and David Hulme. London: Earthscan: 3–16.

Evans, Peter. 1996a. "Introduction: Development Strategies Across the Public-Private Divide," *World Development* 24 (6): 1033–1037.

———. 1996b. "Government Action, Social Capital and Development: Reviewing the Evidence on Synergy," *World Development* 24 (6): 1119–1132.

———. 1995. *Embedded Autonomy: States and Industrial Transformation*. Princeton, NJ: Princeton University Press.

Froelich, Karen A. 1999. "Diversification of Revenue Strategies: Evolving Resource Dependence in Nonprofit Organizations," *Nonprofit and Voluntary Sector Quarterly* 28 (3): 246–268.

Fukuyama, Francis. 2001. "Social Capital, Civil Society, and Development," *Third World Quarterly* 22 (1): 7–20.

Ganapati, Sukumar. 2008a. "Critical Appraisal of Three Ideas for Community Development in the United States," *Journal of Planning Education and Research* 27 (4): 382–399.

———. 2008b. "A Century of Differential Evolution of Housing Cooperatives in Mumbai and Chennai," *Housing Studies* 23 (3): 403–422.

———. 2001. "Potential of Housing Cooperatives for Low Income Households: The Case of Mumbai, Chennai, and Delhi," *Habitat International* 25 (2): 147–174.

Gidron, Benjamin, Ralph M. Kramer, and Lester M. Salamon. 1992. "Government and the Third Sector in Comparative Perspective: Allies or Adversaries." In *Government and the Third Sector: Emerging Relationships in Welfare States*, edited by Benjamin Gidron, Ralph M. Kramer, and Lester M. Salamon. San Francisco: Jossey-Bass Publishers: 1–30.

Gittell, Ross, and Anna Vidal. 1998. *Community Organizing: Building Social Capital as a Development Strategy*. Thousand Oaks, CA: Sage Publications.

Gittell, Ross, and Margaret Wilder. 1999. "Community Development Corporations: Critical Factors That Influence Success," *Journal of Urban Affairs* 21 (3): 341–361.

Ho, P. 2007. "Embedded activism and political change in a semiauthoritarian context," *China Information*, 21 (2): 187–209.

Mitlin, Diana. 1997. "Building With Credit: Housing Finance for Low-Income Households," *Third World Planning Review* 19 (1): 21–50.

Morris, Susannah. 2000. "Defining the Nonprofit Sector: Some Lessons From History," *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations* 11 (1): 25–43.



Najam, Adil. 2000. "The Four C's of Third Sector-Government Relations: Cooperation, Confrontation, Complementarity, and Co-Optation," *Nonprofit Management and Leadership* 10 (4): 375–396.

National Congress for Community Economic Development (NCCED). 2005. *Reaching New Heights: Trends and Achievements of Community-Based Development Organizations*. Washington, DC: National Congress for Community Economic Development.

North, Douglass. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge, United Kingdom: Cambridge University Press.

Nugent, Jeffrey B. 1993. "Between State, Markets and Households: A Neoinstitutional Analysis of Local Organizations and Institutions," *World Development* 21 (4): 623–632.

Ostrom, Elinor. 1986. "An Agenda for the Study of Institutions," *Public Choice* 48: 3–25.

Pongsapich, Amara. 1997. "Thailand." In *Defining the Nonprofit Sector: A Cross-National Analysis*, edited by Lester Salamon and Helmut K. Anheier. Manchester, United Kingdom: Manchester University Press: 446–468.

Putnam, Robert D., and Lewis M. Feldstein. 2003. *Better Together: Restoring the American Community*. New York: Simon & Schuster.

Ramanath, Ramya. 2009. "Limits to Institutional Isomorphism: Examining Internal Processes in NGO–Government Interactions," *Nonprofit and Voluntary Sector Quarterly* 38 (1): 51–78.

Rodwin, Lloyd, and Bishwapriya Sanyal. 1987. "Shelter, Settlement, and Development: An Overview." In *Shelter, Settlement, and Development*, edited by Lloyd Rodwin. Boston: Allen and Unwin: 3–31.

Rohe, William. 1998. "Do Community Development Corporations Live Up to Their Billings? A Review and Critique of Research Findings." In *Shelter and Society: Theory, Research, and Policy for Nonprofit Housing*, edited by C. Theodore Koebel. Albany, NY: State University of New York Press: 177–200.

Rosenau, Pauline V. 1999. "The Strengths and Weaknesses of Public-Private Policy Partnerships," *American Behavioral Scientist* 43 (1): 10–34.

Salamon, Lester. 1987. "Partners in Public Service: The Scope and Theory of Government-Nonprofit Relations." In *The Nonprofit Sector*, edited by Walter Powell. New Haven, CT: Yale University Press: 99–117.

Salamon, Lester, and Helmut K. Anheier. 1997. *Defining the Nonprofit Sector*. Manchester: Manchester University Press.

Sanyal, Bishwapriya. 1998. "Beyond the Theory of Comparative Advantage: Political Imperatives of the Government-Nonprofit Relationship." In *Shelter and Society: Theory, Research, and Policy for Nonprofit Housing*, edited by C. Theodore Koebel. Albany, NY: State University of New York Press: 71–88.



- Sen, Siddharta. 1999. "Some Aspects of State-NGO Relationships in India in the Post-Independence Era," *Development and Change* 30 (2): 327–355.
- . 1998. "On the Origins and Reasons Behind Nonprofit Involvement and Non-Involvement in Low Income Housing in India," *Cities* 15 (4): 257–268.
- Stoutland, Sara E. 1999. "Community Development Corporations: Mission, Strategy, and Accomplishments." In *Urban Problems and Community Development*, edited by Ronald Ferguson and William Dickens. Washington, DC: Brookings Institution Press: 193–240.
- Turner, John F.C. 1976. *Housing by People: Towards Autonomy in Building Environments*. London: Marion Boyars.
- United Nations Centre for Human Settlements (UNCHS). 1996. *An Urbanizing World: Global Report on Human Settlements*. Oxford, United Kingdom: Oxford University Press.
- . 1992. *Public Private Partnerships in Enabling Shelter Strategies*. Nairobi, Kenya: United Nations Centre for Human Settlements (Habitat).
- United Nations Human Settlements Program (UN-HABITAT). 2005. *Enabling Shelter Strategies: Review of Experience From Two Decades of Implementation*. Nairobi, Kenya: United Nations Human Settlements Program (Habitat).
- Vakil, Anna C. 1997. "Confronting the Classification Problem: Toward a Taxonomy of NGOs," *World Development* 25 (12): 2057–2070.
- . 1996. "Understanding Housing CBOs: Comparative Case Studies From Zimbabwe," *Third World Planning Review* 18 (3): 325–348.
- Walker, Christopher. 2002. *Community Development Corporations and Their Changing Support Systems*. Washington, DC: The Urban Institute.
- Weisbrod, Burton. 1975. "Toward a Theory of the Voluntary Non-Profit Sector in a Three Sector Economy." In *Altruism, Morality, and Economic Theory*, edited by Edmund S. Phelps. New York: Russell Sage: 171–195.
- Whitehead, Christine. 1983. "The Rationale for Government Intervention." In *Urban Land Policy: Issues and Opportunities*, edited by Harold B. Dunkerley. New York: Oxford University Press: 108–131.
- World Bank. 1993. *Housing: Enabling Markets To Work*. Washington, DC: World Bank.
- Young, Dennis R. 2000. "Alternative Models of Government-Nonprofit Sector Relations: Theoretical and International Perspectives," *Nonprofit and Voluntary Sector Quarterly* 29 (1): 149–172.

---

# Crime Control in the City: A Research-Based Briefing on Public and Private Measures

Philip J. Cook

Duke University and National Bureau of Economic Research

---

## Abstract

*Crime control deserves priority in urban policymaking. High crime rates are a drag on community development and a great burden on households that cannot afford to relocate. Successful control of theft, vandalism, public disorder (often associated with drug selling), and especially violence set the stage for increasing property values, investment, job growth, and a higher standard of living. The fact that most large cities are far safer today than they were two decades ago has contributed to the growth and prosperity of those cities. Nevertheless, crime rates can be remarkably volatile—more so than other social indicators—and require continuing attention.*

*Recent history teaches us that large fluctuations in crime rates can occur without much change in underlying socioeconomic conditions. Although crime tends to be concentrated in low-resource neighborhoods year in and year out, crime rates are not uniquely determined by the socioeconomic conditions—far from it. The quantity and quality of policing matter. Police effectiveness requires cooperation by the public and could be enhanced by programs to elicit greater voluntary cooperation. The private sector also has a direct role in crime control—as many private security guards as sworn police officers are involved in crime prevention—but the interaction between public and private efforts is not well understood. Over the long run, social policy, including social services, housing, education, and mental health, are potentially important in the control and prevention of crime, and city agencies concerned with social policy should accept crime reduction as one of their purposes.*

## Introduction

The great epidemic of youth violence that swept the nation's cities beginning in the mid-1980s finally crested in 1993 and has largely subsided since then. In many cities, rates of crime and violence are now at levels not seen since the Kennedy era.<sup>1</sup> The remarkable turnaround has contributed to the current golden age in New York<sup>2</sup> and elsewhere. But despite this good news, few mayors are in a position to relax when it comes to crime, and, for more than a few, crime is the most pressing issue on their agenda. This article attempts to provide general guidance to city officials on crime and crime control based on available research.

The epidemic of violence generated some important lessons. First, security is a necessary platform for neighborhood growth and prosperity. Thus, the notion that poverty is the mother of crime has been turned on its head. Second, a city's violence rates can be extraordinarily volatile. For instance, the homicide victimization rate for young African-American men in Washington, D.C., increased by a factor of 10 during the crack drug era of the late 1980s, not because violent newcomers invaded the city but because the drug-related conflict engendered violence within the existing population. Although the traditional "root causes" of crime, such as poverty, lack of parenting, and limited licit opportunities, were operating in the background, these factors created only a potential for trouble; the realization of that potential depended greatly on the immediate circumstances. Third, an increase in police resources is valuable in crime control.

This last lesson is perhaps most surprising and remains contentious. Criminologists and police chiefs had long agreed that police bore no responsibility for the everyday violence in the city because they had no way to prevent it. Beliefs have changed, however. New policing strategies were introduced during the epidemic—most prominently, problem-solving "community" policing and "broken windows," order-maintenance policing—coupled with a new generation of chiefs who declared they are accountable for lowering crime. Criminologists have provided some systematic evidence in support of these new strategies, although the evidence is less than decisive. The great decline in crime during the 1990s made most any intervention look good. In any event, solid evidence shows that more resources devoted to policing in general are productive in reducing crime.

In addition, cities have benefited from a secular decline in crimes such as burglary and motor vehicle theft for reasons that are even less well understood than the decline of violence. Private, self-protection activities may get part of the credit for the decline. The private security industry continues to grow faster than public policing. Technical innovations have improved alarm and surveillance systems, which simultaneously have become more pervasive. These innovations have the effect of improving the quality of information that private citizens provide law enforcement, and, therefore, they increase police productivity. There is reason to believe, however, that private cooperation remains a scarce, undersupplied resource. One key to more efficient crime control may be enhanced incentives for households and businesses to cooperate with the public aspects of the crime-control task.

---

<sup>1</sup> John F. Kennedy, 35th president of the United States, January 20, 1961, through November 22, 1963.

<sup>2</sup> See, for example, Schwartz, Susin, and Voicu (2003).

To reduce crime, police need cooperation from other public agencies as well, including agencies that may not have crime control as part of their regular mission. Serious crime is concentrated in “hotspots” characterized by disorder and a prevalent lack of amenities; therefore, police “problem solving” to reduce criminal opportunities in these areas may require the cooperation of the housing and zoning authorities, trash collectors, alcohol licensing boards, mental health providers, and others. Cooperation with state and federal criminal justice authorities is also of considerable importance.

The focus here is on crime control, with the belief that controlling crime will always be necessary and vital to the quality of urban life. That is not to say that crime prevention is unimportant: surely a reduced potential for crime would be a byproduct of an increased investment in effective programs to enhance children’s health and education; to provide good, licit employment options for young adults; to strengthen families and communities; and to foster justice. For now, the author simply notes that a low crime rate will facilitate all of these worthy efforts.

## **Crime Trends and Patterns**

Crime rates can be volatile at the local level; at the national level, trends tend to be smoother, but far from static. Homicide rates, the most reliable indicator of violence, have followed a low-high-low pattern during the post-World War II period (exhibit 1).<sup>3</sup> During the 1950s, the homicide rate nationwide was about 5 deaths per 100,000 residents. In 1964, the homicide rate began heading decisively upward, doubling by the end of the Vietnam War era. For the next 20 years, some variation of this new, high level occurred, with the rate peaking in 1980 and 1991. During the 1990s, a remarkable decline in the homicide rate occurred nationwide, leveling out in 2000 at a rate approaching that of the early 1960s.<sup>4</sup>

Nonfatal violence rates have followed similar trends since 1973, when the National Crime Victimization Survey (NCVS) was initiated.<sup>5</sup> In particular, victimization rates for violent crime varied in

---

<sup>3</sup> The homicide rates presented here are not from the Federal Bureau of Investigation’s Uniform Crime Reports, but rather from the National Vital Statistics System. Coroners and medical examiners nationwide report the results of their investigations of deaths, and these reports are compiled at the state and national levels under the aegis of the National Center for Health Statistics (Centers for Disease Control and Prevention). These mortality data are generally considered the most reliable source of information on homicide-victimization rates and patterns (Wiersema, Loftin, and McDowall, 2000), although they are somewhat limited—the Vital Statistics provide no information on suspects or circumstances of the homicide.

<sup>4</sup> Note that the long-term trend in homicide rates is not an entirely reliable index of criminal behavior. Technological changes in both medical treatment and weaponry have altered the likelihood that a serious assault will result in the death of the victim. On the one hand, trauma care has improved significantly, and the current homicide rate would be somewhat higher if not for improved emergency medical response and lifesaving procedures for severely wounded victims. On the other hand, the firearms assailants use have improved through increased power and rapidity of fire (Wintemute, 2000).

<sup>5</sup> In 1973, the U.S. Department of Justice implemented a survey to measure rates of violence and other common crime. Since then the NCVS has contacted large samples of households (currently about 45,000) to inquire whether any members age 12 and over have become crime victims during the preceding 6 months, and, if so, to provide details. The resulting estimates tend to be substantially larger than the counts recorded by the police, and these estimates are useful in providing the statistical basis for analyzing demographic patterns of violence—both of the victims and of the perpetrators (based on respondents’ reports of their impression of the age, race, sex, and number of assailants).

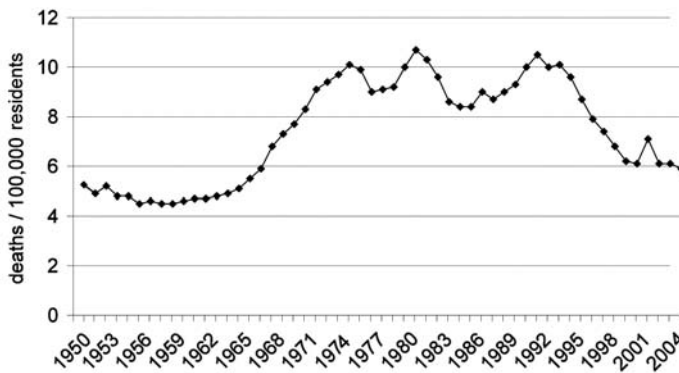
a narrow range until 1994 and then dropped to less than half the peak rate by 2002 (exhibit 2). Robbery rates have followed homicide rates very closely throughout this period (Blumstein, 2000; Blumstein and Rosenfeld, 2007).

Property crime victimization rates have declined steadily since 1980; the current rate is one-third the peak level (exhibit 3). Residential burglaries (break-ins and attempts) in particular have declined a full 70 percent since 1980 (that is, from 100 to 30).

The extraordinary reduction in violent crime during the 1990s has been the object of extensive exegesis by scholars (Blumstein and Wallman, 2006; Blumstein and Wallman, 2000; Cook and Laub, 2002; Zimring, 2007). No expert predicted this decline, and it remains something of a mys-

**Exhibit 1**

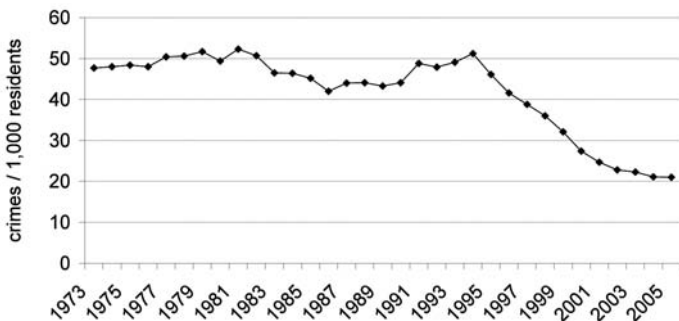
**Homicide Rate, 1950 to 2005**



Note: Includes deaths from the terrorist attacks of September 11, 2001.  
 Source: National Center for Health Statistics, Vital Statistics

**Exhibit 2**

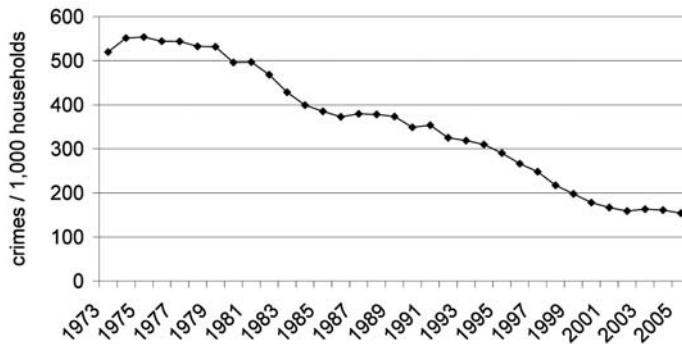
**Violent Crime Rate, 1973 to 2005**



Notes: Estimates for 1993 and beyond are based on collection year; earlier estimates are based on data year. Violent crimes included are rape, robbery, aggravated and simple assault, and homicide. Rape does not include sexual assault. Homicide rates for 2005 are estimated based on 2005 preliminary annual release data.  
 Sources: National Crime Victimization Survey; Federal Bureau of Investigation, Uniform Crime Reports

**Exhibit 3**

**Property Crime Rate, 1973 to 2005**



Notes: Estimates for 1993 and beyond are based on collection year; earlier estimates are based on data year. Property crimes include burglary, theft, and motor vehicle theft.

Source: National Crime Victimization Survey

tery. Steven Levitt (2004) provides a survey of potential causes. He first notes that the decline was quite universal, affecting all demographic groups and geographic areas. With respect to urbanicity, he observes that the greatest improvements, proportionally, occurred within metropolitan statistical areas, especially among large cities with populations greater than 250,000. In fact, the 25 largest cities experienced noteworthy declines in homicide rates from their peak year (mostly in the early 1990s) to 2001, declines that ranged as high as 73 percent for New York and San Diego. Based on his analysis, Levitt awards partial credit for the crime drop to increases in the number of police, the rising prison population, the receding crack epidemic, and the legalization of abortion through *Roe v. Wade*. His claim that abortion liberalization is related to the crime reduction is controversial, to say the least (Joyce, 2004), but the rest of his list is widely (although not universally) endorsed by experts. His judgment about what is *not* important to the crime drop includes the sustained economic growth in the 1990s and the acclaimed innovations in policing in New York and elsewhere.

Crime rates during the 1984–2001 period provide a graphic demonstration of their potential volatility, particularly for local areas and specific groups.<sup>6</sup> Most notable was the nationwide epidemic in minority-youth violence that began in the mid-1980s and peaked in 1993, subsiding thereafter. For African-American males, homicide commission rates increased by a factor of five for those 13 to 17 years old and by a factor of nearly three for those aged 18 to 24 (Cook and Laub, 2002). For individual cities, the swings were larger: homicide involvement by young African-American men in Washington, D.C., increased by a factor of 10 during this period. The remarkable conclusion is that similar “fundamentals” of socioeconomic status are compatible with a homicide rate of both X and 10X, given relatively minor changes in circumstances. Franklin Zimring concludes his analysis of the crime drop: “Whatever else is now known about crime in America, the most important

<sup>6</sup> Glaeser, Sacerdote, and Scheinkman observe that “The high variance of crime rates across time and space is one of the oldest puzzles in the social sciences; this variance appears too high to be explained by changes in the exogenous costs and benefits of crime” (Glaeser, Sacerdote, and Schleinkman, 1996: 507). They analyze the effects of social interactions as a possible explanation for volatility, finding evidence that such interactions are particularly important for crimes of theft.

lesson of the 1990s was that major changes in rates of crime can happen without major changes in the social fabric” (Zimring, 2007: 206). That observation, reasonable as it sounds, is a rather profound revision of pre-epidemic conventional wisdom.

## Patterns in Urban Crime

Despite the volatility of crime rates, the geography of crime tends to be rather stable and predictable. The crime map of any large city lights up in those neighborhoods characterized by a high concentration of disadvantaged minorities, joblessness, single-parent households, drug abuse, substandard housing, inadequate public services, and high population turnover. It is reasonable to assume that such a confluence of conditions holds the key to understanding the social and economic conditions that foster crime. Indeed, community characteristics associated with economic and social disadvantage are often seen as the “root causes” of crime and violence.

In the late 1960s, coinciding with the first post-World War II surge in crime rates, three presidential commissions argued in their final reports that redressing problems of economic and social disadvantage was a necessary precondition for reversing the trend. The first of these, known as the President’s Commission on Law Enforcement and Administration of Justice, opined in 1967 that “The underlying problems are ones that the criminal justice system can do little about.... They concern the Commission deeply, for unless society does take concerted action to change the general conditions and attitudes that are associated with crime, no improvement in law enforcement and administration of justice, ... will be of much avail” (President’s Commission on Law Enforcement and Administration of Justice, 1967: 1). The 1968 report of the National Advisory Commission on Civil Disorders, the Kerner Commission, assigned much of the blame for the urban riots of the 1960s on the effects of racism, with the call for action couched in the now famous observation that “Our nation is moving toward two societies, one black, one white—separate and unequal” (United States Kerner Commission, 1968: 1). The U.S. National Commission on the Causes and Prevention of Violence observed that “Violence is like a fever in the body politic: it is but the symptom of some more basic pathology which must be cured before the fever will disappear” (U.S. National Commission on the Causes and Prevention of Violence, 1969: xix). Further, “the way in which we can make the greatest progress toward reducing violence in America is by taking the actions necessary to improve the conditions of family and community life for all who live in our cities, and especially for the poor who are concentrated in the ghetto slums” (U.S. National Commission on the Causes and Prevention of Violence, 1969: xxi).

Socioeconomic conditions served, therefore, not only as an explanation for patterns of violence, but also as the preeminent candidates for intervention. Reducing disparity and disadvantage was presented as a feasible option and as the *only* approach that could do much good. Although the 1960s are long gone, it seems fair to say that perspective is still influential. Today we may be more sanguine about the ability of the police and prisons to reduce crime and less sanguine about the feasibility of correcting root-cause conditions, but many social scientists concur that the community, shaped in part by the larger societal context, is ultimately the right place to look for a satisfactory explanation of crime patterns.



Much of the systematic evidence available on the relationship between crime rates and environmental or “ecological” (the more common term) characteristics derives from multivariate regression analysis on cross-sections of data on jurisdictions. (The jurisdictions may be anything from states to census tracts.) These studies typically include an eclectic list of explanatory factors.<sup>7</sup> A recent example gives the flavor of these studies. Morgan Kelly (2000) analyzed crime rates in 1991 for the 200 largest U.S. counties, using a variety of demographic and socioeconomic factors as explanatory variables. I have followed Kelly’s lead, but with some modifications in his original regression specification.<sup>8</sup> The results for robbery and homicide for 1990 and 2000 are reported in exhibit 4.

#### Exhibit 4

Regression Analysis of Robbery and Homicide Rates per 100,000 Residents, 200 Largest U.S. Counties (48 States), 1990 and 2000 (all variables in natural log form)

Explanatory Variable	Robbery 1990	Robbery 2000	Homicide 1990	Homicide 2000
Intercept	- 13.402 <sup>a</sup> (3.632)	- 10.580 <sup>c</sup> (5.787)	- 8.938 <sup>b</sup> (4.026)	- 8.178 (5.017)
Population	0.104 (.064)	0.114 (.116)	0.061 (.071)	0.065 (.101)
Population/square mile	0.138 <sup>a</sup> (.044)	0.079 (.087)	0.080 (.048)	0.009 (.075)
Per capita income	0.466 (.313)	- 0.260 (.536)	- 0.401 (.347)	- 0.761 (.464)
Income inequality (Gini coefficient)	1.394 <sup>a</sup> (.282)	1.564 <sup>b</sup> (.705)	1.685 <sup>a</sup> (.312)	1.348 <sup>b</sup> (.611)
Female head: percent of all families	1.207 <sup>a</sup> (.254)	1.648 <sup>a</sup> (.401)	1.100 <sup>a</sup> (.282)	1.595 <sup>a</sup> (.347)
Black: percent of population	0.328 (.045)	0.125 (.081)	0.317 <sup>a</sup> (.050)	0.193 <sup>a</sup> (.070)
Hispanic: percent of population	0.081 <sup>a</sup> (.030)	0.026 (.066)	0.060 <sup>b</sup> (.034)	0.025 (.057)
Movers: percent of population that moved in previous 5 years	1.539 <sup>a</sup> (.239)	1.671 <sup>a</sup> (.489)	1.598 <sup>a</sup> (.265)	1.947 <sup>a</sup> (.424)
College: percent of population age 25+ with 4 years	- 0.676 <sup>a</sup> (.173)	- 0.162 (.361)	- 0.610 <sup>a</sup> (.192)	- 0.245 (.313)
R-squared	80%	51%	76%	62%

Note: The sample for both 1990 and 2000 consists of the 200 largest counties by population in 1990.

<sup>a</sup>  $p < 1\%$ .

<sup>b</sup>  $p < 5\%$ .

<sup>c</sup>  $p < 10\%$ .

<sup>7</sup> For a systematic search for structural factors that influence state-level homicide rates, see Land, McCall, and Cohen (1990).

<sup>8</sup> In particular, I made the following changes. First, I replaced his “% nonwhite” with “% black” and “% Hispanic” for the sake of greater specificity. Second, I dropped his variable on police expenditures per capita, because it is plausibly the effect rather than the cause of crime. Third, I dropped the “% of population age 16-24”; he included it because that is the most crime-prone age group, but, as it turns out, its cross-section variation signals which counties have a relatively large population of college students—a group that is not particularly crime prone. He included the male unemployment rate, which did not perform well, so I dropped it in this specification. Finally, he reports the results of Poisson regression, while the results here are from ordinary least squares—a change that makes little difference in practice.

The crime data are derived from the FBI's Uniform Crime Reports, and all other variables come from the decennial censuses. Because all variables are in log form, the coefficients are conveniently interpreted as "elasticities"—the percentage change in the dependent variable (crime rate) associated with a 1-percent increase in the explanatory variable. Thus, according to these results, in 2000, a 1-percent increase in the county's population was associated with a 0.11-percent increase in the robbery rate and a 0.06-percent increase in the homicide rate, conditioned on the other explanatory variables.

These results generally support the "root causes" perspective for both the near-peak year (1990) and the postdecline year (2000) of the violence epidemic. Across urban counties, both robbery and homicide rates increase markedly with (1) the prevalence of female-headed (one-parent) families; (2) population instability, as measured by the percentage of the population that changed addresses in the preceding 5 years; (3) income inequality, as measured by the Gini coefficient on household incomes; and (4) the prevalence of African Americans in the population. The weak relationship of violence with population size and density is surprising: contrary to expectation, the effects tend to be quite small and, with one exception, statistically insignificant.<sup>9</sup> One consequence of the differentially paced crime drop during the 1990s was the near elimination of the long-established association between population size and violent crime rates for cities with a population greater than 250,000.<sup>10</sup>

This type of study is the statistical equivalent of the crime map, demonstrating that serious violent crime rates tend to be highest in areas with the greatest disadvantage. Beyond that general finding, the results should be taken lightly. Because different measures of "disadvantage" tend to be highly correlated with each other across jurisdictions, it is difficult to sort out the separate effects of factors such as inequality, prevalence of female-headed households, and prevalence of college-educated residents.<sup>11</sup> In addition, a more fundamental problem exists: a statistical analysis of natural cross-section variation, while suggestive, reveals little about causation. (For example, residential turnover may be as much an effect as a cause of crime.) That fact was largely ignored by the 1960s panels of experts previously quoted (Wilson, 1974).

In any event, the criminogenic factors identified in the cross-section regressions for 1990 and 2000 did not improve during the 1990s. In fact, national income inequality increased markedly, as did

---

<sup>9</sup> Although the unit of observation for these regressions is the county, the characteristics of the state in which the county is located may also be relevant. State governments provide a large share of the funding for the courts and criminal corrections, and they differ with respect to criminal law and procedure as it affects robbery and criminal-homicide cases. In addition, states differ with respect to their level of contribution to local finances and service provision. For these reasons, I re-ran the regressions, controlling for the state in which the county is located. The results are very similar in all respects to those previously reported in this article.

<sup>10</sup> Although robbery has long been the quintessential urban crime, recently, robbery rates have been about the same for mid-sized cities (populations of 250,000 to 500,000) and larger cities. The same is true for homicide rates. For an analysis of why crime increases (or used to increase) with the population, see Glaeser and Sacerdote (1999).

<sup>11</sup> The correct interpretation of these results is also clouded by the aggregation problem. We are observing either the sum of individual propensities or some characteristic that reflects interactions within the community. Sampson, Raudenbush, and Earls (1997) offered the sociological view that the quality of interactions within the community, and particularly mutual trust, is important. They offer the term "collective efficacy" as a characteristic of communities that predicts the extent of informal social control that limits criminal activity (Harcourt and Ludwig, 2006; Sampson, Raudenbush, and Earls, 1997).

the prevalence of single-parent households. Furthermore, in the 200-county sample, there was little tendency for the counties that showed relative improvement in these factors to exhibit a larger drop in robberies or murders than did other counties. When the regression is run on decade-long changes in the variables, the only statistically significant coefficient is for “% female headed households” in the case of murder; for robbery, the two marginally significant coefficients are “% black” and “% college.” An analysis of changes from 1980 to 1990 also found few statistical associations.<sup>12</sup>

The 1990s experience—the large, across-the-board reduction in crime without much progress in the socioeconomic fundamentals—is hopeful. It creates the possibility that crime rates can change dramatically, independent of changes in the fundamental socioeconomic conditions. Thus, crime is not only volatile, but also potentially malleable, with policies more feasible and immediate than those required to “reshape society.”

## **Costs of Crime**

In assessing crime policy, the costs of crime and crime prevention are equally important (Becker, 1968). Reducing the combined total cost of crime and crime prevention becomes an important public goal, along with the goals of promoting greater justice and equity. Thus, whether it is worthwhile to increase resources devoted to public law enforcement depends in part on whether the projected reduction in crime has value greater than the additional expenditure. Obtaining accurate accounting on the value of crime reduction is vital to setting priorities.

### **Public Costs of Crime Prevention**

The accounting of relevant crime-prevention costs begins with direct public expenditures. Exhibit 5 provides a summary of criminal justice expenditures at the local, state, and federal levels for 2003. In that year, the total expenditure for criminal justice at all levels was \$195 billion (\$670 per capita), about half of which was expended by counties and cities. Most local expenditures were for policing (\$58 billion), although county governments also have substantial responsibility for courts and jails. When compared with local governments’ total expenditures for other services, including education and transportation, police services account for about 5 percent of the total.

Exhibits 6 and 7 demonstrate the considerable growth in expenditures on criminal justice over the past quarter century. Adjusting for inflation and population growth, expenditures per capita have grown most rapidly at the federal level (for which the 2004 level was 3.2 times the 1982 level), followed by state (2.3 times), and local (1.9 times), trending toward greater parity across the three levels of government. Across functions, the largest growth has been in corrections (where real expenditure per capita increased by a factor of 2.75), reflecting the burgeoning prison and jail populations.

---

<sup>12</sup> I ran regressions for changes in log crime rates, from 1990 to 2000, as a function of changes in the independent variables, also in log form. I ran the same regressions for the 1980-to-1990 period. None of the variables “perform” especially well. For robbery, seven of the covariates have estimated coefficients that either switch signs across the two periods or have “perverse” signs in both periods. The variable “% black” is significantly positive for the 1990s, but significantly negative for the 1980s. The R<sup>2</sup> ranged from 0.4 percent to 7.0 percent for the four regressions.

**Exhibit 5**

**Criminal Justice Expenditures, 2003 (dollars in billions)**

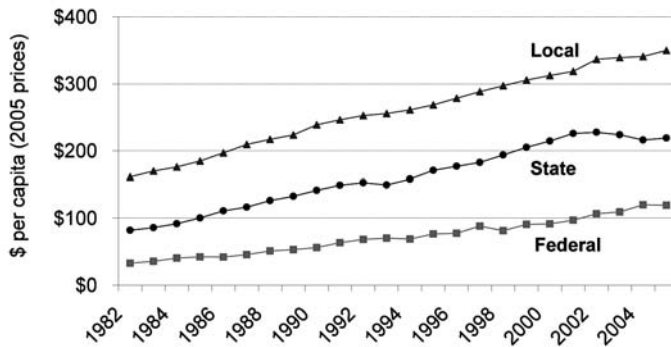
	Total	Police	Judicial/Legal	Corrections
Local	94	58	18	19
State	66	11	16	39
Federal	35	20	9	6
Total <sup>a</sup>	195	89	43	64

<sup>a</sup> The total entries are computed by summing the column entries. Those sums disagree with the "total" statistics from the Sourcebook, in which sums are total, 185; police, 83; judicial/legal, 42; corrections, 61.

Source: Bureau of Justice Statistics, Sourcebook of Criminal Justice Statistics Online  
<http://www.albany.edu/sourcebook/pdf/t122003.pdf>

**Exhibit 6**

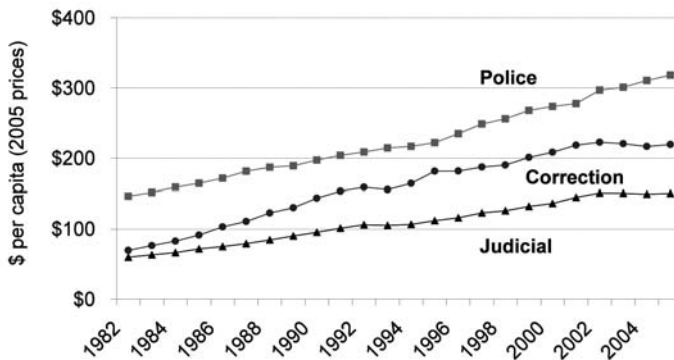
**Direct Expenditure by Government Level, 1982 to 2005 (adjusted for inflation and population growth)**



Sources: Annual Government Finance Survey; Annual Survey of Public Employment

**Exhibit 7**

**Direct Expenditure by Criminal Justice Function, 1982 to 2005 (adjusted for inflation and population growth)**



Notes: Used Gross Domestic Product deflator from Bureau of Economic Analysis. Used population data from 2006 Statistical Abstract of the United States.

Sources: Annual Government Finance Survey; Annual Survey of Public Employment

Most experts agree that the extraordinary increase in jail and prison populations since 1980 (from 0.5 million to more than 2.2 million) receives some credit for the crime drop (Blumstein and Wallman, 2006; Levitt, 2004). That increase has come at considerable cost, however, both direct and indirect. The high rates of imprisonment have been a particular burden on the African-American community. Steven Raphael and Melissa Sills report that roughly 11 percent of African-American men aged 18 to 40 were imprisoned as of 2000 (Raphael and Sills, 2006). Almost as many high school dropouts in this demographic group are institutionalized as are employed; in fact, for those aged 26 to 30, 34 percent were institutionalized compared with 30 percent employed (Raphael and Sills, 2006). The high institutionalization rates for African-American males leave a demographic gap in poorer minority communities, with important implications for family and community life. Those who are not actually in prison are likely to have a felony record, limiting their licit employment opportunities (Travis, 2005; Western, 2006). These ancillary effects of imprisonment should loom large in assessing alternative strategies to control crime.

Economists may debate whether the current level of imprisonment is too high or too low, based on a crude comparison between estimated marginal costs and benefits, but there is no reason to believe that the current allocation of imprisonment is “efficient” from a crime-control perspective. Much of the growth in imprisonment is accounted for by longer sentences (Blumstein and Beck, 2005), which have sharply diminishing returns regarding both deterrence and incapacitation.<sup>13</sup> A strong argument can be made for greater use of “intermediate” sanctions such as fines and intensive supervision in the community (Morris and Tonry, 1990). The fact that the 600,000 prisoners released each year usually receive little supervision or support suggests that a larger investment in prisoner reintegration might help reduce the high recidivism rate. (About one-half of released prisoners return to prison within 3 years.<sup>14</sup>) Furthermore, at the margin, arguably, more cost-effective uses of the corrections budget are in prevention, such as preschool education or programs to encourage high school graduation (Donohue and Siegelman, 1998; Lochner and Moretti, 2004). A worthy quest is to identify and implement an effective crime-control strategy that economizes the use of prisons.

One such proposal has been promulgated by Mark Kleiman (forthcoming, 1997). His proposal rests on the observation that drug abuse while on conditional release (probation or parole) is highly predictive of a return to crime, together with the behavioral principle that the deterrent effect of punishment is far greater if it is swift and certain (even if mild) than if it is remote and unlikely (even if severe). His proposal, then, is to subject known drug abusers on conditional release to frequent random drug testing with immediate but mild consequences for a “dirty” test—a weekend in jail, for example. This approach stands in contrast to the standard operating procedure in most jurisdictions, where convicts are rarely sanctioned for dirty tests, but when they are, it is with

---

<sup>13</sup> Doubling prison sentences will have an incapacitation effect that is less than double, because criminals tend to “age out” and desist from crime. Doubling prison sentences will have a muted deterrent effect because of the universal tendency to discount the future. The second 5 years of a 10-year sentence will tend to be heavily discounted relative to the first 5 years (Cook, 1980).

<sup>14</sup> A National Research Council report concluded that adequate evidence exists to support a greater investment in cognitive-behavioral interventions with released prisoners; further, drug treatment, coupled with frequent testing and comprehensive multiservice employment and training programs, was deemed promising (National Research Council, 2008).

imprisonment for the rest of their original term. While Kleiman's approach has shown good results when implemented, it requires strong leadership to overcome the challenges of large caseloads and entrenched operating procedures.

## **Private Costs of Security, Precaution, and Victimization**

As with the public costs associated with crime prevention, the private provision of protection against crime is also costly. The Economic Census, which the Census Bureau conducts every 5 years, in 2002 provided an estimate of receipts of the private security industry as \$30 billion, as compared to \$80 billion in public expenditures on police protection.<sup>15</sup> Some overlap in these numbers may exist, because governments hire private security for certain purposes, but estimates of the number of employees suggest something closer to parity. The census reported slightly more than 1 million police employees in 2002 (of which 75 percent were sworn officers), compared with 754,000 private security employees (U.S. Bureau of the Census, 2002). In the decade from 1992 to 2002, private security employment grew 34 percent, compared with 27-percent growth for police employees. Currently, the number of private security employees is comparable to the number of sworn officers.<sup>16</sup>

Costs to businesses, organizations, and households for crime prevention, avoidance, and victimization involve much more than the expenditures for criminal justice programs and private security. Crime, and especially the threat of criminal victimization, plays a pervasive role in city life. Shoplifting and fraud increase the cost of doing business for retailers. Vandalism, open-air drug dealing, prostitution, and loitering by gang members are neighborhood disamenities with tangible impacts on real estate values and patronage of local retailers. Perhaps most important is the threat of violence; people who have a choice will avoid dangerous neighborhoods, opting instead to live, work, shop, attend school, and recreate in safer places. In particular, the effect of crime on residential choice was documented by Julie Barry Cullen and Steven Levitt (1999), who demonstrated that crime has a powerful effect on residential decisions. For people who do not have the means to relocate from crime-impacted neighborhoods, fear and seclusion may become a fact of life. This point was documented by the Moving to Opportunity experiment (which provided vouchers to low-income families to relocate in Boston and four other cities); by far, the most important reason families signed up for the program was fear of crime and violence in the housing projects (Katz, Kling, and Liebman, 2003).

Estimating the social cost of crime is challenging because so much of it is subjective. One approach to placing a dollar value on commodities such as "safety from criminal victimization"—commodities that are not traded in the marketplace—is the contingent-valuation method. Economists have used this method most often in valuing environmental protection, but Jens Ludwig and I adapted

---

<sup>15</sup> The receipts and employment for the private security industry are taken from the Economic Census for 2002, North American Industry Classification System 5616 (excluding locksmiths). See <http://www.census.gov/prod/ec02/ec0256i06.pdf> for a complete report (U.S. Census Bureau, 2004).

<sup>16</sup> Two additional national surveys provide estimates of the number of private security employees: the Current Population Survey (conducted by the Bureau of Labor Statistics and the Census Bureau) and the U.S. Census Bureau's County Business Patterns. Estimates for 2002 from the three sources are in rough agreement: 754,000 (Economic Census), 724,000 (Current Population Survey), and 715,000 (County Business Patterns).

the method to valuing a reduction in the threat of gun assault in a community (Cook and Ludwig, 2000). We surveyed a nationally representative sample using a series of questions concerning how much respondents would be willing to pay in increased taxes for a program that would reduce interpersonal gun violence in their community by 30 percent. Based on the results, estimates indicated that the value to respondents of a 30-percent reduction in gun violence would have been \$24 billion in 1995, suggesting that the total burden was about \$80 billion. This method has also been used to value general reductions in crime (Cohen, 2005).

An alternative approach is to construct an estimate by totaling costs across the various elements of crime costs, both tangible (for example, expenditures on security, medical costs from assault-related injuries) and intangible, being careful not to double count. In a heroic effort to estimate the total cost of crime for the United States, David Anderson (1999) arrived at an annual figure of \$1.1 trillion for the mid-1990s. This figure included the value of risks to life and health from violent crime (\$574 billion), time spent securing assets (\$90 billion), and “crime-induced production” (\$397 billion, which covered everything from drug trafficking to small arms purchases to expenditures by Mothers Against Drunk Driving). Jens Ludwig updated this figure using data circa 2004, offering a new total of \$2 trillion (Ludwig, 2006), or more than \$6,000 per capita.

Violent crime is a prominent component of these estimates, and reducing serious violent crime deserves correspondingly high priority. It is interesting to place this point in international context. Compared with other developed nations, the United States has the reputation of having exceptionally crime-ridden cities. But, in fact, U.S. rates for common crimes of theft and burglary are comparable to those of other countries (we tend to have relatively high rates of robbery and assault) (Zimring and Hawkins, 1997). For homicide, the victimization rate in the United States is a multiple of that in other developed nations, combining, as we do, a high assault rate with ready access to guns (Hemenway, 2004). An emphasis on violence is also justified by the American public’s values. In their contingent valuation study of a nationally representative sample of Americans, Mark Cohen and his associates found greater willingness to pay for a 10-percent reduction in homicide or rape than a 10-percent reduction of the far more common crime of burglary (Cohen et al., 2004).

These attempts at valuation are static, while the effects of crime on a city neighborhood may well evolve over time. Indeed, effective crime control can do much to revitalize a blighted neighborhood in a growing metropolitan area. Without a doubt, the great crime reduction of the 1990s receives some of the credit for the urban renaissance that occurred in one large city after another beginning in that period, with New York being the most notable case in point (Schwartz, Susin, and Voicu, 2003). None of the available estimates of the cost of crime successfully captures this dynamic, transformative possibility.

Note that the discussion has now come complete circle. The geography of crime is closely linked to socioeconomic disadvantage, as suggested by the regression results in the previous section. It is quite reasonable to believe that income inequality, broken families, and limited education create fertile ground for criminal activity. But the reverse may also be true. If crime rates are reduced to levels that are more acceptable to middle-class households, then more of these households may choose urban over suburban living—a process that will eventually change the socioeconomic makeup in ways associated with lower crime rates.



Although crime has a significant effect on the standard of living in cities, public responsibility for criminal justice policy is divided among local, state, and federal governments. In particular, courts, prisons, and parole are largely state and federal matters. The most important city and county responsibility is policing.

## Police and Crime Control

Police have the lead responsibility for responding to and preventing crime. Criminologists have traditionally questioned whether the police in fact have much influence on crime rates, and, when crime rises, many police chiefs have blamed youth culture, the breakdown of family life, or unemployment. But a series of innovations in police management and methods, to some extent coincident with the crime drop of the 1990s, has led to a dramatic change in rhetoric. Now, big-city police chiefs publicly embrace responsibility for controlling crime and seek guidance from evaluation research on how best to do so. Criminologists continue to debate best practices but have become more open to the possibility that policing matters. Understanding just how policing matters, and how it can be most effective, requires a strategic analysis of how the police interact with other institutions and the public at large.

### More Police, Less Crime

In 1994, David Bayley, a leading academic expert on policing, said, “The police do not prevent crime. This is one of the best kept secrets of modern life. Experts know it, the police know it, but the public does not know it” (Bayley, 1994: 3). As evidence of the public’s ignorance in this respect, in 1994, Congress enacted the Violent Crime Control and Law Enforcement Act, which provided funding to local police departments to hire thousands of new police officers. Thanks in part to this federal funding, the number of police did increase substantially during the decade, peaking at 246 police for every 100,000 residents in 1999 (Zimring, 2007). Along with this expanding workforce came innovations in police deployment and management.

With these changes comes the question regarding whether additional resources in policing tend to be deployed effectively, without regard to specific technique or strategy. It has proven difficult to statistically sort out the crime-control effect of police resources, because the causal connection goes both ways—cities may hire additional police *in response* to a crime increase. Several studies, however, have found persuasive ways to isolate the causal effect of police resources on crime. William Evans and Emily Owens (2005) analyzed the effects of Community Oriented Policing Services (COPS) funding on crime, finding that cities did indeed hire additional police after receiving federal funding, which resulted in reduced crime rates. Another study analyzed variation in police presence in Washington, D.C., resulting from changes in the terror alert level, finding that the deployment of additional police reduced crime rates, especially on the National Mall (Klick and Tabarrok, 2005). In England and Wales, the Street Crime Initiative provided funding for antirobbery policing in 10 of the 43 police-force areas, with large, statistically discernible effects on robbery rates (Machin and Marie, 2005). Other studies have provided additional support for the conclusion that additional police suppress crime rates (Levitt, 2002; Levitt and Miles, 2007; McCrary, 2002). The effect of additional police on reducing crime is large enough to make a



strong case for expanded police funding (Donohue and Ludwig, 2007). Although the “black box” nature of these estimates is somewhat troublesome—surely it matters exactly how the resources are used—it appears true that police departments know how to put additional resources to effective use.

It is important to note that most all the evaluations of increased policing have been incomplete, in the sense that they have failed to measure the ancillary costs and benefits of reducing crime. The expansion of policing may well result in an increase in downstream costs associated with additional arrests, convictions, and incarcerations, but not necessarily, and there is no good evidence on this matter (Levitt and Miles, 2007).<sup>17</sup> Furthermore, the increase in public policing may well have an effect on private-security and self-protection efforts, an area that has been almost entirely neglected in these evaluations.

### **Innovations in Policing**

Surely the crime-control effects of police manpower and expenditures depend on organization and tactics. If so, the answer to the question of whether it is worthwhile to expand policing may well be, “it depends.” The evidence reviewed in the previous section suggests that there are cost-effective uses for additional police resources and police chiefs typically know enough to make use of them, but much debate remains about the *most* efficient use of resources.

A review of the evidence on police practice by an expert panel of the National Academy of Sciences (Skogan and Frydl, 2004) defined these innovations relative to the traditional “standard model” of policing, which consists of preventive patrol, rapid response to 911 calls, followup investigations by detectives, and unfocused enforcement efforts. Police departments moved away from this standard model by innovating more focused tactics designed to address specific problems, such as gun use by drug-dealing gangs or hotspot locations where crimes are frequently reported. William Bratton, appointed New York City Police Commissioner in 1994, took this approach another step by combining focused policing with a new management accountability system, familiarly known as COMPSTAT. In this system, precinct commanders are given considerable authority, responsibility, and discretion over resources, coupled with responsibility for reducing crime in their command areas. Weekly meetings are held at headquarters to discuss solutions to emerging crime problems in each of the precincts, as documented by the COMPSTAT report (a computerized version of the old pin map), and a wide range of qualitative information at the borough and precinct levels. The focus on reducing crime, rather than on process-oriented performance measures (response times to 911 calls, arrest rates, complaints) is a profound change.

In many departments, proactive, focused policing has been embedded in one of two broad strategies. The first is community policing, in which the police seek to develop a productive working relationship with the community that encourages cooperation in crime prevention, including the identification and solution of neighborhood problems (Skogan, 2006). The traditional emblematic features of community policing were Neighborhood Watch organizations and foot patrol by police

---

<sup>17</sup> In principle, the increase in police presence could increase or reduce the number of arrests, because additional police increase the probability of arrest per crime and reduce the number of crimes. The effect on the number of arrests (the product of probability per crime and number of crimes) will depend on the relative proportionate changes in these two variables. Freeman, Grogger, and Sonstelie (1996) explore possible relationships among crime, arrest, and policing.

in high-crime neighborhoods; recently, the focus has been on information-sharing and problem-specific operational partnerships with community organizations. The 1994 Violent Crime Control and Law Enforcement Act that provided federal funding for more police also created the Office of COPS in the U.S. Department of Justice, thus giving a federal imprimatur to this strategy.

An alternative strategy known as broken windows policing (also known as “order maintenance,” “zero tolerance,” and “quality of life” policing) has also garnered converts among police departments. The approach originated in an essay in the *Atlantic Monthly* by James Wilson and George Kelling (1982). Commissioner Bratton adopted the strategy, and he and others have credited it with the New York “miracle” (Bratton and Knobler, 1998; Kelling and Sousa, 2001). The theory behind this approach is that minor social disorder, such as graffiti, litter, public drinking, panhandling, and abandoned buildings, engenders crime by serving as a signal that normal social control has broken down (Harcourt and Ludwig, 2006). Its implementation in New York and elsewhere has taken the form of aggressive policing with numerous arrests for public disorder misdemeanors, sometimes at the cost of good relations with the community.

Objective evaluations of the New York innovations—COMPSTAT and aggressive broken windows policing—have reached differing conclusions (Harcourt and Ludwig, 2006; Rosenfeld, Fornango, and Baumer, 2005; Rosenfeld, Fornango, and Rengifo, 2007; Zimring, 2007). A broader consensus has emerged supporting the efficacy of concentrating police resources in “hotspots” and directing patrol against illicit gun carrying and other criminogenic activities and circumstances (Braga, 2005; Cohen and Ludwig, 2003; Eck and Maguire, 2000; Sherman, 2002; Skogan and Frydl, 2004). It is hard to argue with the “problem-solving” approach embraced by most big-city police departments, which seeks to prevent crime by finding ways to intervene where there is an ongoing source of trouble—a rowdy bar, perhaps, or a feud between rival gangs, or a dealer selling guns to youths and criminals. Effective interventions may require a considerable departure from normal police work. Anthony Braga and Brenda Bond (2008) summarize this challenge well in their recent report on a successful experiment with problem-oriented policing:

A broader set of responses to deal with physical and social incivilities, such as installing improved street lighting, cleaning up vacant lots, razing abandoned buildings, and evicting problem residents, requires activities that go far beyond making misdemeanor arrests. Strategic partnerships with city agencies, social service agencies, local business owners, community groups, and tenant associations are often necessary to deal with physical deterioration and social order problems in neighborhoods. (Braga and Bond, 2008: 705)

No matter how creative the problem solving, however, a zero crime rate is not a realistic goal and “zero tolerance” is a myth. Faced with inevitable scarcity of their capacity for effective action and the resulting tradeoffs, the police necessarily set priorities regarding the various services they provide the community and set priorities among different crime problems. A case in point is the now famous Operation Ceasefire, organized by the Boston Police Department working with other law enforcement agencies and a team of analysts from Harvard. Confronted with a surge in lethal violence by drug-dealing gangs, the department announced a program that focused enforcement efforts on the misuse of guns. In the absence of gunplay, gangs could continue dealing drugs subject to no more than the usual enforcement effort, but gang members were informed directly that gunplay by any one member of a gang would result in a heavy police crackdown on all the gang’s

activities (Kennedy, Piehl, and Braga, 1996). The priority on gun misuse is also a long-standing feature of policing in Chicago (Cook et al., 2007). The public has widely endorsed the emphasis on guns over drugs. The appropriate priorities are, of course, a value judgment, which ideally should, in some sense, represent the interests of the community, diverse though they may be (Moore, 2002).

Police chiefs can no longer get away with denying responsibility for crime in their cities. Accountability for crime reduction has stimulated interest in evaluation information about effective approaches to crime control. But reliable information is scarce indeed. The “technology” (if that is the right word) of crime control is as complex as any other social process.

## **Private Inputs in Crime-Control Efforts**

Private security and private crime-control efforts more generally constitute an unwritten chapter in the recent literature on “what works” in crime-control policy. Observed crime rates and patterns reflect private choices regarding cooperation and self-protection (Clotfelter, 1977; Cook, 1986). A systematic approach to public crime control requires understanding of the potential interactions between private and public efforts.

A place to begin the discussion of this complex topic is with the private security industry. The current scope of the private security industry is difficult to assess, but, as previously recounted, the number of private security employees is at least as large as the number of sworn officers. The security industry encompasses proprietary (inhouse) security, guard and patrol services, alarm services, private investigations, armored car services, and security consultants, as well as security equipment (Cunningham, Strauchs, and Van Meter, 1990). Private security supplements and, in some cases, substitutes for public action: for example, businesses in many cases investigate and resolve employee theft and fraud without ever going public. More generally, as noted by Brian Forst, “the central functions of policing—preserving domestic peace and order, preventing and responding to crimes—have always been conducted first, foremost, and predominantly by private means.... Most crimes still are not reported to the police” (Forst, 1999: 19).

Private security guards (and police officers who moonlight as private security guards) serve a narrow purpose, namely to protect the property and people they are hired to protect. The term of art is situational crime prevention (Clarke, 1983). The guard’s job is accomplished if the robbers avoid his or her bank, or his or her corporate executive is not kidnapped, or rowdy teenagers are successfully kicked out of his or her shopping mall, or the would-be burglar does not enter his or her gated community. “Rather than deterring crime through the threat of detection, arrest, and punishment, private policing tries to regulate behavior and circumstances to diminish the possibility that crime will occur” (Bayley and Shearing, 2001: 18).

An obvious possibility is that the crime will simply be displaced to other, unguarded victims and places. If private security does not prevent but only redistributes crime, then its public value (as opposed to private) is nil, and it creates serious equity concerns.<sup>18</sup>

---

<sup>18</sup> Further, the danger exists that affluent people will become less willing to support public policing if they are purchasing private protection (Bayley and Shearing, 2001).

Although displacement is a legitimate concern, it is not the whole story. Lucrative opportunities, if unguarded, are likely to generate crime that would not otherwise occur. In Isaac Ehrlich's (1974) classic formulation, the supply of offenses is a function of the relative wage rate to licit and illicit activities. An increase in the net return (payoff per unit of effort) to crime will stimulate participation in criminal activity. He postulates that the payoffs to property crimes "depend, primarily, on the level of transferable assets in the community, that is, on opportunities provided by potential victims of crime" (Ehrlich, 1974: 87). But if the most lucrative "transferable assets" are well protected, then the payoff to crime is reduced. Of course, the most lucrative targets tend to be most closely guarded. Banks invest more in security against robbery than, say, travel agencies do. Jewelry stores display costume jewelry on open racks but keep more expensive items in glass cases wired with alarms. People with meager assets do not need bodyguards to protect them against being kidnapped for ransom. Credit card companies have instituted elaborate systems for preventing fraudulent use.

There is a reasonable concern, however, that some private precautionary activities are undersupplied due to the moral hazard created by insurance and even by the police. For example, a vehicle left unlocked in a public location invites theft, but the owner may be willing to accept that risk knowing that the police will attempt to recover his vehicle at public expense if it is reported stolen, and that, in any event, he or she is insured against theft for most of the vehicle's value. The same considerations may dictate against purchasing alarms and other antitheft devices. In response, insurance companies may provide a discount on theft insurance to owners who install such devices, and 12 states mandate these discounts. The mandate reflects a perceived public interest in increasing private precaution in this case.

Not all private actions to prevent or mitigate crime are limited to one's own household or business. The notion of "community" suggests neighbors looking out for each other, including with respect to crime. A tight-knit community may limit opportunities for crime by controlling the streets and sidewalks, keeping strangers under surveillance, and placing a check on local teenagers. This notion was given a scientific basis with data from the Project on Human Development in Chicago Neighborhoods. A sociological construct labeled "community efficacy" (a combination of items measuring informal social control and social cohesion) was found to be closely (negatively) associated with crime and violence rates, even after accounting for some other features of the neighborhood (Sampson, Raudenbush, and Earls, 1997). There is great interest, and apparent success, in crafting deliberate interventions to strengthen social control through public-private partnerships mobilized to confront chronic youthful offenders (Kennedy, 2007).

In some areas, the business community has sought to further its interests in controlling crime by establishing business improvement districts (BIDs). These self-taxing entities raise money to pay for private security guards, combat disorder, and, in general, to repair broken windows directly, while also advocating for improved policing and other city services (MacDonald and Stokes, 2006). A recent study of Los Angeles found that BIDs reduced crime by 5 to 9 percent, at a cost that was substantially less than the social benefit (Brooks, 2006).

In sum, private security and precautionary activities reduce crime rates by reducing the quality of criminal opportunities and, in that sense, supplement public policing. Both public policing and private security are necessary. Private measures cannot cope efficiently with anarchy—they need

to be backed up by police with their extraordinary power of arrest. Public and private efforts are further interrelated by the fact that effective law enforcement requires close cooperation with the community.

## **Increasing Private Input to Public Law Enforcement**

One important aspect of the police department's mission is to reduce crime. Despite the newfound interest in prevention, much police work remains reactive. Crimes that private citizens do not report to the police will never be investigated. If the victim does not cooperate with the investigation, any charges will likely be dropped, and, if witnesses are not cooperative, a case is unlikely to go very far. In this set of transactions, we might say that public safety is being fostered with input from law enforcement resources and with information from private citizens (Clotfelter, 1993). The resulting enhancement of public safety benefits the entire community.

Although the police depend on the public to report crimes, assist in investigations, and serve as court witnesses, these key inputs are uncompensated and are supplied in some cases at considerable personal cost, inconvenience, and even risk of retaliation. Even victims are unlikely to benefit in any tangible way from cooperation with police, and most victims do not bother to even report the crime.<sup>19</sup> In essence, the citizens who become involved in a crime are invited to make a charitable contribution of their time, and possibly their safety, in exchange for knowing they have done a good deed for their community. Improved cooperation from victims and other citizens would increase police effectiveness, but to elicit cooperation it would help to better align private incentives.

A good place to start in eliciting greater cooperation is by reducing the private costs of cooperation. State victim-compensation programs provide some incentive for victims who are injured in violent attacks; payment is contingent on the victim's reporting the crime. (Similarly, private insurance policies often stipulate that police be informed of a property theft.) Witness coordinators in criminal court can assist victims and other state witnesses in scheduling and understanding court proceedings. Police can offer some protection for witnesses who fear retaliation, although local resources for such efforts tend to be all too meager (Kocieniewski, 2007). It would help if the local housing authority made witness protection a high priority for allocating turnover housing vouchers.

In some cases, the information needed for a successful investigation of crimes requires some prior action. For example, in the case of motor vehicle theft, investigators are assisted in their investigations when they can prove the rightful ownership of a vehicle or its constituent parts. Registered vehicle identification numbers (VINs) do not discourage theft directly (since they are hidden), but they do facilitate building a legal case against a "chop shop" owner and others involved in the network of stolen vehicles. In fact, the federal government requires VINs on various parts of new vehicles. The result is to create a general deterrent to theft, a result that could not be achieved without government regulation. (The self-interested vehicle owner receives little benefit from his own vehicle's VIN.) A similar logic applies to electronic tracking devices such as LoJack®. Ian Ayres and Steven Levitt (1998) demonstrated that LoJack has significant positive externalities in deter-

---

<sup>19</sup> The National Crime Victimization Survey for 2005 found that 40 percent of property crimes and 47 percent of violent crimes were reported to the police.

ring auto theft, because much of the benefit is external, the likely result is that fewer people will voluntarily equip their vehicles with LoJack than is efficient or socially desirable.<sup>20</sup>

Information is needed to prevent as well as solve serious crimes. In the spate of school rampage shootings that culminated in the massacre at Columbine High School near Denver, Colorado, in 1999, one of the commonalities was that perpetrators had shared their plans with classmates and that the classmates had not seen fit to report this information to authorities (Newman, 2004). Although the causes of these distressing events were multiple and diffuse, a targeted prevention strategy would necessarily give high priority to persuading adolescents to pass on such information. Of course, a strong parallel exists here to terrorist conspiracies of all kinds. More mundane is the routine urban problem of dangerous people carrying guns, where the public could alert police, thereby possibly preempting a violent crime. With that consideration, a number of police departments, including New York's, have established programs that offer a generous reward for a tip leading to the arrest of a gun violator, with guarantees that the tipster remains anonymous.

More broadly, it is important for the police to be viewed as serving the interests of the community. Developing a healthy working partnership between police and the community is the essence of the community-policing ideal.<sup>21</sup> One of the best documented examples is Boston's Ten Point Coalition, a group of African-American ministers that began working closely with the police department in the early 1990s to combat youth violence. In one analysis, the coalition's key contribution was to create an "umbrella of legitimacy" for police efforts to prevent and control gang violence, through informal oversight of the police and occasional whistle blowing (Berrien and Winship, 2002). These ministers, then, eased the historically hostile relationship between the police and the inner-city community; they paved the way politically for an effective and sustainable intervention.

## Summary and Advice to City Officials

Crime control deserves priority in urban policymaking. High crime rates are a drag on community development and a great burden on households that cannot afford to relocate. Successful control of theft, vandalism, public disorder (often associated with drug selling), and especially violence sets the stage for increasing property values, investment, job growth, and a higher standard of living. The fact that most large cities are far safer today than they were two decades ago has contributed to the growth and prosperity of those cities. But crime rates can be remarkably volatile—more so than other social indicators—and require continuing attention.

---

<sup>20</sup> It is important to note that self-protection activities can have negative externalities. Particularly problematic is the public's inclination to keep and carry firearms for self-protection purposes. Although the matter is hotly contested, the best evidence suggests that a high density of private gun ownership in a community increases both the homicide rate (Cook and Ludwig, 2006) and the burglary rate (Cook and Ludwig, 2003); the latter is probably due to the fact that firearms are easily fenced loot, so that communities with a high density of gun ownership are relatively lucrative to burglars. For a contrary view, see Philipson and Posner (1996).

<sup>21</sup> For example, Durham, North Carolina, has organized the Community Response to Violent Acts for those crimes likely to engender retaliation. The response consists of a door-to-door canvassing of the neighborhood where the crime occurred and of the victim's residence by the Durham Police Department, partnering agencies and organizations, clergy, and concerned citizens. The canvass is designed primarily to develop investigative leads in the case by asking neighbors to come forward with information that may help investigators solve and prosecute the case.

Recent history teaches us that large fluctuations in crime rates can occur without much change in underlying socioeconomic conditions. Although crime tends to be concentrated in low-resource neighborhoods year in and year out, crime rates are not uniquely determined by the socioeconomic conditions. That is fortunate. If eradicating entrenched problems of race, class, and culture were a precondition to successful crime reduction, then the crime agenda would have to be put on hold for a generation. But that is clearly not the case. Crime is a problem worth the mayor's attention because there is hope of doing something about it.

Many of the policies that influence crime rates in a city, however, are not under the control of city government. The state legislatures write the criminal code and establish sentencing rules for judges. The corrections function operates primarily at a state or federal level. A host of other state and federal policies and programs outside the criminal justice system arguably affect crime rates: those influencing immigration, gun availability, the price of alcohol, mental health treatment, abortion policy, child care, school attendance laws, insurance regulation, and regulation of violent content in the media, to name a few. But the mayor is not without influence.

Central to the mayor's crime program is the police department. One well-documented (but not uncontroversial) lesson from the 1990s crime drop is that police provide an effective deterrent to crime and that additional resources in policing have generally reduced crime compared with what would have happened otherwise. Part of the credit may go to innovations in policing tactics and management, although that is not entirely clear. Along with greater respect for the powers of the police has come a greater demand for evidence on what works in terms of organization and tactics. It is entirely appropriate to hold police chiefs responsible for controlling crime, just as school administrators are now held responsible for improving students' test scores.

The police operate in the context of the communities they serve. A strategic analysis of crime control should consider ways to encourage the public to do their part to restrict criminal opportunities and increase the strength of the criminal justice deterrent. It cannot be irrelevant that there are as many private security guards as sworn officers nationwide, performing somewhat overlapping functions. Businesses and households make myriad decisions that influence their exposure to criminal victimization and (collectively) the profitability of crime. The criminal justice system, of course, has a key role, but it depends to a large extent on the public's voluntary cooperation. Victims and other members of the public are called on to provide costly and largely uncompensated inputs to the public good of safe streets.

In addition, the police need the cooperation of other public agencies, including other city agencies. For example, broken windows policing requires that the police identify criminogenic conditions and then figure out how to ameliorate them. Ironically, the solutions are often not under their purview—for example, solving the “problem” may require closing down a tavern, cleaning up the trash, boarding up abandoned buildings, finding shelter for mentally ill street people, keeping truants in school, and so forth. The relevant agencies do not ordinarily consider crime control to be an important part of their mission.

It is not easy to translate this discussion into a set of concrete recommendations of general applicability. The following list offers a rough cut of seven research-based guidelines:



1. Set a high priority on reducing lethal violence. Even if the violence is concentrated geographically, it has deleterious effects on the life and reputation of the entire city.
2. Hold the police chief accountable for reducing crime, and give her or him the needed resources, possibly including more officers.
3. Make crime control part of the mission for all relevant city agencies, and, to the extent possible, foster good relations with state and federal law enforcement agencies.
4. Pay attention to the problems of eliciting the community's voluntary cooperation and to whether those problems are being exacerbated by police tactics. Develop programs with an eye to reducing the costs and risks to witnesses and victims who cooperate. Experiment with monetary rewards.
5. Seek alliances with community groups that have the trust of low-income and minority neighborhoods.
6. In addition to continuing an institutionalized program of routine "problem solving" within the police department, organize higher level strategic planning exercises in how to address important crime problems, bringing together the relevant private and public parties.
7. Stay humble. Crime rates fluctuate in unpredictable fashion, and crime control is far from an exact science. One long-term goal is to learn more about what works in reducing crime in the city; reaching this goal requires both a capacity to innovate and to evaluate innovations.

## Acknowledgments

The author thanks Erin Hye-Won Kim for her very able research assistance and thanks Brian Forst, David Kennedy, Jens Ludwig, Michael Tonry, Joel Wallman, and Frank Zimring for useful suggestions.

## Author

Philip J. Cook is ITT/Sanford Professor of Public Policy at Duke University and a research associate at the National Bureau of Economic Research.

## References

- Anderson, David A. 1999. "The Aggregate Burden of Crime," *Journal of Law and Economics* 42 (October 2): 611–642.
- Ayres, Ian, and Steven D. Levitt. 1998. "Measuring Positive Externalities from Unobservable Victim Precautions: An Empirical Analysis of Lojack," *Quarterly Journal of Economics* 113 (1): 43–77.
- Bayley, David, and Clifford Shearing. 2001. *The New Structure of Policing: Description, Conceptualization, and Research Agenda*. Washington, DC: National Institute of Justice.
- Bayley, David H. 1994. *Police for the Future*. New York: Oxford University Press.



Becker, Gary S. 1968. "Crime and Punishment: An Economic Approach," *Journal of Political Economy* 76 (2): 169–217.

Berrien, Jenny, and Christopher Winship. 2002. "An Umbrella of Legitimacy: Boston's Police Department—Ten Point Coalition Collaboration." In *Securing Our Children's Future: New Approaches to Juvenile Justice and Youth Violence*, edited by Gary S. Katzmann. Washington, DC: Brookings Institution Press: 200–228.

Blumstein, Alfred. 2000. "Disaggregating the Violence Trends." In *The Crime Drop in America*, edited by Alfred Blumstein and Joel Wallman. New York: Cambridge University Press: 13–44.

Blumstein, Alfred, and Allen J. Beck. 2005. "Reentry as a Transient State Between Liberty and Recommitment." In *Prisoner Reentry and Crime in America*, edited by Jeremy Travis and Christy Visher. New York: Cambridge University Press: 50–79.

Blumstein, Alfred, and Richard Rosenfeld. 2007. "Factors Contributing to U.S. Crime Trends." Prepared for the National Research Council Workshop: Understanding Crime Trends, Washington, DC, April 24–25.

Blumstein, Alfred, and Joel Wallman. 2006. "The Crime Drop and Beyond," *Annual Review of Law and Social Science* 2: 125–146.

\_\_\_\_\_. 2000. *The Crime Drop in America*. New York: Cambridge University Press.

Braga, Anthony A. 2005. "Hot Spots Policing and Crime Prevention: A Systematic Review of Randomized Controlled Trials," *Journal of Experimental Criminology* 1: 317–342.

Braga, Anthony A., and Brenda J. Bond. 2008. "Policing Crime and Disorder Hot Spots: A Randomized Controlled Trial," *Criminology* 46 (3): 701–732.

Bratton, William, and Peter Knobler. 1998. *Turnaround: How America's Top Cop Reversed the Crime Epidemic*. New York: Random House.

Brooks, Leah. 2006. Volunteering To Be Taxed: Business Improvement Districts and the Extra-Governmental Provision of Public Safety. Unpublished working paper. McGill University, Economics Department.

Clarke, Ronald V. 1983. "Situational Crime Prevention: Its Theoretical Basis and Practical Scope." In *Crime and Justice: An Annual Review of Research*, Vol. 4, edited by Michael Tonry and Norval Morris. Chicago: University of Chicago Press: 225–256.

Clotfelter, Charles T. 1993. "The Private Life of Public Economics," *Southern Economic Journal* 59 (4): 579–596.

\_\_\_\_\_. 1977. "Public Services, Private Substitutes, and the Demand for Protection Against Crime," *American Economic Review* (December): 867–877.

Cohen, Jacqueline, and Jens Ludwig. 2003. "Policing Gun Crimes." In *Evaluating Gun Policy*, edited by Jens Ludwig and Philip J. Cook. Washington, DC: Brookings Institution Press: 217–239.

Cohen, Mark A. 2005. *The Costs of Crime and Justice*. New York: Routledge.

- Cohen, Mark A., Roland T. Rust, Sara Steen, and Simon T. Tidd. 2004. "Willingness-to-Pay For Crime Control Programs," *Criminology* 42 (1): 89–109.
- Cook, Philip J. 1986. "The Relationship Between Victim Resistance and Injury in Noncommercial Robbery," *Journal of Legal Studies* 15 (1): 405–416.
- \_\_\_\_\_. 1980. "Reducing Injury and Death Rates in Robbery," *Policy Analysis* (Winter): 21–45.
- Cook, Philip J., and John H. Laub. 2002. "After the Epidemic: Recent Trends in Youth Violence in the United States." In *Crime and Justice: A Review of Research*, edited by Michael Tonry. Chicago: University of Chicago Press: 117–153.
- Cook, Philip J., and Jens Ludwig. 2006. "The Social Costs of Gun Ownership," *Journal of Public Economics* 90 (1–2): 379–391.
- \_\_\_\_\_. 2003. "The Effects of Gun Prevalence on Burglary: Deterrence vs. Inducement." In *Evaluating Gun Policy*, edited by Jens Ludwig and Philip J. Cook. Washington, DC: Brookings Institution Press: 74–118.
- \_\_\_\_\_. 2000. *Gun Violence: The Real Costs*. New York: Oxford University Press.
- Cook, Philip J., Jens Ludwig, Sudhir A. Venkatesh, and Anthony A. Braga. 2007. "Underground Gun Markets," *The Economic Journal* 117 (524): 588–618.
- Cullen, Julie Berry, and Steven D. Levitt. 1999. "Crime, Urban Flight and the Consequences for Cities," *Review of Economics and Statistics* 81 (2): 159–169.
- Cunningham, William C., John J. Strauchs, and Clifford W. Van Meter. 1990. *Private Security Trends 1970 to 2000: The Hallcrest Report II*. Boston: Butterworth-Heinemann.
- Donohue, John J., and Jens Ludwig. 2007. "More COPS," *Policy Brief #158*. The Brookings Institution.
- Donohue, John J., and Peter Siegelman. 1998. "Allocating Resources Among Prisons and Social Programs in the Battle Against Crime," *Journal of Legal Studies* 27: 1–43.
- Eck, John, and Edward Maguire. 2000. "Have Changes in Policing Reduced Violent Crime?" In *The Crime Drop in America*, edited by Alfred Blumstein and Joel Wallman. New York: Cambridge University Press: 207–265.
- Ehrlich, Isaac. 1974. "Participation in Illegitimate Activities: An Economic Analysis." In *Essays in the Economics of Crime and Punishment*, edited by Gary S. Becker and William M. Landes. New York: National Bureau of Economic Research: 68–134.
- Evans, William N., and Emily Owens. 2005. Flypaper COPS. Working Paper. University of Maryland, Department of Economics.
- Forst, Brian. 1999. "Policing with Legitimacy, Efficiency, and Equity." In *The Privatization of Policing: Two Views*, edited by Brian Forst and Peter Manning. Washington, DC: Georgetown University Press: 1–48.
- Freeman, Scott, Jeffrey Grogger, and Jon Sonstelie. 1996. "The Spatial Concentration of Crime," *Journal of Urban Economics* 40 (September): 216–231.

Glaeser, Edward L., and Bruce Sacerdote. 1999. "Why Is There More Crime in Cities?" *The Journal of Political Economy* 107 (6): 225–258.

Glaeser, Edward L., Bruce Sacerdote, and Jose A. Scheinkman. 1996. "Crime and Social Interactions," *Quarterly Journal of Economics* 111 (2): 507–548.

Harcourt, Bernard E., and Jens Ludwig. 2006. "Broken Windows: New Evidence from New York City and a Five-City Social Experiment," *University of Chicago Law Review* 73: 278–287.

Hemenway, David. 2004. *Private Guns, Public Health*. Ann Arbor, MI: University of Michigan Press.

Joyce, Theodore. 2004. "Did Legalized Abortion Lower Crime?" *Journal of Human Resources* 39 (1): 1–28.

Katz, Lawrence F., Jeffrey R. Kling, and Jeffrey B. Liebman. 2003. "The Early Impacts of Moving to Opportunity in Boston." In *Choosing a Better Life: Evaluating the Moving to Opportunity Social Experiment*, edited by John Goering and Judith Feins. Washington, DC: The Urban Institute Press: 177–211.

Kelling, George, and William H. Sousa, Jr. 2001 (December). *Do Police Matter? An Analysis of the Impact of New York City's Policy Reforms*. Manhattan Institute Civic Report.

Kelly, Morgan. 2000. "Inequality and Crime," *Review of Economics and Statistics* 82 (4): 530–539.

Kennedy, David M. 2007. "Making Communities Safer: Youth Violence and Gang Interventions That Work." Testimony before the House Judiciary Subcommittee on Crime, Terrorism, and Homeland Security, February 15.

Kennedy, David M., Anne M. Piehl, and Anthony A. Braga. 1996. "Youth Violence in Boston: Gun Markets, Serious Youth Offenders, and a Use-Reduction Strategy," *Law and Contemporary Problems* 59 (1): 147–198.

Kleiman, Mark A.R. Forthcoming. *When Brute Force Fails: Strategy for Crime Control*. Princeton, NJ: Princeton University Press.

Kleiman, Mark A.R. 1997. "Coerced Abstinence: A Neopaternalist Drug Policy Initiative." In *The New Paternalism*, edited by Lawrence M. Mead. Washington, DC: Brookings Institution: 182–219.

Klick, Jonathan, and Alexander Tabarrok. 2005. "Using Terror Alert Levels to Estimate the Effect of Policy on Crime," *The Journal of Law and Economics* 48: 267–279.

Kocieniewski, David. 2007. "Few Choices in Shielding of Witnesses," *New York Times*, October 28.

Land, Kenneth C., Patricia L. McCall, and Lawrence E. Cohen. 1990. "Structural Covariates of Homicide Rates: Are There Any Invariances across Time and Social Space?" *American Journal of Sociology* 95 (4): 922–963.

Levitt, Steven. 2002. "Using Electoral Cycles in Police Hiring to Estimate the Effects of Police on Crime: A Reply," *American Economic Review* 92 (4): 1244–1250.

- Levitt, Steven D. 2004. "Understanding Why Crime Fell in the 1990s: Four Factors That Explain the Decline and Six That Do Not," *Journal of Economic Perspectives* 18 (1): 163–190.
- Levitt, Steven D., and Thomas J. Miles. 2007. "The Empirical Study of Criminal Punishment." In *The Handbook of Law and Economics*, edited by A. Mitchell Polinsky and Steven Shavell: 453–495.
- Lochner, Lance, and Enrico Moretti. 2004. "The Effect of Education on Crime: Evidence From Prisoner Inmates, Arrests, and Self-Report," *American Economic Review* 94 (1): 155–189.
- Ludwig, Jens. 2006. "The Costs of Crime." Testimony before the United States Committee on the Judiciary, September 19.
- MacDonald, John, and Robert J. Stokes. 2006. "Cities Should Enlist Business in Their Battle Against Crime." RAND Commentary. <http://www.rand.org/commentary/2006/07/03/LABJ.html> (accessed December 10, 2008).
- Machin, Stephen J., and Oliver Marie. 2005. "Crime and Police Resources: The Street Crime Initiative," *IZA Discussion Paper No. 1853* (November).
- McCrary, Justin. 2002. "Using Electoral Cycles in Police Hiring To Estimate the Effect of Police on Crime: Comment," *American Economic Review* 92 (4): 1236–1243.
- Moore, Mark H. 2002. *Recognizing Value in Policing: The Challenge of Measuring Police Performance*. Police Executive Research Forum.
- Morris, Norval, and Michael Tonry. 1990. *Between Prison and Probation: Intermediate Punishments in a Rational Sentencing System*. New York: Oxford University Press.
- National Research Council. 2008. *Parole, Desistance from Crime, and Community Integration*. Committee on Community Supervision and Desistance from Crime. Washington, DC: The National Academies Press.
- Newman, Katherine S. 2004. *Rampage: The Social Roots of School Shootings*. New York: Basic Books.
- Philipson, Tomas J., and Richard A. Posner. 1996. "The Economic Epidemiology of Crime," *Journal of Law and Economics* 39 (October): 405–433.
- President's Commission on Law Enforcement and Administration of Justice. 1967. *The Challenge of Crime in a Free Society*. Washington, DC: U.S. Government Printing Office.
- Raphael, Steven, and Melissa Sills. 2006. "Urban Crime, Race, and the Criminal Justice System in the United States." In *Companion to Urban Economics*, edited by Daniel P. McMillen and Richard Arnott. New York: Blackwell Publishing: 515–535.
- Rosenfeld, Richard, Robert Fornango, and Eric Baumer. 2005. "Did Ceasefire, Compstat, and Exile Reduce Homicide?" *Criminology and Public Policy* 4: 419–450.
- Rosenfeld, Richard, Robert Fornango, and Andres Rengifo. 2007. "The Impact of Order-Maintenance Policing on New York City Robbery and Homicide Rates: 1988–2001," *Criminology* 45 (2): 355–384.

- Sampson, Robert J., Stephen Raudenbush, and Felton Earls. 1997. "Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy," *Science* 277: 918–924.
- Schwartz, Amy Ellen, Scott Susin, and Ioan Voicu. 2003. "Has Falling Crime Driven New York City's Real Estate Boom?" *Journal of Housing Research* 14 (1): 101–135.
- Sherman, Lawrence W. 2002. "Fair and Effective Policing." In *Crime: Public Policies for Crime Control*, edited by James Q. Wilson and Joan Petersilia. Oakland, CA: Institute for Contemporary Studies: 383–412.
- Skogan, Wesley, and Kathleen Frydl. 2004. *Fairness and Effectiveness in Policing: The Evidence*. Washington, DC: The National Academy Press.
- Skogan, Wesley G. 2006. *Police and Community in Chicago*. New York: Oxford University Press.
- Travis, Jeremy. 2005. *But They All Come Back: Facing the Challenges of Prisoner Reentry*. Washington, DC: Urban Institute Press.
- U.S. Bureau of the Census. 2004. *Investigation and Security Services: 2002*. 2002 Economic Census: Administrative and Support and Waste Management and Remediation Services Industry Series. Washington, DC: U.S. Bureau of the Census. <http://www.census.gov/prod/ec02/ec0256i06.pdf> (accessed February 15, 2007).
- U.S. National Commission on the Causes and Prevention of Violence. 1969. *To Establish Justice, to Insure Domestic Tranquility: Final Report*. Washington, DC: U.S. Government Printing Office.
- United States Kerner Commission. 1968. *Report of the National Advisory Commission on Civil Disorders*. Washington, DC: U.S. Government Printing Office.
- Western, Bruce. 2006. *Punishment and Inequality in America*. New York: Russell Sage Foundation.
- Wiersema, Brian, Colin Loftin, and David McDowall. 2000. "A Comparison of Supplementary Homicide Reports and National Vital Statistics System Homicide Estimates for U.S. Counties," *Homicide Studies* 4: 317–340.
- Wilson, James Q. 1974. "Crime and the Criminologists," *Commentary* 58 (1): 47–53.
- Wilson, James Q., and George L. Kelling. 1982. "Broken Windows: The Police and Neighborhood Safety," *The Atlantic Monthly* (March): 29–38.
- Wintemute, Garen. 2000. "Guns and Gun Violence." In *The Crime Drop in America*, edited by Alfred Blumstein and Joel Wallman. New York: Cambridge University Press: 45–96.
- Zimring, Franklin E. 2007. *The Great American Crime Decline*. New York: Oxford University Press.
- Zimring, Franklin E., and Gordon Hawkins. 1997. *Crime is Not the Problem: Lethal Violence in America*. New York: Oxford University Press.

---

# Applying Lean Production in Factory Homebuilding

**Jordan Dentz**

Manufactured Housing Research Alliance

**Isabelina Nahmens**

Louisiana State University

**Michael Mullens**

Housing Constructability Lab

---

## Abstract

*This article serves as a resource to factory home builders seeking to use lean thinking to slash waste from their production operations. Lean refers both to a general way of thinking and to specific practices that emphasize using less of everything (time, money, materials, and so forth) to satisfy the customer by delivering the highest quality product at the lowest cost in the shortest time. While providing an overview of lean production, this article focuses on two fundamental lean tools: Value Stream Mapping (VSM) and Rapid Process Improvement (RPI) events. This research follows a case study approach to document the application and benefits of lean production in the factory homebuilding industry. The target population for these case studies was a group of nine manufactured and modular homebuilding plants that initiated lean production efforts in 2006. VSM was used to identify waste and to target specific portions of the production process for improvement. RPI events were then conducted in targeted areas. The results were dramatic. Labor efficiencies were increased by 10 percent to more than 100 percent. Defects in finished drywall were reduced by 85 percent. Taken as a whole, lean production activities were shown to increase the efficiency and quality of building operations, boost worker morale, and improve communication between management and workers.*

## Introduction

In 2007, approximately 11 percent of all newly built single-family homes in the United States were factory built (U.S. Census Bureau, 2007). Although factory-based home construction approaches relocate many of the field operations to a more controlled factory environment, the construction techniques share many similarities with those employed in traditional site building. Although automotive, electronics, and many other manufacturing industries have reported dramatic improvements in production efficiency with the introduction of lean techniques, examples of such improvements in factory homebuilding are only beginning to emerge. One of the first of these lean efforts in factory homebuilding was conducted by the Manufactured Housing Research Alliance (MHRA) with sponsorship from the U.S. Department of Housing and Urban Development's (HUD's) Partnership for Advancing Technology in Housing program, the New York State Energy Research and Development Authority, and the factory-built housing industry. The goal of this effort was to transform the way homes are manufactured, thus reducing housing cost and improving quality, safety, productivity, and design flexibility. The strategy was to reduce waste through the implementation of lean production tools and techniques. This article showcases the use of these techniques in three of the nine plants studied and demonstrates their value to the factory-built housing industry.

## Lean Production Overview

Koskela (1993) first applied lean production principles to construction, emphasizing production process flow and the conversion of inputs into finished products. Picchi and Granja (2004) presented five lean principles used in the construction industry: value, value stream, flow, pull, and perfection. Value is value as perceived by the homebuyer; value stream refers to mapping of materials and information; flow refers to creating continuous flow; pull refers to pulling services, components, and materials only when necessary; and perfection refers to high-quality systems designed for immediate detection of problems. Salem and Zimmer (2005) identified five major lean principles applicable in the housing industry: customer focus, culture/people, workplace standardization, waste elimination, and continuous improvement/built-in quality. Waste is any activity that consumes resources but creates no value for the customer.

Lean production, which began with the Toyota Production System (Ohno, 1988), was the result of decades of development by automobile manufacturers, who reduced average labor hours per vehicle by more than one-half with one-third the defects (Caldeira, 1999). Other industries followed the automobile industry's lead, achieving similar results (Womack and Jones, 1996). Lean production is based on five fundamental principles: (1) identify what the customer values; (2) identify the value stream and challenge all wasted steps; (3) produce the product when the customer wants it and, once started, keep the product flowing continuously through the value stream; (4) introduce pull between all steps where continuous flow is impossible; and (5) manage toward perfection (Womack and Jones, 1996).

The goal of lean production is to satisfy the customer by delivering the highest quality at the lowest cost in the shortest time. This goal is accomplished by continuously eliminating *muda*, or waste.



Ohno (1988) coined the *seven wastes* targeted by lean production initiatives: (1) defects (activities involving repair or rework), (2) overproduction (activities that produce too much at a particular point in time), (3) transportation (activities involving unnecessary movement of materials), (4) waiting (lack of activity that occurs when an operator is ready for the next operation but must remain idle until someone else takes a previous step), (5) inventory (inventory that is not directly required to fulfill current customer orders), (6) motion (unnecessary steps taken by employees and equipment), and (7) processing (extra operation or activity in the manufacturing process).

Factory homebuilding is an industrialized approach to homebuilding, which relocates many field operations to a more controlled factory environment. Factory homebuilding includes manufactured and modular homes. Manufactured homes are built to the federal Manufactured Home Construction and Safety Standards promulgated by HUD (HUD, 2006), whereas modular homes are built to local building codes similar to site-built homes. Both types of homes are composed of three-dimensional sections that are typically 95-percent finished when they leave the factory (Carlson, 1991). A typical production line is set up either in a side-saddle configuration (width-wise section movement) or in a linear configuration (length-wise section movement) with floors, ceilings, walls, and other components being fed to the main line from offline, subassembly stations. Upon completion in the factory, these sections are transported to the construction site, then lifted by crane or rolled onto a foundation. While the house is being built at the plant, workers do the needed site work and prepare a foundation, if required. The resulting home is often indistinguishable from nearby conventional site-built housing (Mullens, 2004).

Mullens (2004), who studied production process flow in factory homebuilding, found that the ease of process flow is largely defined by the homebuilding factory configuration, particularly when considerable product variation exists. Mullens (2006) identified some unique characteristics of the homebuilding factory that affect process flow: (1) complex product has large components; (2) few small and fixed workstations are located alongside the main production line (that is, plumbing); (3) few large and fixed workstations are located alongside the main production line (that is, wall build); (4) labor and material flow to the product while the product flows continuously on the main production line; (5) some activities can stop product movement on the main production line because they need to happen at certain locations (that is, large components need a crane); (6) multioperator teams perform specialty work (that is, trades), making it difficult to measure work content and cycle time for each unit; and (7) little queuing occurs due to lack of space. He found that queuing availability and the flexibility for work to migrate upstream/downstream can mitigate some of the inefficiencies resulting from high product variation. Information technology can enable better planning and management under conditions of high product variation. Early studies have also suggested that lean improvements can slash the time required to set and finish modular housing on the construction site (Mullens and Kelly, 2004).

## **Lean Tools: Value Stream Mapping and Rapid Process Improvement Events**

Lean thinking uses tools, techniques, and practices and combines them as a set into a system to eliminate waste. This article focuses on two fundamental lean tools: Value Stream Mapping (VSM)

and Rapid Process Improvement (RPI) events. Typically, in a lean implementation, a high-level VSM (for example, door-to-door plant level) is used to document the current situation and to identify wasted activities so they can be challenged and eliminated through RPI events. During the RPI event, a detailed VSM (for example, of a specific production process such as the wall build area) can be developed for a better understanding of the process. The main goal of VSM (both high level and detailed) is to identify waste, whereas the RPI events improve the process through waste elimination.

Lean production methods focus on the value stream, the set of activities used to create a product or service from raw material until it reaches the customer (Womack and Jones, 1996). VSM documents all activities in the current production process, as well as the associated material and information flows. VSM allows the user to easily visualize the current process, recognize sources of waste, and eliminate nonvalue-added activities. Because lean thinking focuses on value as defined by the end customer, VSM should question any activities that do not add value to the customer. Pyzdek (2003) highlighted the role of VSM in the overall context of lean philosophy as (1) defining value from the customer's view, (2) mapping the current state of the value stream, (3) applying the lean tools to identify waste in the current value stream, (4) mapping the future-state process, (5) developing a transition plan, (6) implementing the plan, and (7) validating the new process. The key outcome of VSM is the identification of opportunities for improvement and activities that consume resources without adding value. VSM can be performed at different levels of the organization—specific production process, door-to-door plant level, enterprise level—and across organizations to suppliers and customers.

The implementation of lean production principles often takes the form of a *kaizen*, “the planned, organized and systematic process of on-going, incremental and company-wide change of existing practices aimed at improving company performance” (Boer et al., 2000). In contrast to traditional management approaches that split employees into “thinkers” and “doers,” *kaizen* assumes that all employees can make a contribution to problemsolving and innovation (Bessant, Caffyn, and Gallagher, 2001). The *kaizen blitz* (also referred to herein as an RPI event) takes the same improvement philosophy and applies it in a brief, but intense, attack on production waste and inefficiency (Laraia, Moody, and Hall, 1999). Both *kaizen* methods (*kaizen* and *kaizen blitz*) follow a structured approach that includes the following steps: (1) document the current process, (2) identify all forms of waste, (3) develop lean options to reduce waste, (4) pilot test the options, and (5) institutionalize the changes and continue to improve. RPI events eliminate waste by empowering employees with the responsibility, time, tools, and methodologies to uncover areas for improvement and to plan and implement change. This type of activity is team based and should involve employees from different levels of the organization. The first step in an RPI event involves the development of two types of process documentation: baseline performance metrics (for example, quality, cycle time, productivity) and a detailed VSM indicating value-added and nonvalue-added activities. Waste is exposed as the current process is observed, documented, and analyzed (for example, nonvalue-added activities are discovered). When waste is identified, potential process improvements are developed using lean principles. Selected lean improvements are pilot tested in the process and fine tuned to optimize impact. As the successful changes are institutionalized, the continuous improvement process is repeated in a never-ending cycle.

## Methodology

Responding to critical homebuilding challenges in the early 21st century, the industrialized housing industry launched a multiyear, industrywide effort to boost production performance. Led by the MHRA, the effort consisted of several phases. The first phase documented the industry's current production performance. In 2005, a comprehensive survey was distributed to 275 U.S. and Canadian housing factories. The survey included questions concerning product offerings, production levels, productivity, worker satisfaction, and customer satisfaction. More than 50 percent of the factories responded. Results were published (MHRA, 2005) and disseminated to provide an industry baseline, allowing the industry to track improvements industrywide and encouraging each factory to benchmark itself against competitors. The second phase of this effort, called the lean initiative, began in March 2006 and was conducted over an approximately 12-month period. The project plan included five major tasks, which are described in the following paragraphs.

### Task 1. Select Plants

Drawing from results of the phase one benchmarking study, researchers selected plants with a mix of characteristics that could affect production efficiency and yield a variety of lean approaches. The characteristics included the following (MHRA, 2007):

- Current performance (efficient and inefficient operations).
- Home price point (low-, medium-, and high-priced homes).
- Product mix (for example, single-section and multisection, HUD-code and modular).
- Geographic location to capture market and design variations.
- Company size (based on total production capacity).

Nine plants were selected on a competitive basis. Each plant was required to cover part of the costs of the research and make a significant in-kind contribution, which included the following investments: (1) upper management commitment to lean production methods, (2) a lean advocate to help carry out project tasks, and (3) resources (people, time, materials, and so forth) to carry out tasks. The plants that were selected for participation in the lean initiative are shown in exhibit 1. All produced single-family, detached, residential, wood-frame buildings.

### Task 2. Select and Train Lean Advocates

Each plant selected one or more key staff members as their lean advocate(s). Because the nine plants were new to lean production, the advocates participated in a 1-week lean training session in April 2006. The training covered basic lean concepts and techniques, including VSM and RPI. The material in this training was tailored to the factory-built housing industry and addressed the challenges of implementing lean in the industry. The training equipped advocates with the knowledge to identify waste, develop new lean approaches, and implement and sustain change.

**Exhibit 1**

**Case Study Plants With Selection Characteristics**

Plant and Location	Building Type	Home Type(s)	Average Sales per Floor		Plant Size	Homes Highly Customized (%)	Company Size (Number of plants)
			Low (< \$20,000)	High (\$20,000-\$25,000+)			
1. Cavalier Homes Addison, AL	HUD-code	Multisection, one-story	Low	Medium	Medium	< 1	6
2. Chelsea Modular Homes, Inc. Marlboro, NY	Modular	Multisection, 50% multistory	High	Small	Small	100	1
3. Clayton Homes, Inc. Andersonville, TN	HUD-code	Single-section and multisection, one-story	Low	Large	Large	0	36
4. Four Seasons Housing, Inc. Middlebury, IN	Mostly HUD-code	Multisection, one-story	Low	Large	Large	15	1
5. Hi-Tech Housing, Inc. Bristol, IN	HUD-code and modular	Multisection, one- and two-story	High	Medium	Medium	30	1
6. Palm Harbor Homes Albemarle, NC	Modular and HUD-code	Single-section and multisection, mostly one-story	High	Medium	Medium	15	16
7. Palm Harbor Homes Plant City, FL	Modular and HUD-code	Multisection, one-story	High	Medium	Medium	65	16
8. R-Anell Housing Group, LLC Denver, NC	Modular	Multisection, mostly two-story	High	Medium	Medium	50	2
9. Southern Energy Homes, Inc. Addison, AL	HUD-code	Single-section and multisection, one-story	Medium	Small	Small	0	6

Source: MHRA (2007)

### **Task 3. Conduct Value Stream Mapping and Data Collection**

After the lean training session, the plants initiated efforts to apply the lean concepts and tools learned.

#### **Task 3.1. Collect Plant-Level Data**

Each plant collected information describing current plant performance, including production levels, labor productivity, cycle and lead times, inventory levels, and quality levels.

#### **Task 3.2. Develop a High-Level Value Stream Map**

Each plant developed a high-level value stream map of plant operations (for example, door-to-door plant level).

#### **Task 3.3. Identify Areas of High Opportunity**

Each plant identified areas with high opportunity for improvement from the high-level value stream map (for example, bottleneck areas).

#### **Task 3.4. Select an Area for Lean Improvement**

Each plant selected a specific area or operation for lean implementation.

#### **Task 3.5. Develop a Future-State Value Stream Map**

Each plant developed an initial future-state value stream map focusing on lean improvements. Potential improvements included workplace organization and standardization (5Ss—sort, set in order, shine, standardize, and sustain—a workplace organization methodology in which emphasis is placed on maximizing space and minimizing movement/travel); labor optimization (line balancing and production leveling); better tools and equipment (including devices to minimize lifting and carrying of large/heavy materials); procedures (*kanban* replenishment, a stocking technique using containers, cards, and electronic signals to make production systems respond to real needs and not predictions and forecasts); and information systems (use of bar code/RFID [radio frequency identification]).

### **Task 4. Conduct Rapid Process Improvement Events**

RPI events were planned to move the production process closer to the future-state VSM (Task 3.5). Each plant conducted at least three major RPI events over the course of 8 months. Selected RPI events are described in the case study results later in this article.

#### **Task 4.1. Develop RPI Implementation Strategy**

The plant performed extensive observations and initial data collection on the selected area by creating detailed process flow maps, developing detailed current-state value stream maps of the area, and collecting quantitative data to support their analysis and document waste. They then developed an implementation plan, structured as an RPI event. Both floor supervisors and operators developed the plan for the lean implementation (for example, RPI event), which included a description of what was to be accomplished, how the event was to be conducted, what resources and materials were to be required, what plant personnel were to be involved, and how the outcome was going to be measured (typically, by comparing relevant before-and-after metrics).

#### **Task 4.2. Conduct the RPI Event**

Each plant implemented its RPI plan and resulting lean improvements.

#### **Task 4.3. Document Results of the RPI Event**

RPI leaders documented and evaluated the RPI results, including RPI accomplishments, factors that limited RPI success, barriers that inhibited the development of a lean culture, and further opportunities for improving production.

#### **Task 5. Disseminate Results and Lessons Learned**

At the conclusion of the study, representatives from the nine plants reconvened to share experiences in an open, industrywide symposium.

### **Case Study Results**

MHRA researchers were involved in three RPI events at each of the nine plants—a total of 27 RPI events. This article describes lean efforts and results in three of the nine plants, focusing on one of the more successful RPI events at each plant. These plants and RPI events were selected for inclusion here because they demonstrate a variety of successful approaches, illustrate good examples of fundamental lean principles, yielded measurable results, and were well documented. Some less successful efforts are discussed in context with the first case study.

#### **Plant 1. Chelsea Modular Homes**

At the time of this study, Chelsea Modular Homes operated an 118,000-square-foot production facility configured as a central progressive assembly line (side-saddle type) fed by adjacent sub-assembly workstations that build floors, walls, and roofs. Chelsea's approach to the lean initiative was to appoint an individual to have the dual responsibility of lean advocate and safety manager and to conduct a series of lean workshops with production workers, supervisors, and office employees. Eight employees participated in the first lean workshop: the lean advocate, a production foreman, the receiving supervisor, the quality control manager, a representative from engineering, and three production workers from various departments. Throughout their lean efforts, Chelsea's lean advocate enjoyed strong support from plant and corporate management.

The following section discusses how the Chelsea plant conducted tasks 3 and 4.

#### **Task 3. Conduct Value Stream Mapping and Data Collection**

**Task 3.1. Collect Plant-Level Data.** The Chelsea lean team gathered plant-level data such as the company's production rate (three to four modules per day), level of customization (80 percent of homes produced were highly customized and 20 percent of homes produced were totally custom), employee turnover (10 percent average per year), and absenteeism rate (3 percent average per year). In addition, the team gathered data on the production process, including material shortage frequency, time spent on rework due to change orders, time spent on rework due to errors, time spent idle waiting for line moves, number of times forced to work out of assigned line station, and

average and maximum time spent on a module. The team collected these data at the component level (for example, rough plumbing, wall build, and so forth), as opposed to the workstation level, by interviewing the process lead operators and focusing on production experience over the most recent 2-week period. These data were then verified by collecting data on modules completed during a 1-month period. In addition, the team collected 3 weeks of data on line pulls (when all modules are simultaneously pulled down the line from their current workstation to the next workstation). Combined, these data helped the team to visualize the production process and identify opportunities for improvement.

**Task 3.2. Develop a High-Level Value Stream Map.** The team worked for 3 days to develop a current-state value stream map for the entire plant. First, the team walked the floor and observed production activities. Next, the team constructed a rough outline of the value stream map, including material and information flows and major inventory locations. The team then collected performance data to quantify production performance and waste (for example, average and maximum process time per module, material shortages, rework due to change orders and errors, idle time waiting for bottlenecks, and number of times forced to work out of assigned workstation).

**Task 3.3. Identify Areas of High Opportunity.** The team used the current-state value stream map (exhibit 2) and performance data gathered in Task 3.2 to identify problem areas and opportunities for improving operations. They identified several RPI opportunities: (1) spread out finish activities clustered at the end of the production line to fill in empty slots earlier on the production line; (2) create a scheduling review meeting and have engineering and production jointly review house plans 2 weeks rather than 2 days before production; and (3) improve efficiency, flexibility, and flow in the floor, wall, roof, and ceiling framing areas.

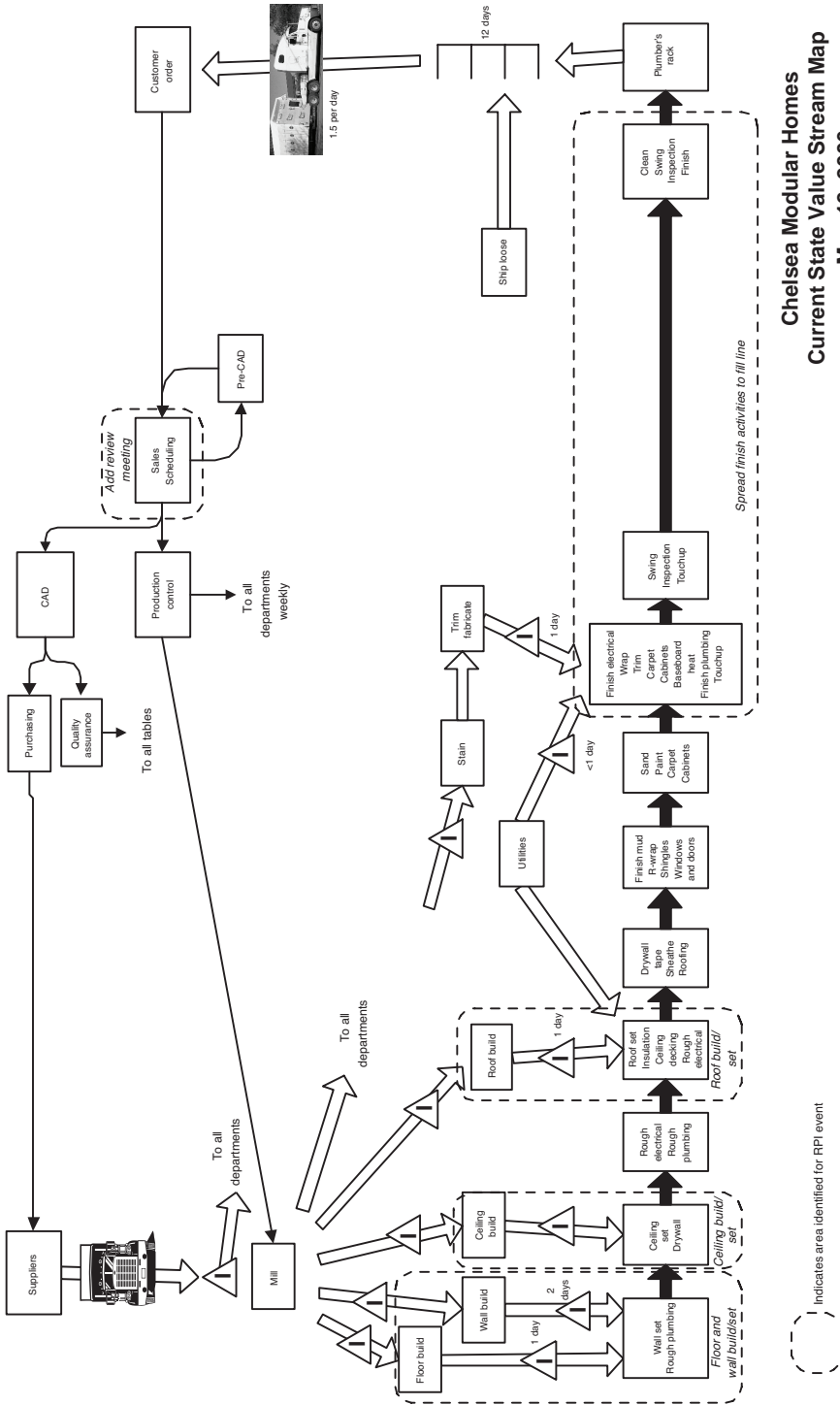
In addition to experiencing the tangible results of the VSM exercise, participants reported that they began to think of the production line as a system rather than as a series of individual operations and the vital importance of *takt* time as the heartbeat of the line. (*Takt* is the German word for pace. *Takt* time equals available worktime per day divided by the daily required demand in parts per day.)

**Task 3.4. Select an Area for Lean Improvement.** The team determined that spreading out finish activities to fill empty slots on the line was the most critical opportunity for improvement. Spreading out finish activities to their appropriate stations was critical to stabilizing the line flow and a necessary precursor to addressing the individual workstation issues. Stability of production is essential to an efficient process flow and a prerequisite for implementing more advanced lean techniques. This first RPI was conducted in May 2006 and was followed by a second RPI in the wall department in July 2006.

These early RPIs met with limited success. Although they produced positive results immediately after implementation, the gains subsided because of the lack of a strong sustainability plan and unclear assignments of responsibility for institutionalizing the changes, and because the lean initiative's resources were sapped due to other priorities. After employees witnessed the backsliding following the initial RPIs, the lean initiative was in danger of losing the broad-based employee support it had enjoyed and needed a high-visibility success to motivate the lean team and engage all employees in the lean initiative.

**Exhibit 2**

**Current-State Value Stream Map**



**Chelsea Modular Homes  
Current State Value Stream Map  
May 12, 2006**

CAD = computer-aided design. RPI = Rapid Process Improvement.



In a change of focus, management selected the spackling department for the next RPI. Spackling is the finishing of joints, cracks, and fastener penetrations in drywall with spackle (drywall paste). Spackling was not identified in the initial plant VSM exercise; however, management noted that numerous, small cross-departmental issues contributed to major quality problems in this department, resulting in poor quality at inspection, requiring expensive rework, and bottlenecking the rework area. The remainder of this case study focuses on the spackling RPI conducted in September 2006.

#### **Task 4. Conduct Rapid Process Improvement Events**

The spackling RPI was conducted during a 4-day period in September 2006. The drywall finishing operations employed a crew of four tapers, two sanders, and two painters distributed among five line stations. The RPI also encompassed three touchup workers, working farther down the line, who reported to a different group leader.

**Task 4.1. Develop RPI Implementation Strategy.** The objective of this RPI was to increase the quality of work delivered at inspection and reduce delays caused by rework. Chelsea managers were aware that spackling had numerous problems that contributed to poor productivity and low initial quality, such as the following:

- Poor communication across departments and a lack of cross-departmental coordination and cooperation. Issues discovered downstream were not communicated to upstream departments that contributed to them.
- Lack of accountability. Even when issues were communicated, teams did not take responsibility for the quality of their work. Rigid mindsets regarding responsibilities led to a “not my job” attitude.
- Numerous seemingly minor process and product issues that contributed to major problems at the end of the line.
- No systematic process to address and solve these issues.

The lean team developed a plan that included the following elements: a presentation to the team in which the plant manager reviewed the goals and expectations for the RPI; a brief training on basic lean tools; a process walkthrough; identification of issues and root causes; development of recommendations for improvement; and implementation of improvement recommendations and assessment of results. Six employees participated on the RPI team: the lean advocate, the spackling team leader, the foreman over the spackling area, a production worker from the sidewall department, a member of the touchup crew, and the yard supervisor, who was also responsible for final quality checks.

The success of this RPI was to be measured by the effect on wall finish quality as reported by quality inspectors at the inspection station and in the storage yard. The primary data would be in the form of the number of hours spent on rework (to repair walls and ceilings) before and after the implementations of the improvement recommendations.

**Task 4.2. Conduct the RPI Event.** The first day of the RPI, managers presented the RPI goals and expectations, and briefly trained the RPI team on basic lean tools (for example, the 5Ss, the

seven wastes, and VSM). On the second and third days, the RPI team conducted a walkthrough of the drywall finishing operations, identified and researched problems identified on the floor, and discussed preliminary solutions. Problems identified included the following:

- Drywall installation in the module not completed on time.
- Poor quality of drywall coming into the spackling department (missing or damaged wallboard, large crude punch-outs for ceiling penetrations, screws not fully set, screws not hitting studs, glue seeping through seams in ceiling).
- Tapers using a hammer rather than a screwdriver to recess raised screw heads, causing damage to the wall.
- Insufficient drying time (the department was designed to have five dedicated workstations for drywall finish/sand/paint, but the number had been reduced due to early shipping commitments).
- Lumps of mud in bottom of corners caused by wiping spackling compound (mud) “up to down.”
- Inconsistent mud mix.
- Line workstation assignments not being adhered to.
- Attitude issues (not my job).
- Lack of unity and team spirit in the department.
- Lack of communication between workers and supervisors.
- Congestion in modules where sanding and painting were done (often simultaneously).
- Inadequate and uneven sanding in corners.
- Untrained and unmotivated workers.

On the fourth day, the RPI team presented recommendations to the plant manager and company president. The spackling RPI team made 22 specific recommendations for changes, including product changes, such as using wider tape to prevent glue seepage through drywall joints; maintaining a supply of 1/4-inch drywall; and, where not already in use, switching to electrical boxes suitable for installation in walls already drywalled. They also suggested process changes, including routing wall tops to ensure a flush surface for the ceiling to be set on and using a hole-saw rather than a hammer to make holes for plumbing vents. Equipment improvements suggested by the team were minor, but important; padding on racks and carts to reduce damage were the most important. Some of the most significant changes were in work rules: making departments responsible for quality and correcting mud defects before painting. The team recommended standardizing the mud mix procedure by marking water levels on the mud mix barrels and making organizational changes to better align responsibility with accountability and permit the area team leader to come down off his stilts so he could more easily move about the production floor to supervise his team. The RPI team implemented the recommended changes over the course of the next few weeks.

Chelsea Modular Homes did not use a detailed value stream map for this RPI. Instead, while collecting data on the production process at the plant level, the RPI team discovered that most of the rework time was being spent on fixing damaged drywall on walls and ceilings. The team used root cause analysis to uncover causes of the damage. Root cause analysis is a problemsolving approach that entails investigating and drilling down to the fundamental underlying causes of a problem. In this case, a host of small but significant problems with finishing operations were found to be the usual root cause of drywall rework. Likewise, the RPI team did not develop a future-state value stream map during this RPI.

**Task 4.3. Document Results of the RPI Event.** Results from the spackling RPI were dramatic. Defects and rework at the inspection station were reduced by 85 percent (based on time required to repair walls and ceilings at the inspection station and in the storage yard). Often, only one of the three touchup workers was required, freeing the other two workers to perform other tasks. The quality inspector was able to focus on other quality issues that had previously been ignored. In addition to the gains in product quality, mindsets were positively affected. Workers gained an understanding of production as a system and more fully realized how cutting corners in one area can adversely affect another area (for example, not fully setting screws or punching oversized vent holes with a hammer made the mudder's job difficult). Better communication and active involvement by employees in problemsolving resulted in improved morale and a more positive work attitude (as reported by anecdotal comments from employees and management).

## **Plant 2. R-Anell Housing Group, LLC**

R-Anell Housing produces modular residential and commercial structures. At the time of this study, the company's production operations employed about 240 people working in two adjacent facilities, each containing a portion of the production line. R-Anell approached its lean initiative in a comprehensive manner, developing an overarching lean management strategy, a rigorous education campaign for both management and production associates, a comprehensive 5S campaign, and a highly structured process for conducting major RPI events. In addition, a unique characteristic of R-Anell's lean strategy was the involvement of a lean engineer, who was responsible for all aspects of lean implementation. A director of process development oversaw the lean initiative and reported directly to senior management.

R-Anell's lean strategy was unique in that the team focused on developing managerial guidelines to sustain the lean initiative, including a set of internal guidelines on organizing and conducting RPIs called "The 12 Steps of Kaizen Event Planning." These steps provided general guidelines for event planning and a template for developing a detailed timeline for a specific event.

The following section discusses how this plant conducted tasks 3 and 4.

### ***Task 3. Conduct Value Stream Mapping and Data Collection***

**Task 3.1. Collect Plant-Level Data.** The lean team gathered data on the production process at the plant level, which included material shortages, list of steps in the process, space constraints, walking distances, and other performance data.

**Task 3.2. Develop a High-Level Value Stream Map.** The lean team began the lean implementation with a high-level value stream map that identified areas that constrained production flow.

**Task 3.3. Identify Areas of High Opportunity.** Managers used the high-level VSM to identify future RPI events, including (1) implementing the 6Ss (R-Anell added a sixth S for safety) throughout the plant and (2) improving efficiency and flexibility in the dormer area and flow from the dormer area to the main line.

**Task 3.4. Select an Area for Lean Improvement.** The team conducted the 6Ss RPIs throughout the plant, with a first pass through each area completed by the summer of 2006. Area supervisors, who were trained during the first event held in the plant, ran 6S events. R-Anell began with the 6Ss because their implementation is critical to maintaining an efficient and effective workplace. In July 2006, the team conducted the dormer area RPI. The remainder of this case study focuses on the dormer RPI.

#### ***Task 4. Conduct Rapid Process Improvement Events***

R-Anell's first major RPI event was in the dormer area. Dormers are structural elements of a building that protrude from the plane of a sloping roof surface to expand living space under the roof. This area was chosen for several reasons: it was not meeting daily production requirements; it was using excessive overtime; area workers were open to new improvement ideas; and it was an offline operation that could be interrupted with minimal impact to the main production line.

**Task 4.1. Develop RPI Implementation Strategy.** The objective of the dormer RPI was to improve productivity and provide space for large dormers (also called gable dormers) to be built in the plant. The common smaller dormers were built in the plant, but larger dormers (more than about 8 feet wide) were built on site, lengthening the construction process. The dormer RPI adhered to R-Anell's 12 Steps of Kaizen Event Planning as outlined in the following text.

**Task 4.2. Conduct the RPI Event.** The steps for the RPI event were as follows:

1. **Map area and gather data.** The team developed a detailed current-state value stream map of the dormer area, took photos of the area, and observed and recorded procedures. Floor plans of the dormer area were used to develop spaghetti charts (a movement path diagram) that examined material and employee movements and to develop proposed layouts. The lean team interviewed area employees and listened to their problems and concerns.
2. **Train area associates.** The lean engineer conducted a lean simulation exercise and classroom training in lean fundamentals.
3. **Determine gable dormer construction method and layout.** The lean engineer developed a proposed location and process for constructing the large gable dormers.
4. **Map the value stream.** The team developed a detailed value stream map of the dormer area and a spaghetti diagram for each major dormer component built in the area. The team gathered data on the dormer operation, which included a list of steps in the process, space constraints, and walking distances.

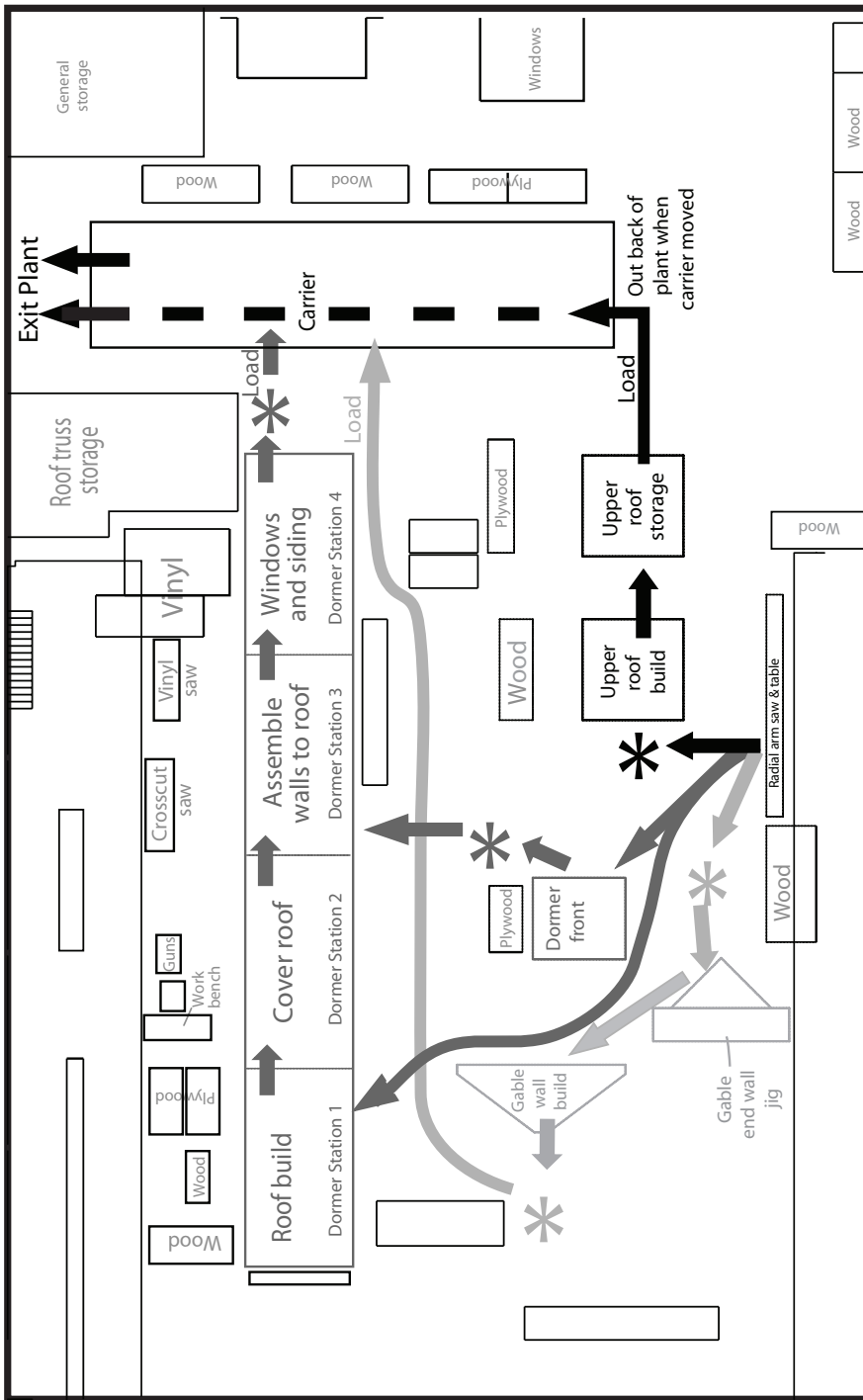
5. **Develop and implement future-state layout.** After brainstorming the needs of the dormer area, the team generated and prioritized a list of concerns. High-priority needs were incorporated into the future-state value stream map, which showed the process after implementation of the improvements, eliminating many of the previous production flow constraints. Some of the improvements included better material storage and a layout that eliminated excessive walking to use and retrieve tools and materials.
6. **Report progress to management.** The executive management team visited the area to review the changes and to see team members report on the previous state, changes, and measured improvements.
7. **Complete a trial production.** Workers completed a trial build in the reconfigured area and gathered labor time data and costing information. The team discussed concerns and improvement ideas generated as a result of the trial.
8. **Implement refinements.** Workers implemented refinements and roped off the freed space for the future gable dormer area.
9. **Build first production dormer.** After production commenced, workers conducted another team review to discuss concerns and improvement ideas and to prioritize additional refinements.
10. **Implement refinements 2.** Workers implemented additional refinements based on the second team review.
11. **Document process.** The lean engineer recorded all procedures and developed written job instructions.
12. **Begin with new layout.** Workers commenced regular production.

**Task 4.3. Document Results of the RPI Event.** The lean team assessed the outcome of the RPI by measuring the usage of production floor space, employee travel distance, and number of employees required before and after implementation of the improvement recommendations. The area layouts before and after the kaizen event are shown in exhibits 3a and 3b. As seen in the after diagram, products are completed close to the point of need or an exit from the area. Material storage is reduced due to centralized staging and equipment locations. The saw is centralized to minimize the distance to areas it serves. The dormer build production line has been compressed. A new, large gable dormer production area has been created.

By streamlining the flow of product through the area, reducing duplicative material inventory (for example, oriented strand board was reduced from three bundles to one), and compacting work centers, enough space was freed up to provide room for the large gable dormer area. The value of the manufacturing space freed up was \$108,000 based on the plant accounting department's facility cost calculations (\$47.75 per square foot x 2,262 square feet). In addition, reduced travel distances and closer access to materials reduced the amount of time required to accomplish the same amount of work so that the prior need for an additional employee was eliminated. Overtime in the area was also largely eliminated, saving \$27,300 annually. A summary of the major results is shown in exhibit 4.

**Exhibit 3a**

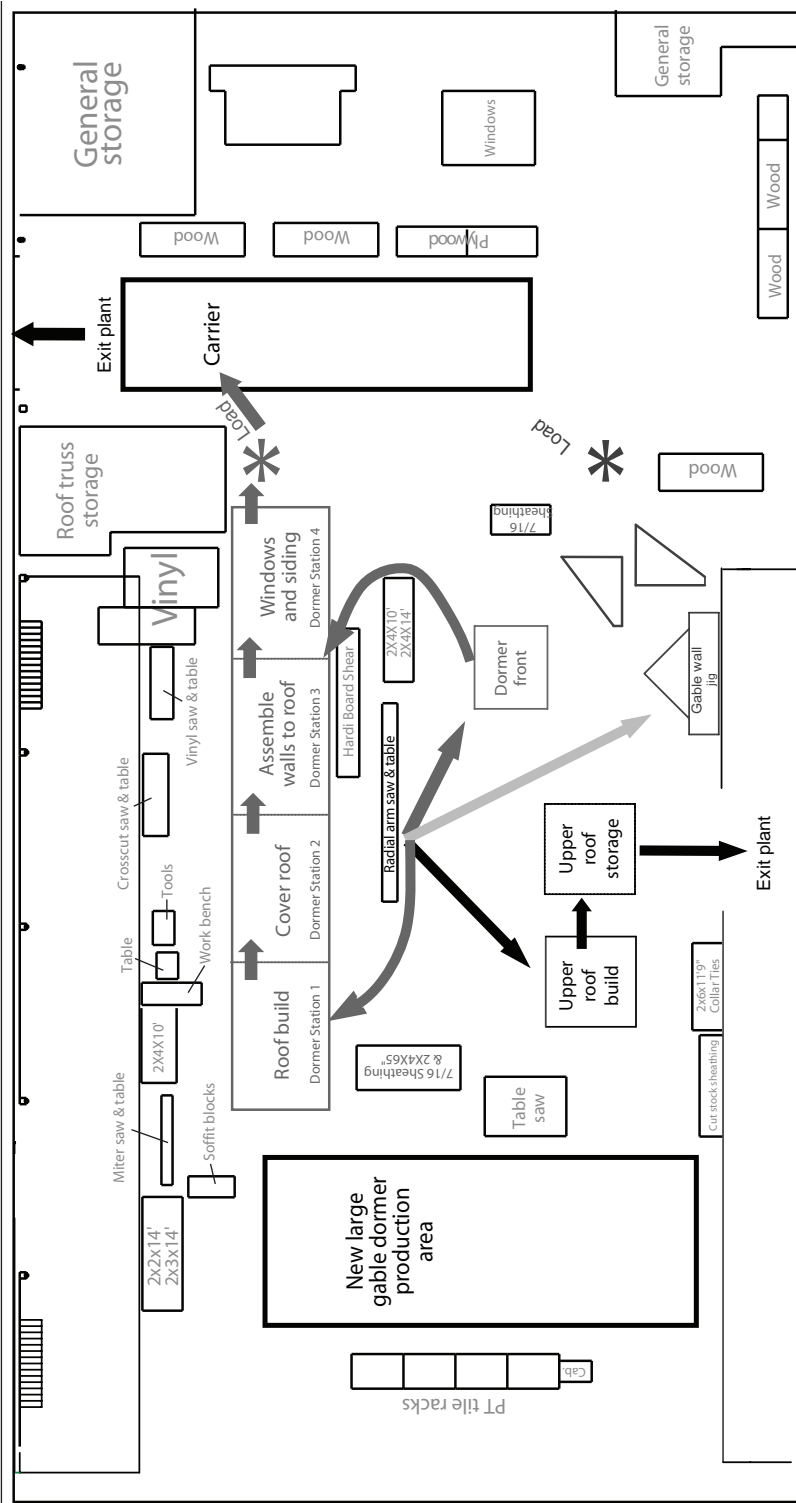
**Layout Before RPI**



RPI = Rapid Process Improvement.

**Exhibit 3b**

**Layout After RPI**



RPI = Rapid Process Improvement.

**Exhibit 4**

**Dormer RPI Major Results**

Item	Before RPI	After RPI	Change
Floor area for common dormers	6,988 square feet	4,726 square feet	Reduced by 2,262 square feet
Travel distances	13,027 feet	2,848 feet	Reduced by 2 miles per day
Number of employees	9	8	Reduced by 1 employee

*RPI = Rapid Process Improvement.*

**Plant 3. Southern Energy Homes, Inc.**

At the time of this study, Southern Energy Homes manufactured HUD-code homes in seven plants for a moderately priced market segment. Southern Energy had a full-time lean advocate at the corporate office who coordinated the lean activities and was charged with spreading information and success stories to all plants. Actively championed by a divisional assistant general manager, the lean initiative received visible support from the chief executive officer and other senior company leaders. This section describes early efforts at the first Southern Energy plant—Southern Estates—to begin implementing lean.

The following section discusses how this plant conducted tasks 3 and 4.

**Task 3. Conduct Value Stream Mapping and Data Collection**

**Task 3.1. Collect Plant-Level Data.** The Southern Estates plant produced five to six modules per day at the time of this study and had sufficient customer orders to work at full capacity. The takt time of the main production line was 46 minutes.

**Task 3.2. Develop a High-Level Value Stream Map.** The management team responsible for implementing the lean initiative prepared a plant-level value stream map.

**Task 3.3. Identify Areas of High Opportunity.** Based on the lean team’s past experience of the company’s production process and the data collected, the team identified three areas with great opportunity for improvement:

1. **Wall department.** In this offline station, all the lumber (for example, 2 by 3 and 2 by 4) and wallboard for the exterior sidewalls and interior walls were prepped (for example, cut to size, sorted, and loaded into transportation carts) and assembled on framing tables into walls. This area was often behind schedule.
2. **Cabinet shop.** In this department, cabinet parts were fabricated and assembled into finished kitchen and bath cabinets. Cycle times were excessively long.
3. **Metal shop.** In this section of the production line, siding, sheathing, roof decking, and insulation were installed on the modules. This area was frequently a bottleneck, forcing the work to be completed out in the yard, where it is notoriously inefficient due to the logistical problems of accessing people, materials, and equipment and the lack of supervision.

**Task 3.4. Select an Area for Lean Improvement.** The management team selected the wall department as the most critical area in which they were experiencing the greatest operational inefficien-



cies. The inefficiencies affected the flow of walls to the main production line and therefore affected the flow of the entire plant. Although the takt time of the main production line was 46 minutes, cycle times in the wall department often reached 65 minutes. The variability of cycle times in the wall department created bottlenecks on the main production line. Because the wall department was connected to the main line by an equipment-constrained station (the wall set station on the main line required the use of a crane), modules on the main line could not leave the wall set station until the activity was complete (for example, all walls set). Upstream modules could not cycle forward, and downstream work was delayed as holes were created in the main production line. These inefficiencies and delays lengthened the time to complete a house.

The remainder of this case study focuses on the wall department RPI.

#### **Task 4. Conduct Rapid Process Improvement Events**

**Task 4.1. Develop RPI Implementation Strategy.** The RPI team included the plant production manager, the division assistant general manager, Southern Energy's corporate lean advocate, the area supervisor, a maintenance employee, and representative workers from the area. The objective of the RPI was to increase productivity by rearranging the equipment layout and material locations to rationalize the flow of materials through the area.

Because of the extensive construction required to implement the changes it anticipated, the team developed a plan to conduct the RPI in three phases: (1) planning and preparing initial design (May 2006), (2) finalizing the design with large-scale involvement of area workers and making physical changes to the work area (June–July 2006), and (3) evaluating and refining the new area (August 2006).

**Task 4.2. Conduct the RPI Event.** During the first phase (May 2006), the team conducted detailed observations of the activities, material and information flow, and equipment in the wall department and developed a detailed value stream map. The team observed that workers were forced to walk excessively to get materials, material flow was random, materials did not have fixed staging locations, and finished walls had to be pulled through the shop by hand.

Participants discussed alternatives for improving the area layout and material flow and developed a new department layout and a future-state value stream map showing a target value stream. The team also analyzed the effects of the department on the flow of the main production line. During the second phase of the RPI (June–July 2006), the team carried through on the plan, involving departmental staff, completing necessary reconstruction, and implementing the new arrangement. In the third phase (August 2006), the team reconvened to observe and document the activities in the reconfigured area.

The assessment revealed that wall-framing activities on the tables were a bottleneck and workload across the tables was not balanced. Framers at one table were completing walls for a given house and commencing building walls for the next house before the remaining tables had completed the walls they were working on for the first house. The team met to discuss the new layout and potential revised activity arrangements in light of these issues. Area employees were open and enthusiastic about the new changes and recommended further improvements for the area. A subsequent evaluation in September confirmed that these recommendations had been implemented and had

resolved the problems. As a result of the RPI, the wall area was completely reconfigured with the guiding principle that materials should flow from outer storage areas toward the main production line with a minimum of travel distance and detours. Before the RPI, materials were not stored logically near where they would be needed. The post-RPI material paths are shorter and more direct, with practically no intersections of different material flows until they reach the wall-framing tables, where all materials come together for final wall assembly. Exhibit 5 shows the area before and after the RPI.

**Task 4.3. Document Results of the RPI Event.** Before the RPI, employees did a lot of walking and carrying of materials. The area was reorganized with attention to ergonomics, reducing carrying distances and providing access to the existing hoist, which was extended to serve all wall-framing tables. Before the RPI, employees made mistakes when information about which walls to build was not transmitted properly. Carts of materials were easily misplaced or misidentified. After the RPI, the department implemented a system of labels and racks to organize the flow of information along with the flow of materials in keeping with the ideal of “a place for everything and everything is in its place.”

As a result of the changes, productivity improved. The department was able to meet the needs of the main line and the wall department workforce was reduced from 9 to 6.5 people. Importantly, no one lost his or her job because of lean activities; rather, experienced workers were transferred to other departments where they were needed due to normal attrition. Other benefits included space savings of 12 percent and wallboard damage reduction of approximately 10 percent. Southern Energy invested \$25,786 in labor and materials for this RPI. The investment paid for itself in less than 4 months, because annual labor savings amounted to \$73,200 and the company realized the savings of not needing to hire and train 2.5 new workers.

## Lean Implementation Lessons

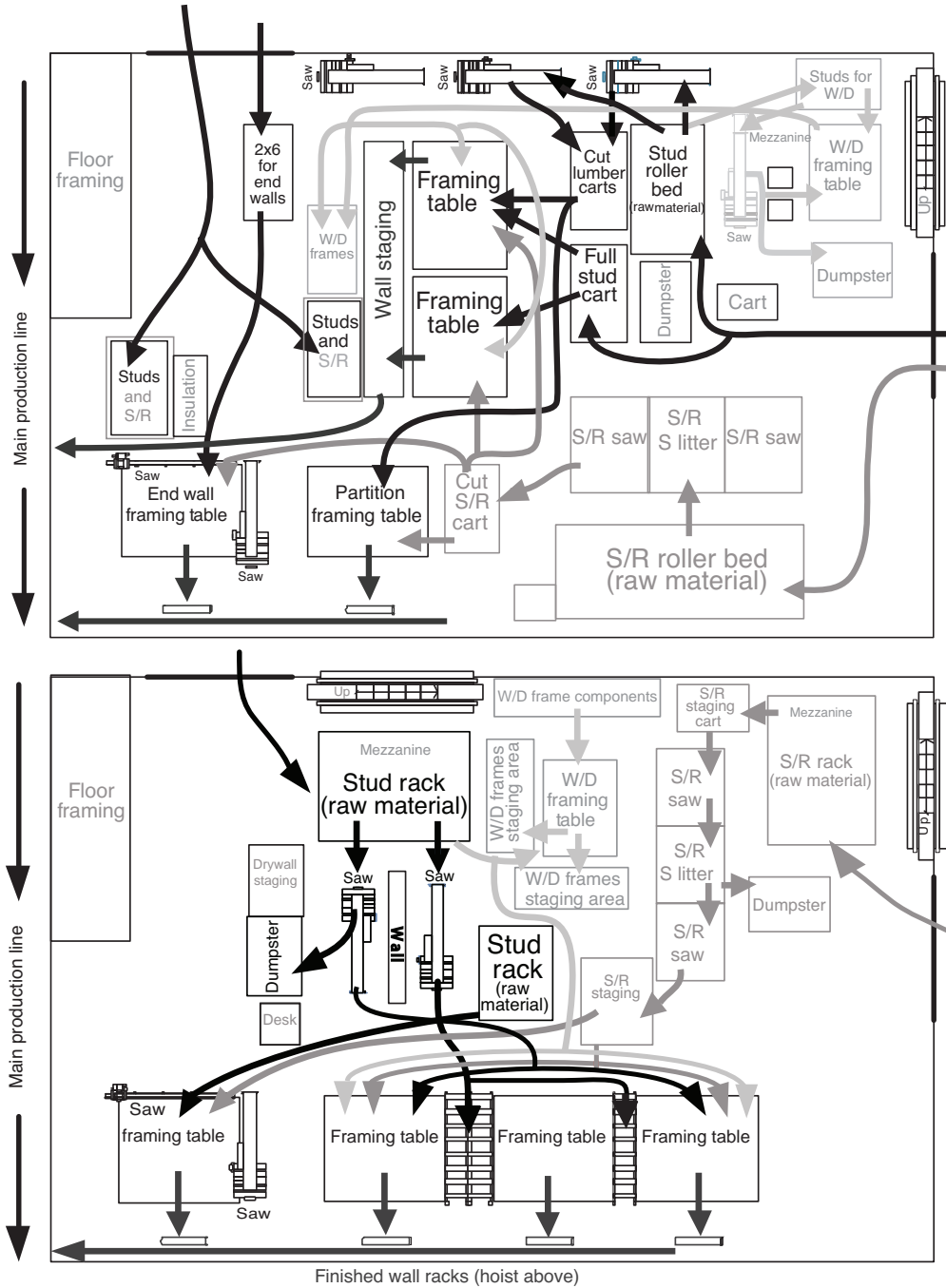
The lean initiative clearly demonstrated that the same lean production concepts that have been so successful in automotive, electronics, and other industries can be applied successfully in factory homebuilding. From an organizational perspective, the lean initiative showed the critical importance of having a lean advocate(s) on site with the time and management support to drive the process.

From a tools perspective, the lean initiative demonstrated that VSM was most useful for three purposes:

- **Training.** Plant-level VSM enabled production workers and midlevel production managers to visualize the production line as a flow system with interdependencies.
- **Targeting ‘problem’ department.** After reflecting on the many activities across the whole plant and collecting some limited information about the waste in each department, the lean team identified departments with high levels of waste or the potential to bottleneck overall production flow.
- **Developing a thorough understanding of departmental operations and issues.** The starting point of successful lean improvement can be identifying production tasks, estimating their cycle

**Exhibit 5**

Layouts of the Southern Energy Wall Department Before and After the RPI



RPI = Rapid Process Improvement. S/R = SHEETROCK®, or drywall. W/D = windows and doors.

times, identifying inventory levels and other signs of waste, and summarizing this information in a detailed department value stream map. This level of analysis is particularly enlightening for offline production departments (for example, wall department, dormer department) that have disconnected workstations separated by inventory.

Although RPI events were shown to be an effective strategy for implementing improvements, most plants were hesitant to reassign production staff, even temporarily, to lean activities. Short staffing caused by perpetual absenteeism and hiring problems was cited as the primary issue. Plants met the challenge of staffing RPI events by using a variety of strategies, including the following:

- Have the complete RPI team gather for a series of shorter meetings (1 to 3 hours) for a number of days over the course of a week. Then conduct a longer intensive implementation blitz, perhaps on a nonproduction day.
- Use a core group of three to four RPI team members (including the lean advocate) to do preparatory work and develop preliminary solutions. Involve production workers from the area and other affected employees individually or in small groups for brief meetings to get their feedback and buy-in.
- Use nonproduction days to accomplish the bulk of the RPI and pay production workers overtime.

The most encouraging result of the industry lean initiative was that after 1 year all nine plants were aggressively moving forward with their lean programs and were using their own inhouse lean advocates to look critically at their production processes, conduct RPIs, and implement lean improvements. The industry's challenge will be to maintain the momentum of the lean pioneers, while growing the base of companies involved with lean production.

## **Conclusion**

The use of Value Stream Mapping and Rapid Process Improvement is an effective starting point for factory home builders seeking to use lean thinking to slash waste from their production operations. The main goal of a value stream map (both high level and detailed) is to identify waste, whereas RPI events improve the process through waste elimination. VSM can be used independently from RPIs, by creating a high-level value stream map of the process. A high-level value stream map (for example, door-to-door plant level) can help plants document their current situation and identify wasteful activities so that such activities can be challenged and eliminated through other process-improvement activities. VSM can also be used as part of an RPI event, by developing a detailed value stream map of the process or activity that is the focus of the effort. As the three case studies show, RPI events can offer quick and dramatic results in target production departments. Taken as a whole, lean production strategies implemented through an RPI event can increase the efficiency and quality of building operations, boost workers' morale, and improve communication between management and workers.

## Acknowledgments

The authors acknowledge the assistance, advice, and guidance of several people without whose help this project would not have been possible. Members of the Lean Initiative Steering Committee: Rick Boyd, Clayton Homes, Inc., Project Chair; Michael Blanford, U.S. Department of Housing and Urban Development; Robert Carver, New York State Energy Research and Development Authority; Randy Cosby, R-Anell Housing Group, LLC; Terry Dullaghan, Senco Products, Inc.; Mark Ezzo, Clayton Homes, Inc.; William Farish, Fleetwood Enterprises, Inc.; and Bert Kessler, Palm Harbor Homes. Plant lean advocates: Austin Baidas, Four Seasons Housing, Inc.; Brent Bardo, Four Seasons Housing, Inc.; Butch Berlin, Hi-Tech Housing, Inc.; Ty Batchelor, Southern Energy Homes, Inc.; Brent Crabtree, Clayton Homes, Inc.; Robbie Davis, Palm Harbor Homes; Lamar Dickerson, Southern Energy Homes, Inc.; Kenneth Hutchings, Chelsea Modular Homes, Inc.; Charles Kilbourne-Jervais, R-Anell Housing Group, LLC; Michael Lombard, Palm Harbor Homes; Kevin Longmire, Clayton Homes, Inc.; Aubrey Moore, Southern Energy Homes, Inc.; Jim Mosier, Four Seasons Housing, Inc.; Joseph Mullins, Hi-Tech Housing, Inc.; Tommy Rogers, Palm Harbor Homes; Clifford Robbins, R-Anell Housing Group, LLC; Richard Shields, Chelsea Modular Homes, Inc.; Steve Stokes, Chelsea Modular Homes, Inc.; Allen Tucker, Palm Harbor Homes; Randy Tyler, Jr., Four Seasons Housing, Inc.; Michael Wade, Cavalier Homes, Inc.; and Johnny Wooten, Cavalier Homes, Inc. Manufactured Housing Research Alliance (MHRA) staff and subcontractors: Emanuel Levy, MHRA Executive Director; Gwynne Koch, MHRA; Catrina Arana, MHRA; and Dewey Warden, Senco Products, Inc.

## Authors

Jordan Dentz is senior research coordinator at the Manufactured Housing Research Alliance in New York City.

Isabelina Nahmens is an assistant professor in the Department of Construction Management & Industrial Engineering, Louisiana State University, Baton Rouge, Louisiana.

Michael Mullens is the principal investigator at the Housing Constructability Lab in Orlando, Florida.

## References

- Bessant, John, Sarah Caffyn, and Maeve Gallagher. 2001. "An Evolutionary Model of Continuous Improvement Behaviour," *Technovation* 21: 67–77.
- Boer, Harry, Andres Berger, Ross Chapman, and Frank Gertsen, eds. 2000. *CI Changes: From Suggestion Box to Organizational Learning—Continuous Improvement in Europe and Australia*. Aldershot, Hampshire, United Kingdom: Ashgate.
- Caldeira, Edward. 1999. "Lean Construction," *Professional Builder*, August 1. Also available at <http://www.housingzone.com/probuilder/article/CA466822.html>.
- Carlson, Don, ed. 1991. *Automated Builder: Dictionary/Encyclopedia of Industrialized Housing*. Carpinteria, CA: CMN Associates.

- Koskela, Lauri. 1993. "Lean Production in Construction." In *Proceedings of the 10th International Symposium of Automation and Robotics in Construction*, Houston, TX, May 24–26: 47–54.
- Laraia, Anthony, Patricia Moody, and Robert Hall. 1999. *The Kaizen Blitz: Accelerating Breakthroughs in Productivity and Performance*. San Francisco: Jossey-Bass.
- Manufactured Housing Research Alliance (MHRA). 2007. *Pilot Study: Applying Lean to Factory Home Building*. Report prepared for the U.S. Department of Housing and Urban Development (HUD). <http://www.pathnet.org/sp.asp?id=24122> (accessed October 30).
- . 2005. *Getting Lean: Assessing the Benefits of Lean Production in Factory Built Housing*. Report prepared for the U.S. Department of Housing and Urban Development (HUD). <http://www.huduser.org/publications/manufhsg/leanprod.html> (accessed January 28, 2009).
- Mullens, Michael. 2006. "Applying Lean to Factory Homebuilding." Presented to the Lean Workshop sponsored by the Manufactured Housing Research Alliance, April.
- Mullens, Michael. 2004. "Production Flow and Shop Floor Control: Structuring the Modular Factory for Custom Homebuilding." In *Proceedings of the NSF Housing Research Agenda Workshop*, Vol. 2. February 12–14.
- Mullens, Michael, and Mark Kelley. 2004. "Lean Homebuilding Using Modular Technology," *Housing and Society* 31 (1): 41–54.
- Ohno, Taiichi. 1988. *Toyota Production System*. New York: Productivity Press.
- Picchi, Flavio, and Arioaldo Granja. 2004. *Construction Sites: Using Lean Principles to Seek Broader Implementations*. Cambridge, MA: Lean Enterprise Institute.
- Pyzdek, Thomas. 2003. *The Six Sigma Handbook*. New York: McGraw-Hill.
- Salem, O., and E. Zimmer, rev. 2005. "Application of Lean Manufacturing Principles to Construction," *Lean Construction Journal* 2 (2): 51–54.
- U.S. Census Bureau. 2007. "Type of Construction Method of New One-Family Houses Completed." <http://www.census.gov/const/C25Ann/sftotalconstmethod.pdf> (accessed December 19, 2008).
- U.S. Department of Housing and Urban Development (HUD). 2006. *Manufactured Home Construction and Safety Standards*. 24 CFR Part 3280. Washington, DC: Government Printing Office.
- Womack, James, and Daniel Jones. 1996. *Lean Thinking: Banish Waste and Create Wealth in Your Corporation*. New York: Simon & Schuster.

# Role of Personal Bankruptcy Exemption Laws on Mortgage Availability

Sumit Agarwal

Federal Reserve Bank of Chicago

Souphala Chomsisengphet

Office of the Comptroller of the Currency

---

## Abstract

*This article investigates the relationship between bankruptcy exemption laws and the availability of credit for first and second mortgages (home equity loans and lines). The authors follow a bank-specific approach as advocated by Stengel and Glennon (1999) to test this relationship, using application data from multiple financial institutions. The data sets are unique and include a number of financial and demographic variables that are lacking in other studies on this topic. The article shows that, after controlling for all financial and economic variables, the availability of credit does not fall for first and second mortgages originated in states with higher bankruptcy exemption levels.*

## Introduction

The Bankruptcy Abuse Prevention and Consumer Protection Act of 2005 was enacted to reduce a debtor's ability to take advantage of what some considered lenient bankruptcy laws in the United States. For example, the act makes a "fresh start" unavailable for bankruptcy filers unless their household income is below the median level in their state of residence. In addition, given the recent mortgage foreclosures and the subsequent financial crisis, much criticism has been conveyed about the "democratization" of consumer credit, which has resulted in overindebtedness and a dramatic rise in individual bankruptcy filings.

These recent legal and financial developments in the United States have renewed the debate about the availability of credit for mortgages and how it is affected by the exemption level differences in

the bankruptcy law provision (White, 2007).<sup>1</sup> A broader question of whether differences in states' bankruptcy exemption levels affect aggregate household credit (both secured and unsecured) has been studied by Gropp, Scholz, and White (1997); Berkowitz and Hynes (1999); Lin and White (2001); and Chomsisengphet and Elul (2006).<sup>2</sup> Homestead and personal property exemptions provide debtors with relief from creditors in case of formal bankruptcy proceedings, and, in effect, provide them with a chance for a fresh start. Homestead exemptions vary widely, from zero in two states to unlimited in seven states. About one-third of the states allow their residents to choose between federal bankruptcy exemptions and the state's exemptions. In this article, we provide further empirical evidence on the impact of consumer bankruptcy exemption laws on the availability of mortgage credit.

Gropp, Scholz, and White (1997) argued that in states with high rather than low bankruptcy exemptions, the availability of credit falls because debtors are more likely to default and file for bankruptcy. They found empirical support for these predictions. In contrast, Berkowitz and Hynes (1999) have argued that in states with high bankruptcy exemptions, the availability of credit rises. They pointed to the fact that it is necessary to distinguish between different types of debts<sup>3</sup> and different types of exemptions<sup>4</sup> for a thorough understanding of the relationship between personal bankruptcy exemption laws and credit availability for mortgage loans. Their argument is that, when debtors are in financial distress, they can file for bankruptcy, obtain a discharge on their nonmortgage debts, and use the funds that would otherwise go to nonmortgage creditors to repay their mortgages, thereby keeping their homes. The higher the exemption is, the greater the protection of debtors' wealth in bankruptcy (and therefore the lower the probability that they will default on their mortgages).<sup>5</sup>

Furthermore, Lin and White (2001) have developed a theoretical model of debtors' decisions to file for bankruptcy and to default on their mortgages; they derive a positive relationship between personal property exemption levels and the probability of borrowers being denied mortgage loans. They test their model empirically using Home Mortgage Disclosure Act (HMDA) data over the period 1992–97 and find strong and statistically significant support when using data with cross-state variation in bankruptcy exemption levels.

---

<sup>1</sup> Some studies have tested this hypothesis; that is, by making bankruptcy more attractive, large exemptions should lead to an increase in the filing rate. White (1987) found a positive relationship between the size of a state's exemption and the number of filings that was statistically significant but weak. Many other studies found either no statistically significant relationship or even a negative relationship between state exemption laws and the number of filings (for example, Buckley and Brinig, 1996; Hynes, 1997; Peterson and Aoki, 1984).

<sup>2</sup> See also Agarwal, Liu, and Mielnicki (2003) and Agarwal et al. (2005) for empirical evidence on the impact of bankruptcy exemptions on consumer bankruptcy and small business bankruptcy, respectively.

<sup>3</sup> The different types of debts are secured versus unsecured debts. Secured debts—such as mortgages and automobile loans—allow the creditor to reclaim the collateral if the debtor defaults on the loan, while unsecured debts—such as credit card debt and installment loans—have no collateral.

<sup>4</sup> States provide separate exemptions for equity in owner-occupied homes (homestead exemptions) versus other types of property (personal property exemptions).

<sup>5</sup> See also Domovitz and Sartain (1999) and Barron, Elliehausen, and Staten (2000). Chatterjee et al. (2007) incorporated simultaneously the role of household earnings and unsecured debt, as well as shocks to earnings, debt, and preference shocks (for example, divorce) in their theoretical household default/bankruptcy dynamic equilibrium model.



Chomsisengphet and Elul (2006) argued that an important variable in lending decisions—the credit history of the mortgage applicant—is ignored in the models of Gropp, Scholz, and White (1997); Berkowitz and Hynes (1999); and Lin and White (2001). Thus, all of their models suffer from an omitted variable bias. Chomsisengphet and Elul (2006) constructed a model to show that by ignoring the impact of exemptions on credit scores, lenders would tend to overstate the riskiness of borrowers from high-exemption states. Thus, a regression that omits the credit score would indeed find that applicants from high-exemption states are more likely to be denied a mortgage. Empirically, Chomsisengphet and Elul (2006) showed that, once they control for credit scores, exemptions are no longer relevant; the study presented in this article is most closely related to their study.

In this article, the authors reexamine the effect of homestead exemption laws across states on availability of credit for first and second mortgages (home equity loans and lines), using a bank-specific approach as outlined by Stengel and Glennon (1999)—a study from the Office of the Comptroller of the Currency. Unlike the previous studies that have examined this issue using the HMDA data set, this study has also collected other variables that could be critical in evaluating mortgage applications at these financial institutions. To the best of our knowledge, this is the first such study to include bank-specific variables to determine availability of credit for mortgages.

To study the impact of state exemption laws on the availability of credit for first mortgages, we examined a stratified sample of 570 loan files from January to September 1999. We empirically tested whether homestead exemptions across states play any part in the underwriting process for mortgages originated at a large financial institution, using a bank-specific approach. The results indicate that the dummies for homestead exemptions are statistically insignificant. These findings are robust and have withstood a variety of tests for robustness. These findings also show that individual borrower's financial capacity and creditworthiness are the only determinants of being rejected or accepted for a home mortgage at this financial institution.

In addition, we studied the impact of state exemption laws on the availability of credit for second mortgages (home equity loans and lines) by examining a stratified sample of 3,237 loan files between January 2000 and June 2001 from another financial institution. Once again, our results indicate that homestead exemption laws are statistically insignificant in credit availability decisions. In this article, we have focused only on the availability of credit and not on the pricing of credit. Hence, it is possible that exemption laws affect the pricing of credit.

This article is structured as follows: the second section describes the model specification and data, the third section provides the results, and the fourth section offers concluding remarks.

## **Model Specification and Data**

In this section, we discuss the model specification and the data used for our empirical analysis.

### **Model Specification**

This article investigates whether the probability of being denied credit, in the form of a mortgage, is higher for individuals who live in states that have higher homestead exemption levels, using

a bank-specific approach. As discussed in Stengel and Glennon (1999), individual banks follow bank-specific underwriting guidelines to make mortgage lending decisions. Including bank-specific information significantly increased the explanatory power of their model. Furthermore, they conclude that banks maintain an array of bank-specific decision variables considered fundamental to their mortgage lending decision, but not considered—or at least not in the same manner—by other banks. For example, Stengel and Glennon (1999) found that the ability to absorb the closing costs of a home purchase (down payments, various taxes, a fee, and a sufficient cushion of liquid assets to pay for two monthly mortgage payments) was treated differently at different banks. The HMDA data use net wealth as a proxy for this measure. Net wealth, however, may be grossly inaccurate for this purpose. Hence, as discussed by Stengel and Glennon (1999), a bank-specific approach has to be employed in deciding the variables that are critical in the mortgage underwriting process for this financial institution.

The regression methodology used here to measure the probability of being denied credit and its relationship to the homestead exemption level is based on the following model of the mortgage decision:

$$\Pr ob(y = 1 | X, z) = b' X + az + e,$$

where  $y=1$  if the loan application is accepted;  $X$  is a set of borrower, property, and financial covariates,<sup>6</sup> conceptually including all factors used in loan underwriting; and  $z$  is an indicator variable for the presence of attribution for varying homestead exemption levels across states. The variable  $e$  represents an additional unobserved random error term. The parameter of interest, then, is  $a$ , and a negative value significantly different from zero is taken as a measure of credit constraint based on the homestead exemption levels across states.

## Data

In this section, we discuss the data used for the first and second (home equity loans and lines) data sets.

### *First Mortgages*

The data for first mortgages are primarily from a large financial institution (proprietary in nature) that originates loans nationally.<sup>7</sup> A stratified random sample of one- to four-family, conventional, and nonpurchased home mortgage loan applications were drawn from the HMDA Loan Application Register between January and September 1999.<sup>8</sup> We exclude applications that were withdrawn

---

<sup>6</sup> In particular, these covariates include excess back-end ratio, excess loan-to-value ratio, credit score, and a prior bankruptcy indicator.

<sup>7</sup> It is true that it is hard to infer about the aggregate impact of exemption laws on credit supply by looking at data from a single bank. A study like this one, however, can show how a large interstate lender takes differences in state law into account. One large lender's practices may both affect and reflect the larger competitive credit market.

<sup>8</sup> See Canner and Passmore (1994) for a general description of the HMDA data set. The data have been used mainly to analyze discrimination in lending to minority households.

and closed for incompleteness. The total sample size is 570 loan files. We randomly selected 284 mortgage applications that were approved and 290 mortgage applications that were denied.<sup>9</sup>

Furthermore, credit and collateral information was also retrieved manually from the underwriting documents. Data collection/entry and the quality assurance process took more than 9 months to complete. More specifically, it took nearly a day to transcribe and verify each file into a usable data set. Experienced internal and external consultants were employed for data transfer from the underwriting documents to electronic spreadsheets. Extensive data validation and data integrity checks were performed to ensure quality control. In total, for each loan file, we collected 91 separate data elements, which consisted of 22 HMDA data elements, 23 loan record identification elements, 18 credit history elements, 11 collateral elements, 11 income elements, and 6 asset elements. The overall sample size was consistent with samples used in bank-specific models estimated in Stengel and Glennon (1999).<sup>10</sup> Because the manual retrieval of the data was expensive, time consuming, and prone to human error, the bank, in consultation with the Office of the Comptroller of the Currency (the regulator), decided to follow a stratification process outlined in Stengel and Glennon (1999) and Dietrich (2000).

Completing the preliminary regression analysis and following the underwriting guidelines of our data provider, we determined that the following variables would be included in our study: (1) excess back-end ratio, or the ratio of debts (including principal, interest, property taxes, and insurance plus other monthly payments) to gross monthly income; (2) excess loan-to-value ratio, or the excess of loan-to-value ratio over the threshold for the loan type and program, set equal to zero if the loan-to-value ratio is below the threshold or if the applicant obtained private mortgage insurance; (3) credit score; (4) previous bankruptcy indicator and previous charge-off indicator; (5) self-employment indicator, implying that the applicant must have been in business for more than 2 years; (6) insufficient cash indicator; (7) individual borrower's years in school; and (8) individual borrower's income and income squared.<sup>11</sup>

We also added information concerning the homestead exemptions in each consumer's state of residence (see exhibits 1 and 2). Homestead exemptions vary widely—from zero in two states to unlimited in seven states. About one-third of the states also allow their residents to choose between federal bankruptcy exemptions and the state's exemptions. For those states, we have assigned the highest of the two exemption levels. Many states also allow married couples that file for bankruptcy to take higher exemptions, usually double. We have also collected individual application data on the marital status of the applicant. Consistent with prior literature, we model the state property, homestead, and garnishment levels as continuous variables (see Berkowitz and Hynes, 1999; Chomsisengphet and Elul, 2006; Lin and White, 2001).

---

<sup>9</sup> Dietrich (2000) has shown that this sampling procedure can offer substantial efficiency gains over random sampling or stratification based on the outcome variables alone.

<sup>10</sup> In Stengel and Glennon (1999), their sample consisted of 766, 729, and 522 loan applications from three different banks.

<sup>11</sup> Other variables were modeled but were found to be not significant. They included borrower's age, census tract income levels, loan amounts, and excess front-end ratio. Variables that were seen in other studies and that have been included in this study for consistency include income, income squared, and years of schooling.

**Exhibit 1**

**Homestead and Property Exemption Levels**

State	Home (\$)	Property (\$)	State	Home (\$)	Property (\$)
AK	54,000	8,000	MT	60,000	5,700
AL	5,000	6,925	NC	10,000	5,000
AR	1,000,000	1,400	ND	80,000	7,425
AZ	100,000	9,250	NE	12,500	2,400
CA	50,000	5,000	NH	30,000	11,350
CO	30,000	4,800	NJ	15,000	10,700
CT	75,000	7,100	NM	30,000	8,050
DE	0	5,000	NV	125,000	4,500
FL	1,000,000	2,000	NY	10,000	7,400
GA	5,000	5,400	OH	5,000	2,900
HI	20,000	2,000	OK	1,000,000	10,925
IA	1,000,000	10,600	OR	25,000	9,150
ID	50,000	5,750	PA	15,000	10,700
IL	7,500	7,125	RI	15,000	10,700
IN	7,500	4,000	SC	15,000	10,700
KS	1,000,000	24,650	SD	1,000,000	3,250
KY	5,000	6,500	TN	5,000	7,925
LA	15,000	15,125	TX	1,000,000	30,000
MA	15,000	12,200	UT	10,000	2,500
MD	0	6,000	VA	5,000	14,750
ME	12,500	2,900	VT	75,000	9,400
MI	15,000	10,700	WA	30,000	12,675
MN	200,000	13,000	WI	40,000	7,200
MO	8,000	3,000	WV	15,000	3,200
MS	75,000	10,000	WY	15,000	2,400

Source: Agarwal, Liu, and Mielnicki (2003)

**Exhibit 2**

**State Bankruptcy Exemptions—Changes Over the Years**

Year	State	Homestead Exemptions (\$)	Property Exemptions (\$)
1994	MI	7,500 to 15,000	5,350 to 10,700
1994	NJ	7,500 to 15,000	5,350 to 10,700
1994	PA	7,500 to 15,000	5,350 to 10,700
1994	RI	7,500 to 15,000	5,350 to 10,700
1994	SC	7,500 to 15,000	5,350 to 10,700
1995	ME	7,500 to 12,500	1,600 to 2,900
1995	VT	30,000 to 75,000	
1996	CA		2,500 to 5,000
1996	MN	1,000,000 to 200,000	
1997	MT	40,000 to 60,000	
1997	NE	10,000 to 12,500	1,500 to 2,400
1997	NV	95,000 to 125,000	1,500 to 4,500
1997	UT	8,000 to 10,000	1,500 to 2,500
1997	WV	7,500 to 15,000	1,600 to 3,200
1997	WY		2,000 to 2,400

Source: Agarwal, Liu, and Mielnicki (2003)

## **Second Mortgages**

The data for second mortgages are from a large financial institution (proprietary in nature) that originates home equity loans and lines (to reiterate, these data are drawn from a different organization than the one from which data for first mortgages are drawn). Our sample consists of 3,237 home equity loans and lines issued to owner-occupants and originated from January 2000 to June 2001. In this sample, 1,611 mortgages were approved and 1,626 were denied. Data collection/entry and the quality assurance process took more than 6 months. Extensive data validation and data integrity checks were performed to ensure quality control. We also added all the non-HMDA fields that we collected for the first mortgages.

## **Results**

Exhibits 3 and 4 provide some summary statistics for first and second mortgages, respectively. They provide some interesting differences between the credit behavioral characteristics of the applicants who were accepted for mortgages and those who were declined for mortgages.

The statistics in exhibits 3 and 4 suggest that, on the average, the excess back-end ratio (debt-to-income ratio) for the applicants who are accepted for a mortgage is lower than for the applicants who are denied. Furthermore, the collateral index shows that applicants who are accepted for a mortgage have higher collateral than those who are denied. Other statistics suggest similar differences among the accepted and denied applicants. Other informative variables are (1) credit score, (2) a prior bankruptcy indicator, and (3) a prior charge-off indicator. All these variables also show that applicants who are accepted for a mortgage have favorable credit behavioral characteristics. Meanwhile, age, number of years at a job, loan amount, and years of schooling do not show clear trends that differentiate the accepted applicants from those who were denied.

## **Regression Results**

The regression results are presented in exhibits 5 and 6 for the first and second mortgages, respectively. We treat different ethnic minorities individually. The results show that the most important variables in the decision process of an applicant being accepted for a mortgage loan include excess back-end ratio (debt-to-income ratio), excess loan-to-value ratio, credit (FICO—Fair Isaac Corporation [credit scoring model]) bureau score, prior bankruptcy indicator, prior charge-off indicator, self-employment indicator, collateral indicator, and income. Income squared and years of schooling are statistically insignificant. The results also show that the *p* values for the minority dummies were statistically insignificant. As documented in the previous literature (Agarwal, Li, and Mielnicki, 2003; Stengel and Glennon, 1999), once one controls for the bank-specific variables, race and demographic variables usually turn out to be statistically insignificant in the credit availability decision, even when race and other demographics appear to be significant in the absence of those controls.<sup>12</sup>

---

<sup>12</sup> Agarwal, Li, and Mielnicki (2003) used the same data to test for discrimination in the mortgage market. Essentially, they used only the variables in the HMDA data set. Our results are fairly comparable to theirs for the HMDA variables.

**Exhibit 3**

Summary Statistics for First Mortgages

Variable	Accepted		Denied	
	Mean	Std	Mean	Std
Excess debt-to-income	3.18	1.38	7.86	5.93
Excess loan-to-value	0.05	0.03	0.87	0.52
Credit score	702	58	662	70.24
Prior bankruptcy	0.04%	0.02%	0.09%	0.05%
Prior charge-off	0.13%	0.07%	0.27%	0.13%
Self-employed	9%	7%	17%	8%
Collateral	1.55	1.21	1.34	0.94
Years in school	14.79	4.44	14.18	5.93
Income	\$68,396	\$32,284	\$55,204	\$15,835
Loan amount	\$126,533	\$50,383	\$142,906	\$60,239
Employed	90%	27%	72%	18%
Age	44	16	43	14.39
Minority	52%	28%	47%	22%
Cash reserves	\$84,939	\$38,439	\$31,047	\$12,218
Homestead exemptions	\$203,283	\$348,918	\$205,048	\$351,921
Property exemptions	\$9,482	\$6,592	\$9,591	\$6,945
Number of states in data set	50		50	

**Exhibit 4**

Summary Statistics for Second Mortgages

Variable	Accepted		Denied	
	Mean	Std	Mean	Std
Excess debt-to-income	2.55	1.58	9.73	4.73
Excess loan-to-value	0.06	0.01	0.36	0.48
Credit score	728	57	653	106
Prior bankruptcy	0.10%	0.32%	0.86%	2.81%
Prior charge-off	0.02%	0.01%	0.09%	0.11%
Self-employed	12%	8%	19%	10%
Collateral	1.84	1.29	1.62	1.00
Years in school	13.14	4.55	12.20	7.16
Income	\$71,148	\$37,053	\$71,741	\$19,546
Loan amount	\$52,602	\$62,642	\$68,947	\$69,543
Employed	84%	34%	72%	19%
Age	51.77	17.48	53.62	17.22
Minority	19%	29%	24%	43%
Cash reserves	\$76,496	\$45,836	\$34,580	\$14,694
Homestead exemptions	\$201,965	\$369,922	\$204,083	\$370,583
Property exemptions	\$9,773	\$6,293	\$9,781	\$6,822
Number of states in data set	50		50	

**Exhibit 5**

Regression Results for First Mortgage Approval

Variable	Estimate	Std-Error	t-stat
Intercept	- 8.8560	1.5899	- 5.57
Homestead exemptions	- 0.1545	0.1870	- 0.83
Property exemptions	- 0.4799	0.3908	- 1.23
No-recourse state dummy	- 0.2826	0.3770	- 0.75
Garnishment exemptions	0.4790	0.3674	1.30
African American	- 0.1063	0.3134	- 0.34
Asian American	0.4977	0.2980	1.67
Hispanic American	0.5775	0.2840	2.03
Excess debt-to-income	- 0.0461	0.0136	- 3.39
Excess loan-to-value	- 0.1363	0.0317	- 4.30
Credit score	0.0096	0.0019	4.95
Prior bankruptcy	- 1.3782	0.6009	- 2.29
Prior charge-off	- 0.6529	0.2812	- 2.32
Self-employed	- 0.8140	0.3215	- 2.53
Collateral	1.5810	0.3393	4.66
Income	0.0012	0.0005	2.35
Income-squared	- 0.0010	0.0001	- 9.82
Schooling	0.0144	0.0403	0.36
Number of observations	570		
Pseudo R-squared	0.29		

**Exhibit 6**

Regression Results for Second Mortgage Approval

Variable	Estimate	Std-Error	t-stat
Intercept	- 7.0411	1.3314	- 5.29
Homestead exemptions	- 0.2838	0.3927	- 0.72
Property exemptions	- 0.3928	0.3817	- 1.03
No-recourse state dummy	- 0.1094	- 0.1048	1.04
Garnishment exemptions	0.4783	0.8382	0.57
African American	- 0.0956	0.1002	- 0.95
Asian American	0.1943	0.1772	1.10
Hispanic American	0.0660	0.0467	1.41
Excess debt-to-income	0.5462	0.0800	6.83
Excess loan-to-value	- 0.3350	0.1649	- 2.03
Credit score	0.4125	0.1586	2.60
Prior bankruptcy	- 0.2824	0.1183	- 2.39
Prior charge-off	- 0.5133	0.1029	- 4.99
Self-employed	- 0.4633	0.1060	- 4.37
Collateral	0.5356	0.2427	2.21
Income	0.0022	0.0014	1.52
Income-squared	- 0.0007	0.0003	- 2.42
Schooling	0.0892	0.0312	2.86
Number of observations	3237		
Pseudo R-squared	0.19		

It is important to discuss the sign of the coefficients on the variables. On the one hand, the coefficients on the debt-to-income ratio, loan-to-value ratio, prior bankruptcy indicator, prior charge-off indicator, and self-employment indicator all are negative correlated to mortgage origination, implying the higher the values of these variables are, the higher the probability of being denied for a mortgage is. On the other hand, the coefficients on credit score, collateral, and income all are positive and statistically significantly correlated to mortgage origination, implying that consumers with higher income, collateral, and less riskiness are more likely to be approved for a loan. Finally, we have a dummy for “no recourse.” Essentially, the no-recourse dummy implies that a borrower relinquishes the house to the lender and the lender cannot go after the borrower for any additional assets or income; only the house secures the loan—that is, the lender has no recourse on the loan beyond the house. This policy allows borrowers in no-recourse states to walk away from their mortgages without declaring bankruptcy.<sup>13</sup>

Previously, our discussion has examined only the estimates for the control variables, but now we look at the variable of interest. The bankruptcy exemption level variable is statistically insignificant. This result suggests that credit availability does not vary with the homestead exemption levels across states. These results are very robust, and they have withstood a variety of tests. We subsampled the data and conducted similar analyses, but the results did not change qualitatively. Moreover, the results are consistent in both versions of the model—that is, where we control for all the racial/ethnic minorities with a single dummy variable or with multiple dummy variables. The goodness-of-fit measures are consistent with the empirical literature.

Hence, following a bank-specific approach, we find that bankruptcy exemption laws across states in the United States do not have any statistically significant impact on the credit availability for mortgage loans.

## Conclusion

In this study, we looked at a random sample of 570 first mortgages and 3,237 second mortgages (home equity loans and lines) to empirically test whether homestead exemptions across states play any part in the underwriting process for mortgages originated at two large financial institutions. We used a bank-specific approach in our analysis. The results indicate that the dummies for homestead exemptions are statistically insignificant. Our findings are robust and have withstood a variety of stress tests. Our findings also show that an individual borrower’s financial worthiness and creditworthiness are the only determinants of being accepted or declined for a home mortgage (both first and second mortgages) at these financial institutions. As we outlined in the introduction, the literature on the impact of homestead exemption laws on credit availability has been mixed. Although Gropp, Scholz, and White (1997) and Lin and White (2001) found that exemption laws negatively impact credit availability, Berkowitz and Hynes (1999) found that

---

<sup>13</sup> Some of the eight no-recourse states in the United States—Alabama, Arkansas, California, Minnesota, Montana, North Dakota, Oregon, and Washington—overlap with the high or unlimited homestead exemptions. Hence, the no-recourse effect will go in the opposite direction of the homestead exemptions, providing additional power to our test.



exemption laws positively impact credit availability. Finally, Chomsisengphet and Elul (2006) found that exemption laws do not have any impact on credit availability. Chomsisengphet and Elul showed that, after controlling for credit scores (even at the ZIP Code level), the exemption levels are statistically insignificant. Chomsisengphet and Elul did not mimic the loan underwriting process, however, and we have built on that contribution by following the bank-specific approach outlined by Stengel and Glennon (1999). We find that after controlling for the credit scores and other underwriting variables, the exemption levels are statistically insignificant.

Although we did not find that the exemption laws have any impact on credit availability, it is possible that exemption laws may impact the pricing of credit. Although mortgage pricing is not the focus of our article, this is an open question for future research. We believe that more research is also necessary to determine the effects of homestead and property exemption laws on credit *demand* as opposed to credit *supply* for both the secured and unsecured credit markets. Such research is particularly needed in light of the recent law that standardizes federal bankruptcy exemptions. Despite the apparent need for research on personal bankruptcy laws, the number of academic papers on this topic is quite limited, especially compared with the literature on its more seductive cousin, the Chapter 11 reorganization.

## **Acknowledgments**

The authors thank Mark Shroder (managing editor, *Cityscape*), four anonymous referees, and Tom Freeman, Jim Papadonis, and Larry Mielnicki for their valuable comments and suggestions. They also thank Jacqueline Barrett for her research support. The views expressed in this research are those of the authors and do not represent the policies or positions of the Office of the Comptroller of the Currency; of any offices, agencies, or instrumentalities of the United States Government; or of the Federal Reserve Bank of Chicago or Federal Reserve System.

## **Authors**

Sumit Agarwal is a senior financial economist in the Research Department at the Federal Reserve Bank of Chicago.

Souphala Chomsisengphet is a senior financial economist in the Risk Analysis Division at the Office of the Comptroller of the Currency.

## **References**

- Agarwal, Sumit, Souphala Chomsisengphet, Chulin Liu, and Lawrence Mielnicki. 2005. "Impact of State Exemption Laws on Small Business Bankruptcy Decision," *Southern Economic Journal* 71 (3): 620–635.
- Agarwal, Sumit, Shumin Li, and Lawrence Mielnicki. 2003. "Mortgages, Minorities, and Discrimination: A Bank-Specific Analysis," *Housing Studies* 18 (3): 303–311.

- Agarwal, Sumit, Chulin Liu, and Lawrence Mielnicki. 2003. "Exemption Laws, Consumer Delinquency, and Bankruptcy Behavior: An Empirical Analysis of Credit Card Data," *The Quarterly Review of Economics and Finance* 43 (2): 273–289.
- Barron, John, Gregory Elliehausen, and Michael Staten. 2000. "Monitoring the Household Sector with Aggregate Credit Bureau Data," *Business Economics* 35 (1): 63–76.
- Berkowitz, Jeremy, and Richard Hynes. 1999. "Bankruptcy Exemptions and the Market for Mortgage Loans," *Journal of Law and Economics* 42 (2): 809–830.
- Buckley, Francis, and Margaret Brinig. 1996. The Bankruptcy Puzzle. Working paper no. 21. George Mason University.
- Canner, Glenn, and Wayne Passmore. 1994. "Residential Lending to Low-Income and Minority Families: Evidence from the 1992 HMDA Data," *Federal Reserve Bulletin* 80 (2): 79–108.
- Chatterjee, Satyajit, Dean Corbae, Makoto Nakajima, and Jose-Victor Rios-Rull. 2007. "A Quantitative Theory of Unsecured Consumer Credit With Risk of Default," *Econometrica* 75 (6): 1525–1589.
- Chomsisengphet, Souphala, and Ronel Elul. 2006. "Bankruptcy Exemptions, Credit History, and the Mortgage Market," *Journal of Urban Economics* 59 (1): 171–188.
- Dietrich, Jason. 2000. How Low Can You Go? An Optimal Sample Strategy for Fair-Lending Exams. Economic and Policy Analysis Working Paper. Office of the Comptroller of the Currency.
- Domovitz, Ian, and Robert Sartain. 1999. "Determinants of the Consumer Bankruptcy Decision," *Journal of Finance* 54 (1): 403–420.
- Gropp, Reint, John Karl Scholz, and Michelle White. 1997. "Personal Bankruptcy and Credit Supply and Demand," *Quarterly Journal of Economics* 112 (1): 217–251.
- Hynes, Richard. 1997. Property Exemptions and the Bankruptcy Filing Rate: A Re-examination of the Simple Hypothesis. Unpublished paper. University of Chicago.
- Lin, Emily, and Michelle White. 2001. "Bankruptcy and the Market for Mortgage and Home Improvement Loans," *Journal of Urban Economics* 50 (1): 138–162.
- Peterson, Richard, and Kiyomi Aoki. 1984. "Bankruptcy Filing Before and After Implementation of the Bankruptcy Reform Act," *Journal of Economics and Business* 36: 95–105.
- Stengel, Mitchell, and Dennis Glennon. 1999. "Evaluating Statistical Models of Mortgage Lending Discrimination: A Bank-Specific Analysis," *Real Estate Economics* 27.
- White, Michelle. 1987. "Personal Bankruptcy Under the 1978 Bankruptcy Code: An Economic Analysis," *Indiana Law Journal* 63 (1): 1–53.
- White, Michelle J. 2007. "Economic Analysis of Corporate and Personal Bankruptcy Law." In *Handbook of Law and Economics*, edited by A. Mitchell Polinsky and Steven Shavell. Oxford, UK: Elsevier: 1013–1072.

## ***Policy Briefs***

*The Policy Briefs department summarizes a change or trend in national policy that may have escaped the attention of researchers. The purpose is to stimulate the analysis of policy in the field while the policy is being implemented and thereafter.*

---

# **Conforming Loan Limits**

**John Comeau**

U.S. Department of Housing and Urban Development

*Opinions expressed in this article are those of the author and do not necessarily reflect the views and policies of the U.S. Department of Housing and Urban Development or the U.S. government.*

---

## **Abstract**

*The Conforming Loan Limit (CLL) and the government-sponsored enterprises bound by the CLL experienced significant changes in 2008 as a result of the mortgage market turmoil and the resultant legislation passed by Congress and signed by President George W. Bush. This policy brief outlines the changes to the CLL and the debate that surrounded those changes.*

## **Introduction**

Mortgage markets were extremely volatile in 2007 and 2008. The turmoil began in the summer of 2007 as subprime mortgage delinquency and default rates increased to historic levels. In the spring of 2008, as house prices in many markets continued to decline and mortgage lenders absorbed unprecedented losses, Congress passed and President George W. Bush signed the Economic Stimulus Act of 2008, granting tax rebates to U.S. households and establishing a temporary Conforming Loan Limit (CLL) in high-cost areas through the end of 2008 of 175 percent of the 2008 CLL. The CLL is the maximum principal balance that Fannie Mae (the Federal National Mortgage Association) and Freddie Mac (the Federal Home Loan Mortgage Corporation) may purchase. A main objective of the increase in the CLL was to increase the availability of credit because the market for jumbo mortgages had severely tightened.

In the summer of 2008, Congress passed and the President signed the Housing and Economic Recovery Act of 2008 to create a new, stronger regulator for Fannie Mae and Freddie Mac and

to permanently increase the ceiling on conforming mortgages for 2009 to 150 percent above the 2006–08 CLL. In the fall of 2008, as economic and housing market conditions continued to deteriorate, the federal government placed Fannie Mae and Freddie Mac into conservatorship.

The events of 2007 and 2008 have highlighted the role that Fannie Mae, Freddie Mac, and the CLL play in U.S. mortgage and housing markets. The events also raise questions surrounding the CLL. What motivated the increase in the CLL? What were the arguments for and against raising the CLL? What benefits were expected from the higher CLL? This policy brief will present the history of the CLL and the pros and cons of raising the CLL.

## **Background and History of Fannie Mae, Freddie Mac, and the Conforming Loan Limit**

The Federal National Mortgage Association Act and the Federal Home Loan Mortgage Corporation Act, and subsequent amendments, created Fannie Mae and Freddie Mac, respectively, as corporations chartered by Congress to do, among other things, the following:

- Provide stability in the secondary market for residential mortgages.
- Provide ongoing assistance to the secondary market for residential mortgages (including activities relating to mortgages on housing for low- and moderate-income families involving a reasonable economic return that may be less than the return earned on other activities) by increasing the liquidity of mortgage investments and improving the distribution of investment capital available for residential mortgage financing.
- Promote access to mortgage credit throughout the nation (including central cities, rural areas, and underserved areas) by increasing the liquidity of mortgage investments and improving the distribution of investment capital available for residential mortgage financing.<sup>1</sup>

Since Congress's authorization in 1970 of Fannie Mae and Freddie Mac to purchase conforming mortgages Fannie Mae and Freddie Mac have played a critical role in U.S. mortgage markets by purchasing mortgage loans; packaging them into mortgage-backed securities (MBS), which are enhanced with their credit guarantee of timely payment of principal and interest; and selling them to investors in the capital markets. By purchasing and securitizing mortgages, Fannie Mae and Freddie Mac replenish the money used to fund the original mortgages so that originators can fund additional mortgages. As government-sponsored enterprises, Fannie Mae and Freddie Mac have been able to access funds at lower cost than other private entities, which allows them to purchase mortgages from loan originators at terms more favorable than those offered by private entities. Thus, mortgage originators prefer to sell conforming mortgages to Fannie Mae and Freddie Mac and generally offer more attractive terms to conforming borrowers.

Before the events of 2008, mortgage markets in the United States could be broken down into conventional (nongovernment-guaranteed) and government-guaranteed (Federal Housing Administra-

---

<sup>1</sup> See the Federal National Mortgage Association Act (12 U.S.C. 1716 to 12 U.S.C. 1723i) and the Federal Home Loan Mortgage Corporation Act (12 U.S.C. 1451 to 12 U.S.C. 1459).

tion [FHA], Department of Veterans Affairs, and Rural Housing Service) mortgage markets. Fannie Mae and Freddie Mac operated within the conventional mortgage market, where they purchased mortgages with principal balances less than or equal to the Conforming Loan Limit from loan originators in secondary mortgage markets for securitization and sale. Conventional mortgage loans with a principal balance above the CLL and known as “jumbo loans” or “jumbo mortgages” were either held in portfolio by the mortgage originator or sold to a private securitizer to pool with other jumbo loans for sale to investors as private-label MBS.

In 1970, the maximum loan amount that the Federal Housing Administration (FHA) could insure or a federally insured savings and loan association (thrift) could grant was \$33,000. Fannie Mae and Freddie Mac were subject to the same maximum loan purchase limit.<sup>2</sup> The Housing and Community Development Act of 1974 increased Fannie Mae and Freddie Mac’s CLL to \$55,000—the ceiling on loans federally insured by thrifts. In an effort to accommodate lending in higher cost areas, the Housing and Community Development Act of 1977 reset the CLL to 125 percent of the ceiling on thrifts, or \$75,000. In 1979, the ceiling on thrifts was increased to \$75,000, increasing the CLL to \$93,750.<sup>3</sup> In 1980, Congress deregulated the thrift industry and repealed the loan ceiling on thrifts, inadvertently eliminating the CLL. Several months later, Congress amended the Housing and Community Development Act of 1980 to reestablish the CLL and allow for annual adjustments reflecting changes in average single-family home purchase prices.<sup>4</sup> The CLLs for single-unit, single-family homes for 1980 through the beginning of 2008 are shown in exhibit 1.<sup>5</sup>

## Recent Regulatory Changes

In the first 9 months of 2008, the federal government took three significant regulatory actions regarding Fannie Mae, Freddie Mac, and the CLL.

First, on February 13, 2008, President Bush signed H.R. 5140, the Economic Stimulus Act of 2008, into law. The law temporarily increased the CLL above the national limit of \$417,000 to as high as \$729,750 in the highest cost areas through December 31, 2008.<sup>6</sup>

---

<sup>2</sup> Although the Economic Stimulus Act of 2008 and the Housing and Economic Recovery Act of 2008 raised the maximum FHA loan limit to parity with Fannie Mae and Freddie Mac’s CLL, historically, the maximum FHA loan limit and the Fannie Mae and Freddie Mac CLL have differed. From 1998 until enactment of the Economic Stimulus Act of 2008, the maximum FHA loan limit was set at 87 percent of the CLL. Before 1998, the FHA loan limit equaled a lower percentage of Fannie Mae and Freddie Mac’s CLL or was set independent of the CLL.

<sup>3</sup> At the same time, the maximum loan limit for FHA loans in high-cost areas was also raised to the lesser of 95 percent of the local median home sales price or \$90,000. The statutory dollar maximum was raised in 1987 and again in 1992 before becoming indexed at 75 percent of the CLL in 1994 and subsequently increased to 87 percent of the CLL in 1998. The Economic Stimulus Act of 2008 and the Housing and Economic Recovery Act of 2008 raised the maximum FHA loan limit to parity with Fannie Mae and Freddie Mac’s CLL.

<sup>4</sup> For more information about the history of the CLL, see ICF Incorporated (1990).

<sup>5</sup> In addition, CLLs exist for two-, three-, and four-unit single-family loans. The two-, three-, and four-unit single-family CLLs are 28.0, 54.7, and 92.2 percent, respectively, above the single-unit CLL in any given year.

<sup>6</sup> In metropolitan statistical areas where 125 percent of the local median house price was between the national limit of \$417,000 and the highest limit of \$729,750, the CLL was set to 125 percent of local median value.

**Exhibit 1****Historical Conforming Loan Limits (Single Unit)**

<b>Single-Family Conforming Loan Limits</b>					
<b>Year</b>	<b>Limit (\$)</b>	<b>Year</b>	<b>Limit (\$)</b>	<b>Year</b>	<b>Limit (\$)</b>
2008*	417,000	1999	240,000	1989	187,600
2007	417,000	1998	227,150	1988	168,700
2006	417,000	1997	214,600	1987	153,100
2005	359,650	1996	207,000	1986	133,250
2004	333,700	1995	203,150	1985	115,300
2003	322,700	1994	203,150	1984	114,000
2002	300,700	1993	203,150	1983	108,300
2001	275,000	1992	202,300	1982	107,000
2000	252,700	1991	191,250	1981	98,500
		1990	187,450	1980	93,750

\* The 2008 Conforming Loan Limit (CLL) was established at \$417,000; however, the Economic Stimulus Act of 2008, signed into law on February 13, 2008, established a temporary CLL of up to \$729,750 through December 31, 2008. The CLL in Alaska, Guam, Hawaii, and the U.S. Virgin Islands is 50 percent higher than the standard CLL.

Second, on July 30, 2008, President Bush signed H.R. 3221, the Housing and Economic Recovery Act of 2008, into law. The new law provided a permanent authorization for a CLL of 115 percent of the local median house price if in excess of the standard national limit of \$417,000 up to a maximum of 150 percent of the standard national limit, or \$625,500, in high-cost areas, effective January 1, 2009, when the temporary loan limits enacted by the Economic Stimulus Act of 2008 expire.<sup>7</sup>

Finally, on September 7, 2008, Treasury Secretary Henry M. Paulson, Jr., and Federal Housing Finance Agency Director James B. Lockhart III announced that, in order to help restore confidence in Fannie Mae and Freddie Mac, enhance their capacity to fulfill their mission, and mitigate systemic risk, the government was placing Fannie Mae and Freddie Mac into conservatorship of its new regulator, the Federal Housing Finance Agency. In this case, conservatorship is defined as “the legal process in which a person or entity is appointed to establish control and oversight of a Company to put it in a sound and solvent condition. In a conservatorship, the powers of Company directors, officers, and shareholders are transferred to the designated Conservator,” the Federal Housing Finance Agency.<sup>8</sup>

These three events have brought significant attention to Fannie Mae, Freddie Mac, and the CLL. As previously noted, the CLL increased from \$33,000 in 1970 to \$417,000 at the beginning of 2008, to a temporary high of \$729,750 in some high-cost areas through the end of 2008, and then to a new permanent loan limit of up to \$625,500 in the highest cost areas beginning January 1, 2009. Some observers suggest the need for a higher CLL, while others contend that a higher CLL would unnecessarily increase Fannie Mae’s and Freddie Mac’s risk and cause Fannie Mae and Freddie Mac

<sup>7</sup> The standard national loan limit, of course, remained indexed for year-to-year general house price increases.

<sup>8</sup> See Federal Housing Finance Agency (2008).

to move further away from their mission of increasing availability of affordable housing. The next two sections present arguments advanced for and against higher CLLs.

## Arguments for a Higher Conforming Loan Limit

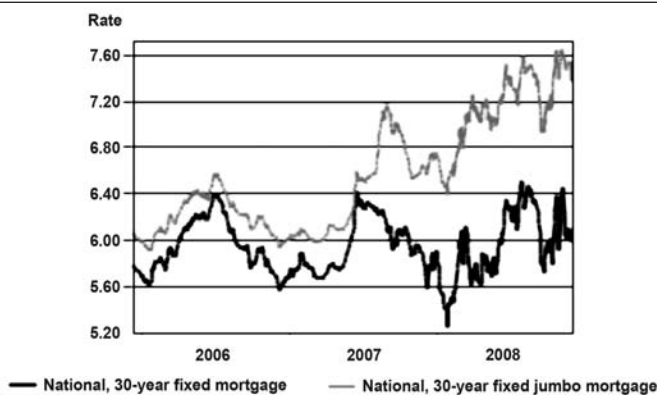
Home builders, mortgage originators, consumer advocates, and others have argued that the CLL should be higher in order to increase access to the benefits of borrowing in the conforming market. Three of the main arguments are presented below.

### Higher CLL Lowers Borrowing Costs

Interest rates on 30-year, fixed-rate conforming mortgages have traditionally been lower than interest rates on 30-year, fixed-rate jumbo mortgages, and numerous studies have verified existence of a jumbo-conforming differential, which has been estimated at 10 to 60 basis points.<sup>9</sup> Starting in the summer of 2007, the jumbo-conforming differential widened from its traditional range of 10 to 60 basis points to approximately 100 basis points, as shown in exhibit 2. This widening was more than a 10-fold increase from the jumbo-conforming differential experienced just a few months earlier, and the persistence of that widened differential throughout the remainder of 2007 and into 2008 prompted Congress and the President in early 2008 to enact the Economic Stimulus Act of 2008. The Act temporarily increased the CLL with the aim of restoring access to affordable interest rates for borrowers in high-cost housing markets. Thus, a primary reason for raising the CLL was to ameliorate the weakening confidence in the jumbo loan market and restore the traditional near parity with Fannie Mae and Freddie Mac interest rates for homebuyers requiring mortgages between \$417,000 and \$729,750.

#### Exhibit 2

Conforming and Jumbo Mortgage Rates



Source: Bankrate, Inc. (2008)

<sup>9</sup> For more information about jumbo-conforming interest rate differentials, see Congressional Budget Office (2001).

## Higher CLL Increases Liquidity

In the first quarter of 2008, federal agency (Fannie Mae, Freddie Mac, and Ginnie Mae<sup>10</sup>) MBS issuance accounted for more than 80 percent of total U.S. MBS issuance.<sup>11</sup> Because the conforming market is characterized by high-volume, fairly standardized, agency-backed mortgages, its MBS are easily tradable and very liquid, resulting in lower costs to originators and borrowers of conforming mortgages. Therefore, allowing mortgages that were formerly jumbo loans to be pooled into MBS with other conforming mortgages under a higher CLL should be expected to increase liquidity and reduce costs for borrowers in higher cost areas.

## Higher CLL Increases Affordability and Equity in High-Cost Areas

Borrowers in high-cost housing markets, such as San Francisco and New York City, are generally excluded from the conforming mortgage market because of the uniformly high home prices in these markets. Proponents of a higher CLL have argued that this results in unfair treatment of borrowers in high-cost markets, because only a small percentage of borrowers in these markets qualify for conforming mortgages and their associated lower interest rates, while an overwhelming majority of borrowers qualify for conforming mortgages in lower cost housing markets, such as Memphis or Pittsburgh. Thus, politicians and interest groups in high-cost markets have argued that the CLL should be raised to reflect higher home values in higher cost metropolitan statistical areas (MSAs) to improve affordability (in terms of lower interest rates) and equity (in the form of equal mortgage terms for relative equals) across U.S. housing markets.

## Arguments Against a Higher Conforming Loan Limit

Although the merits of a higher CLL have been argued, significant arguments have been made against a higher CLL. Arguments against a higher CLL, including that a higher CLL would shift Fannie Mae's and Freddie Mac's focus away from their affordable housing mission and that a higher CLL would expose Fannie Mae and Freddie Mac to additional and uncertain risks, are presented below.

## Higher CLL Does Not Support Affordable Housing Mission

Congress created Fannie Mae and Freddie Mac to expand homeownership opportunities and affordability for low- and moderate-income families. Government sponsorship allows Fannie Mae and Freddie Mac to borrow funds and sell securities at more favorable interest rates than nongovernment-sponsored entities, thereby allowing them to accept lower yields (bid higher prices) on mortgages and still remain profitable. Thus, originators can offer lower rates to attract borrowers and profitably sell the mortgages to Fannie Mae and Freddie Mac. Critics contend that the lower interest rates represent a government subsidy that is available only because of perceived

---

<sup>10</sup> Ginnie Mae (the Government National Mortgage Association) is a government-owned corporation within the U.S. Department of Housing and Urban Development.

<sup>11</sup> See "Inside Mortgage Finance," cited in Securities Industry and Financial Markets Association (SIFMA) testimony, May 22, 2008.



government backing of Fannie Mae and Freddie Mac with its associated contingent liability borne by the U.S. government. Moreover, critics argue that federal subsidies should be reserved for households with low and moderate incomes (on a national rather than area-specific basis) so that raising the CLL in higher cost MSAs would be equivalent to granting a federal subsidy to higher income households who should not be receiving a subsidy.

### **Higher CLL Has a Negative Effect on Secondary Market Competition**

Critics also argue against raising the CLL because broadening the scope of Fannie Mae and Freddie Mac would further preempt secondary market activity by private conduits. That is, Fannie Mae and Freddie Mac's government backing gives them unfair competitive advantages, as outlined above, that prevent development of private conduits in the secondary mortgage market except for jumbo market lending, above the CLL, or subprime and Alt-A lending, in which underwriting practices prevent Fannie Mae's and Freddie Mac's participation. Thus, raising the CLL would shrink the size of the nongovernment-sponsored mortgage market, further reducing incentives for private conduit participation in secondary mortgage markets. Of course, the current nonprime mortgage credit meltdown and the breakdown of the market for nonagency MBS has made the issue moot.

### **Higher CLL's Jumbo Loans Pose Unknown Risks**

Fannie Mae and Freddie Mac have substantial experience with conforming loans but little experience with nonconforming loans. History has shown higher balance loans respond differently than lower balance loans to changes in interest rates; that is, for a given decrease in interest rates, higher balance loans are more likely to prepay.<sup>12</sup> Similarly, borrowers with higher balance adjustable rate loans may be more likely to default when rates increase compared with lower balance borrowers because of the larger dollar value of payment increases on higher balance loans.<sup>13</sup> Jumbo mortgages have different prepayment and credit risks, as well as differing geographic concentrations from traditional conforming loans; for example, roughly half of all jumbo mortgages are in California.<sup>14</sup> The higher volatility, different behavior, and different borrower characteristics of higher balance loans may pose unknown risks to the safety and soundness of Fannie Mae and Freddie Mac. Opponents of higher CLLs claim that current mortgage market conditions and the troubled status of Fannie Mae and Freddie Mac make it a bad time to expand Fannie Mae's and Freddie Mac's exposure to new mortgage products.

### **Higher CLL's Jumbo Loans May Distort Secondary Mortgage Pricing**

Many of Fannie Mae's and Freddie Mac's MBS are sold into the To Be Announced (TBA) market. In the TBA market, contracts are signed for the exchange of MBS at a future date. The identities of the specific mortgage pools, however, remain unknown at the time of the agreement. The TBA market operates on the assumption of homogeneity of the underlying mortgage assets. One argument

---

<sup>12</sup> See SIFMA testimony, May 22, 2008.

<sup>13</sup> See Congressional Budget Office (2001).

<sup>14</sup> See "Reforming the Regulation of the Government Sponsored Enterprises," Office of Federal Housing Enterprise Oversight (OFHEO) Director James B. Lockhart III testimony, February 7, 2008.

against higher CLLs is that they could introduce mortgages into the TBA market with materially different risk and prepayment characteristics from current conforming mortgages. Thus, increasing the CLL would introduce more uncertainty to the TBA secondary mortgage market, which could reduce investor appetite for Fannie Mae and Freddie Mac MBS and both increase the cost and reduce the availability of funds for current conforming borrowers. One way to address this concern would be to limit the volume of jumbo-conforming mortgages that can be included in TBA pools, which is indeed what happened following enactment of the Economic Stimulus Act of 2008.<sup>15</sup>

### **Higher CLL Increases Interest Rates on Current Conforming Loan Borrowers**

A main argument for a higher CLL is that it would reduce borrowing costs to the former jumbo-loan borrowers brought under the new CLL. Opponents contend that, although the former jumbo-loan borrowers would benefit, their benefit would come at the expense of higher rates for existing conforming borrowers. Critics say the higher risk and uncertainty associated with the new jumbo-conforming loans will necessitate an increase in conforming interest rates to compensate for the new, higher risk profile of the average conforming loan. Thus, the affordability of lower principal balance loans, presumably to lower income borrowers, would deteriorate. Opponents of a higher CLL contend that this tradeoff is not worth making.

## **Expected Effects and Effects to Date From Higher Conforming Loan Limits**

The temporary higher CLLs in high-cost areas that expired December 31, 2008, and the permanent higher CLLs in high-cost areas that took effect January 1, 2009, were expected to achieve multiple objectives. Higher CLLs were expected to increase liquidity, reduce interest rates, and increase availability of credit for jumbo loans. The market turmoil, placement of Fannie Mae and Freddie Mac into conservatorship, credit tightening, and numerous bank failures and mergers since the passage of the Economic Stimulus Act of 2008 have made it difficult to assess the effect of the higher CLLs in the short run. As shown in exhibit 2, the interest-rate spread between 30-year conforming and 30-year jumbo mortgages, although stable through the middle of 2007, widened outside its traditional range in the middle of 2007 and has remained in its new range through the third quarter of 2008. Borrowers recently brought under the CLL as a result of the Economic Stimulus Act of 2008 appear to be benefiting from lower conforming interest rates, whereas borrowers above the new CLL have faced higher rates over the 12 months ending the third quarter of 2008.

---

<sup>15</sup> Good Delivery Guidelines, which are published by SIFMA for the TBA market, outline criteria for inclusion of individual loans in mortgage pools sold in the TBA market. Following passage of the Economic Stimulus Act of 2008, SIFMA's updated guidelines restricted eligible original loan balances to \$417,000 due to the temporary nature of the higher temporary CLLs enacted by the Act. Following passage of the Housing and Economic Recovery Act of 2008, SIFMA updated the Good Delivery Guidelines to make higher balance loans eligible in TBA pools but limited their inclusion to 10 percent of the total balance of the pool submitted for TBA delivery.

## Conclusion

On February 13, 2008, a temporary higher CLL in high-cost areas was established through December 31, 2008, and on July 30, 2008, a permanent higher CLL in high-cost areas was established to begin January 1, 2009. Short-run effects of the higher CLL in 2008 have been lower borrowing costs for borrowers seeking “conforming jumbo”<sup>16</sup> mortgages. Long-run effects of the higher CLL on conforming borrowers, conforming jumbo borrowers, U.S. housing and mortgage markets, the U.S. economy, and Fannie Mae and Freddie Mac will be determined over the coming years. Although exhibit 2 indicates that the higher CLL has not raised borrowing costs for traditional conforming borrowers through the third quarter of 2008, future research on the effect of the higher CLL, with controls for other relevant variables, would be valuable.

## Acknowledgments

The author thanks Bill Reeder, Mark Shroder, and Kurt Usowski for valuable comments and suggestions.

## Author

John Comeau is an economist in the Office of Policy Development and Research at the U.S. Department of Housing and Urban Development.

## References

- Bankrate, Inc. 2008. [www.bankrate.com](http://www.bankrate.com) (accessed September 30, 2008).
- Congressional Budget Office. 2001 (May). “Interest Rate Differentials Between Jumbo and Conforming Mortgages, 1995–2000.” <http://www.cbo.gov/ftpdocs/28xx/doc2840/InterestRate.pdf> (accessed August 20, 2008).
- Federal Housing Finance Agency. 2008 (September). “Questions and Answers on Conservatorship.” <http://www.fhfa.gov/webfiles/35/FHFACONSERVQA.pdf> (accessed September 7, 2008).
- ICF Incorporated. 1990. *Effects of the Conforming Loan Limit on Mortgage Markets*. Report prepared for the U.S. Department of Housing and Urban Development, Office of Policy Development and Research. Washington, DC: Government Printing Office.

---

<sup>16</sup> Mortgages with principal balances above the 2008 CLL of \$417,000 and less than or equal to the temporary higher CLL of \$729,750 are often referred to as “conforming jumbo” loans.

---

## **Data Shop**

*Data Shop, a department of Cityscape, presents short articles or notes on the uses of data in housing and urban research. Through this department, PD&R introduces readers to new and overlooked data sources and to improved techniques in using well-known data. The emphasis is on sources and methods that analysts can use in their own work. Researchers often run into knotty data problems involving data interpretation or manipulation that must be solved before a project can proceed, but they seldom get to focus in detail on the solutions to such problems. If you have an idea for an applied, data-centric note of no more than 3,000 words, please send a one-paragraph abstract to [david.a.vandenbroucke@hud.gov](mailto:david.a.vandenbroucke@hud.gov) for consideration.*

---

# **A Note on Data Preparation Procedures for a Nationwide Analysis of Urban Form and Settlement Patterns**

**Robert N. Renner**

U.S. Department of Housing and Urban Development

**Selma Lewis**

University of Maryland

**John I. Carruthers**

U.S. Department of Housing and Urban Development; University of Maryland

**Gerrit-Jan Knaap**

University of Maryland

*This note is a companion to U.S. Department of Housing and Urban Development Working Papers REP 08-03 and REP 09-03 and, as such, it reiterates some of the discussion contained in those two papers. It expressly describes work that is in progress, which may, and indeed likely will, evolve as the projects move forward. The opinions expressed in this note are those of the authors and do not necessarily reflect the opinions of the U.S. Department of Housing and Urban Development or the U.S. government at large.*

---

## Abstract

*This note outlines in detail the process of preparing data used in studying patterns of urbanization across the United States, using spatial hazard models—a class of durational models often employed in analyzing lifecycles. The note provides a brief overview of spatial hazard models and their application in the analysis of urbanization patterns and continues to describe the collection and processing of settlement point patterns needed for the analysis. Analyzed at the census block group level, data come from (1) a nationwide count of housing units at the census block level in 2006, which the Census Bureau provided to the U.S. Department of Housing and Urban Development; and (2) Census Summary File 3 from the 2000 Census of the population.*

## Introduction

The purpose of this note is to detail the process of preparing data needed for studying patterns of urbanization across the United States via spatial hazard models (for applications, see Carruthers et al., 2008, and Lewis et al., 2008). Spatial hazard models are geographic adaptations of proportional hazard models—a class of duration, or failure time—models normally used for analyzing lifecycles (Cleves, Gould, and Gutierrez, 2004; Kiefer, 1988; Lawless, 2002). Duration or failure analysis involves the modeling of time-to-event data. As a simple example, time-to-event modeling could be the rate or time a lightbulb lasts. The idea of adapting hazard models to the spatial realm originates from Odland and Ellis (1992), who were the first to use the method for point pattern analysis, a method of spatial analysis that has long been used to study both natural and social phenomena (Boots and Getis, 1988; Diggle, 2003). More recently, Waldorf (2003) elaborated on the mathematical logic of using hazard models for this purpose and laid out a detailed conceptual framework for bringing the models to bear on spatial point patterns. Since 1988, the approach has been applied to an array of spatial phenomena, ranging from the reach of market areas (Esparza and Krmeneč, 1996) to the adoption of agricultural technology (Pellegrini and Reader, 1996) to the spread of disease (Reader, 2000). Although still uncommon, spatial hazard models appear to represent a promising—and, in the view of the present authors, an exciting—new way of analyzing the kind of spatial processes and outcomes that are commonly of interest in the social sciences and public policy fields. The next section, which is a condensed version of the background discussion in Carruthers et al. (2008), outlines the nature of the modeling framework and the data needed for it.

## Spatial Hazard Models

Distance, like time, is a nonnegative random variable that terminates at a given point conditional on the probability of having made it to that point in the first place. That is, a particular distance between geographically referenced points either extends or terminates based on the nature of the

spatial process that gave rise to the distribution of the referenced points in the first place. At the core of this conceptualization is a so-called “spatial hazard function” that mathematically describes the conditional probability of distance terminating (for details, see Waldorf, 2003). For example, intuitively, one might expect the hazard function for the spacing of settlements to exhibit positive dependence, or a hazard of terminating that increases with distance, and the hazard function for the spread of an illness to exhibit negative dependence, or a hazard of terminating that decreases with distance. A proportional hazard model of a particular point-generating process is achieved by choosing an appropriate statistical distribution for the baseline hazard, plus a set of independent explanatory variables that accelerate and/or decelerate, as the case may be, the rate at which distances between spatial points, say  $d_{ij}$ , terminate. The Weibull distribution is the most widely used distribution in survival analysis, and it works particularly well because it gives the hazard a flexible shape (Lawless, 2002):

$$h(d_{ij} | X) = h_0(d_{ij}) \cdot \exp(X \cdot \Phi). \quad (1)$$

In this spatial hazard model, the hazard function consists of two components: (1) a baseline hazard,  $h_0(d_{ij}) = \lambda d_{ij}^{\lambda-1}$ , described by  $\lambda$ , a shape parameter, which gives the rate at which the distances between spatial points terminate when  $X = \mathbf{0}$ ; and (2) an exponential scale parameter,  $\Phi$ , which accelerates or decelerates the baseline hazard, depending on how the independent factors in the vector  $X$  influence the termination rate. Both the shape and scale parameters must be estimated via maximum likelihood.

In most forms of spatial analysis, the major challenge is to structure the experimental setting in a way that lines up not only with theory, but also with the logic of the particular analytical method itself. Regarding the analysis presented herein, urban economic theory (Fujita, 1987) clearly indicates that the hazard function for distance separating the spatial points that make up urban areas, whether structures, small-area population centers, or something else, should exhibit positive spatial dependence—but that the hazard decelerates with distance from the interior of the region (Carruthers et al., 2008). Based on this theoretical framework, a Weibull-distributed spatial hazard model of urbanization takes the following form:

$$h(d_{ij} | X_{ik}) = h_0(d_{ij}) \cdot \exp(\phi_{d_c} \cdot x_{d_{ic}} + X_{ik} \cdot \Phi_k). \quad (2)$$

Here,  $h(d_{ij} | X_{ik})$  indicates that the baseline hazard for distance between nearest neighbors  $i$  and  $j$ ,  $h_0(d_{ij})$ , is scaled by  $X_{ik}$ , a vector of  $k$  independent variables, including  $x_{d_{ic}}$ , the distance from  $i$  to the regional center; and  $\Phi_k$  (including  $\phi_{d_c}$ ) measures the influence the vector of additional independent variables has on the conditional probability of distance between nearest neighbors terminating. The two hypotheses at the heart of this model, both of which flow directly from urban economic theory, are (1) the conditional probability of distance between nearest neighbors terminating increases with distance and (2) the probability of terminating decelerates with distance from the interior of the region. The two variables essential for estimating this model are  $d_{ij}$  and  $x_{d_{ic}}$ , the distance from  $i$  to its nearest neighbor and the distance from  $i$  to the regional center, respectively. The remainder of this note is dedicated to explaining the process of generating those variables.

## Data Collection

The modeling framework previously described has been applied in two empirical analyses of urban form and settlement patterns in the United States (Carruthers et al., 2008; Lewis et al., 2008). The analysis discussed herein by Carruthers et al. (2008) examines the viability of using spatial hazard models to study urban form via an analysis of point patterns in the nation's 25 largest core-based statistical areas (CBSAs). Where applicable, CBSA divisions are used in place of the greater CBSA, so the model considers a total of 43 distinct areas. The unit of analysis is the 2000 Census Block Group and the data come from only two sources: (1) a nationwide count of housing units at the census block level in 2006, which the Census Bureau provided to the U.S. Department of Housing and Urban Development; and (2) Census Summary File (SF) 3 from the 2000 Census of the population.

## Spatial Point Patterns

Spatial point patterns representing the urban fabric of the 43 metro areas being analyzed and relevant distance measurements were developed via a six-step process using a variety of software tools, including ESRI's ArcInfo GIS and GeoDa—a program developed for spatial analysis and computation (Anselin, 2003; Anselin, Syabri, and Kho, 2006).

In the first step, the 2006 housing unit count was joined to each of the 8,205,582 blocks in the United States (territories were excluded). Hardware—that is, PC computing power—constraints required the data to be split into sections to make the data processing possible. The blocks were split into 10 separate, subnational regions and a shapefile was created for each one. The geographic centroid of each census block was used to generate a mean center for all 208,643 block groups in the United States. This so-called *mean center* is defined as the population-weighted average Cartesian  $\{x, y\}$  coordinate of all the block centroids in a given block group. The mean center was calculated using the mean center tool in the ArcGIS Spatial Statistics Toolbox. The 2006 housing unit count was used as the “weight” field and the block group identification number was used as the “case” field, which groups each block into the correct block group and evaluates that block group accordingly. The output resulted in 10 new shapefiles, one for each subnational region, containing the points that specify what can be thought of as the “center of gravity” of each block group in the country. At the completion of this step, the 10 regional shapefiles were then merged into a single national shapefile.

In the second step, the same mean center routine was run to generate housing unit-weighted centers for the 939 CBSAs in the country. This step differed from the first in that the CBSAs themselves were used as case fields to separate mean center calculations; therefore, the points produced indicated the regions' housing unit-weighted centers of gravity. It is important to note that the CBSAs' mean centers differ from the traditional central business districts and, therefore, may end up in locations not consistent with the areas of the highest residential density, which are normally just outside the central business district. The CBSA mean centers indicating centers of gravity are desirable because the object of spatial hazard analysis is to examine the distribution of spatial



point patterns relative to their geographic center, as opposed to a central business district. By way of contrast, density gradients—another, more common econometric method of analyzing regional land use—emanate from the central business district/s (see McDonald, 1988, for a review).

In the third step, each block group's mean center point was assigned to its nearest CBSA mean center point via the ArcMap's *near* routine. The *near* routine measures the distance from each point in the "input features" file—block group mean centers—to the nearest point in the "near features" file—CBSA mean centers. This process yielded the block group's mean center distance in meters to the respective regional center and the relevant regional center's identity. It is important to note that a block group's nearest CBSA may not be the CBSA that it formally belongs to.

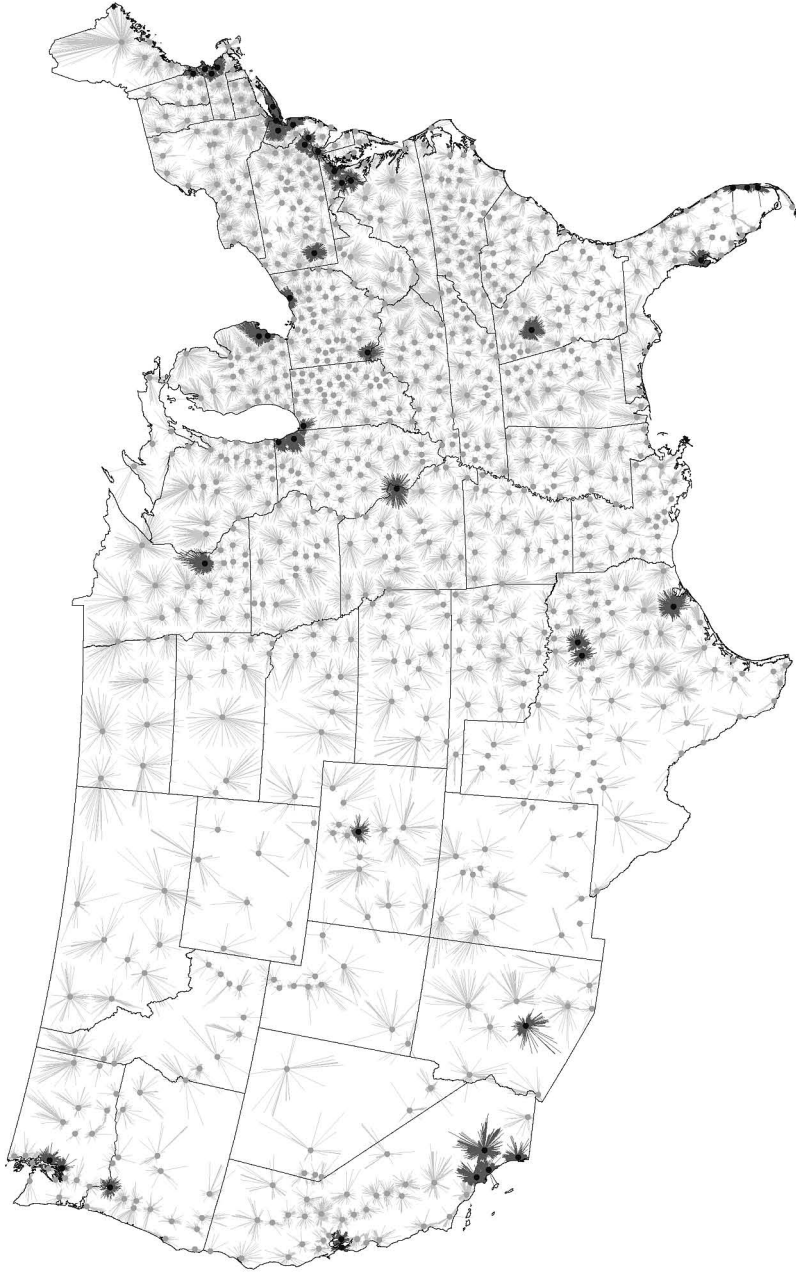
In the fourth step—which accomplished the same distance measures, but for the nearest neighbor block groups—GeoDa had to be used because the ArcGIS Toolbox apparently has no routine that will identify a feature's nearest neighbor and calculate a distance to that feature; that is, the ArcGIS Toolbox cannot identify nearest neighbors and measure distance between nearest neighbors within the same shapefile. To get around this deficiency, GeoDa's spatial weights-creating function, which locates *k* nearest neighbors, was used instead. Specifically, the block group point file was imported into GeoDa, which was used to generate a spatial weights matrix that assigned each block group point a single nearest neighbor. The output file from this operation is a text file with a GWT file extension and, for each observation, the file lists (1) its own identification number, (2) the nearest neighbor's identification number, and (3) the distance separating the two points. The GWT was imported into a Microsoft Access database, where it was transformed into a database file format and then exported and, ultimately, joined with the block group mean center shapefile. To be clear, the result of these machinations was an output file identifying nearest neighbors and the distances between them. Although admittedly ad hoc, this process proved to be a good workaround for the ArcGIS Toolbox's inability to match nearest neighbors within the same shapefile.

In the fifth step, rays connecting each block group to its CBSA and nearest neighbor were drawn using an ESRI user-written extension, *Desire Line*—a tool that creates a line between a point of origin and a point of destination. These rays also give the distance measures, which were used to validate the nearest neighbor routines run in ArcGIS and GeoDa. The results of this step are shown in exhibit 1—a map of CBSAs and their spheres of influence, including the 43 regions that are the focus of the analysis shown in dark gray—and in exhibit 2—a map of spatial point patterns in the Chicago, Dallas, Los Angeles, and New York regions. In the latter exhibit, both the rays connecting block groups to their regional center and the rays connecting nearest neighbor block groups are visible. The outcome of the preceding steps described was essentially two variables: distance to the nearest CBSA mean center and distance to the nearest block group mean center for each of the block groups.

In the sixth and final step, additional variables involved in the analysis, which were added easily by linking data sets, consist of median household income, median age of housing, and average duration of journey to work. These data were obtained from the Census SF 3 and joined with the previously described variables based on the common block group ID. In the proportional hazard model, distance to the nearest neighbor is modeled using the distance to the nearest CBSA and other census variables as the control variables.

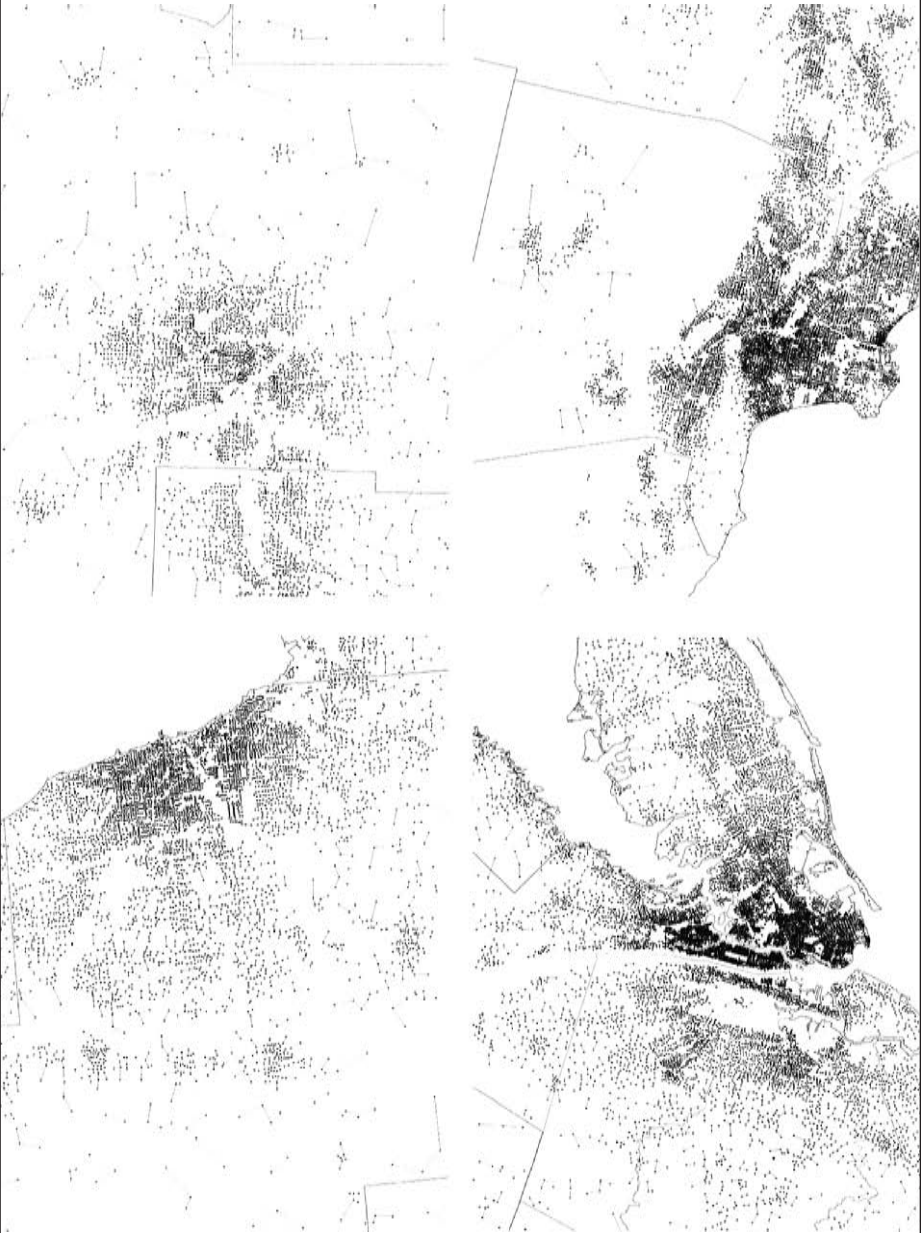
**Exhibit 1**

**Core-Based Statistical Areas and Their Spheres of Influence**



**Exhibit 2**

Spatial Point Patterns in the (clockwise from upper left) Chicago, Dallas, Los Angeles, and New York Regions



## Summary and Conclusion

This note has detailed the process of constructing a spatial data set for studying urban form and settlement patterns via spatial hazard models. As noted, a key trick in spatial analysis is to structure the experimental setting in a way that lines up not only with theory, but also with the logic of the particular analytical method itself. The strategy presented in this note is one example of how such a challenge has been overcome.

## Authors

Robert N. Renner is a social science analyst at the U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Selma Lewis is a PhD research assistant at the University of Maryland, National Center for Smart Growth Research and Education.

John I. Carruthers, corresponding author, is an economist at the U.S. Department of Housing and Urban Development, Office of Policy Development and Research, and is center affiliate at the University of Maryland, National Center for Smart Growth Research and Education.

Gerrit-Jan Knaap is a professor and director at the University of Maryland, National Center for Smart Growth Research and Education.

## References

Anselin, Luc. 2003. *GeoDa 0.9 User's Guide*. Urbana-Champaign, IL: University of Illinois, Spatial Analysis Laboratory.

Anselin, Luc, Ibnu Syabri, and Youngihn Kho. 2006. "GeoDa: An Introduction to Spatial Data Analysis," *Geographical Analysis* 38: 5–22.

Boots, Barry N., and Arthur Getis. 1988. *Point Pattern Analysis*. Newbury Park, CA: Sage Publications.

Carruthers, John I., Selma Lewis, Gerrit-Jan Knaap, and Robert N. Renner. 2008. *Coming Undone: A Spatial Hazard Analysis of Urban Form in American Regions*. Working paper REP 08-03. Washington, DC: U.S. Department of Housing and Urban Development.

Cleves, Mario, William W. Gould, and Robert G. Guitierrez. 2005. *An Introduction to Survival Analysis Using Stata*. College Station, TX: Stata Press.

Diggle, Peter J. 2003. *Statistical Analysis of Spatial Point Patterns*. New York: Hodder Arnold.

Esparza, Adrian, and Andrew J. Krmenec. 1996. "Business Services in the Space Economy: A Model of Spatial Interaction," *Papers in Regional Science* 73: 55–72.

Fujita, Masahisa. 1987. *Urban Economic Theory: Land Use and City Size*. Cambridge, UK: Cambridge University Press.

- Kiefer, Nicholas M. 1988. "Economic Duration Data and Hazard Functions," *Journal of Economic Literature* 26: 646–679.
- Lawless, Jerald F. 2002. *Statistical Models and Methods for Lifetime Data*. Hoboken, NJ: Wiley-Interscience.
- Lewis, Selma, John I. Carruthers, Gerrit J. Knaap, and Robert N. Renner. 2008. *The American Way of Land Use: A Spatial Hazard Analysis*. Working paper REP 09-03. Washington, DC: U.S. Department of Housing and Urban Development.
- McDonald, John F. 1988. "Econometric Studies of Urban Population Density: A Survey," *Journal of Urban Economics* 26: 361–385.
- Odland, John, and Mark Ellis. 1992. "Variations in the Spatial Pattern of Settlement Locations: An Analysis Based on Proportional Hazards Models," *Geographical Analysis* 24: 97–109.
- Pellegrini, Pasquale A., and Steven Reader. 1996. "Duration Modeling of Spatial Point Patterns," *Geographical Analysis* 28: 217–243.
- Reader, Steven. 2000. "Using Survival Analysis To Study Spatial Point Patterns in Geographical Epidemiology," *Social Science and Medicine* 50: 985–1000.
- Waldorf, Brigitte S. 2003. "Spatial Point Patterns in a Longitudinal Framework," *International Regional Science Review* 26: 269–288.



## **Industrial Revolution**

*Every home makes compromises among different and often competing goals: comfort, convenience, durability, energy consumption, maintenance, construction costs, appearance, strength, community acceptance, and resale value. Often consumers and developers making the tradeoffs among these goals do so with incomplete information, increasing the risks and slowing the adoption of innovative products and processes. This slow diffusion negatively affects productivity, quality, performance, and value. This department of Cityscape presents, in graphic form, a few promising technological improvements to the U.S. housing stock. If you have an idea for a future department feature, please send your diagram or photograph, along with a few, well-chosen words, to [dana.b.bres@hud.gov](mailto:dana.b.bres@hud.gov).*

---

# **Insulating Concrete Forms: Walls for a Better Home**

**Mike Blanford**

U.S. Department of Housing and Urban Development

---

## **Abstract**

*The status quo for a home's walls, both foundation and above-grade walls, has been concrete masonry units (concrete block) or cast-in-place (poured) concrete and wood stud construction, respectively. Insulating concrete forms (ICFs) offer a viable alternative to the status quo. ICFs provide energy efficiency and structural strength advantages over conventional wood or concrete construction.*

## **The Status Quo**

The typical American home with a basement is built on a foundation of concrete block or cast-in-place concrete with the above-grade walls made using wood stud construction. Both foundation construction methods are time consuming. The resulting walls have very low thermal resistance, typically below an insulation value (R-value) of R-2. Although wood stud construction for above-grade walls is relatively quick, the top R-value is only R-19 for a 2- by 6-inch stud wall and less for the more common 2- by 4-inch stud wall.



Some disadvantages of the status quo for wall construction in homes are as follows:

- Energy efficiency, as measured by the R-value, is lower.
- Above-grade walls require significant structural enhancements to become high-wind and seismic resistant.
- Foundation systems are labor intensive and, for cast-in-place concrete walls, require the use of reusable forms.

## Insulating Concrete Forms

Insulating concrete forms (ICFs)—rigid plastic foam forms—hold concrete in place during curing and remain in place afterwards to serve as thermal insulation for concrete walls. Use of the foam sections, which are lightweight, results in energy-efficient, durable construction.

ICFs consist of insulating foam, commonly expanded polystyrene or extruded polystyrene (see exhibit 1). The three basic form types are hollow foam blocks, foam planks held together with plastic ties, and 4- by 8-foot panels with integral foam or plastic ties. ICF forms in general have a vertical, hard plastic strip spaced uniformly in the forms to allow the builder to screw drywall directly to the interior or siding to the exterior. The builder assembles them by stacking the individual forms like Lego® blocks, placing reinforcing steel, and filling the walls with concrete.

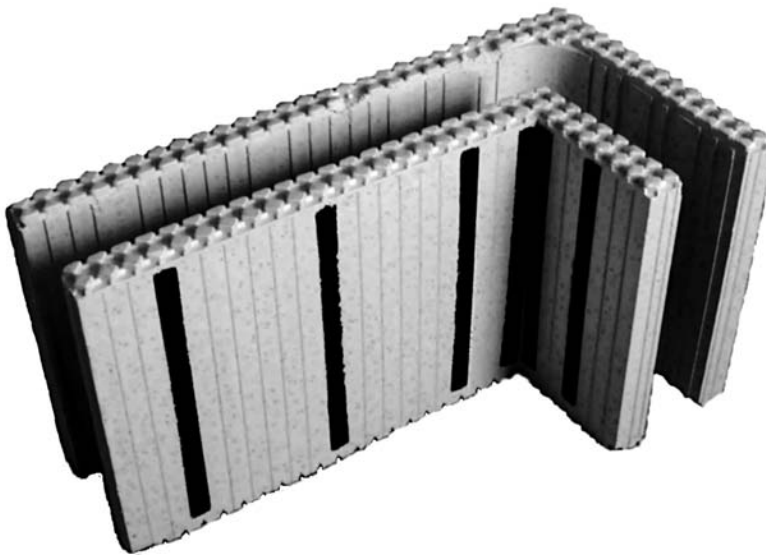
R-values of ICF walls vary depending on the foam material and its thickness. Typical R-values range from R-17 to R-26, compared with between R-13 and R-19 for most wood-framed walls. The strength of ICF structures relative to lumber depends on configuration, thickness, and reinforce-

### Exhibit 1

---

Typical Insulating Concrete Form

---





ment. In testing to determine impact resistance, the standard 2- by 4-inch “missile” has exploded when it hits an ICF wall. Because ICF walls are designed as reinforced concrete, they have high-wind, seismic, and impact resistance. In a number of cases, cars have struck ICF homes, resulting in little damage to the home and, in some cases, with the homeowner sleeping through the impact.

There are many types of ICF walls. Products are differentiated according to the type of form and the shape of the concrete sections. Products are further differentiated according to how forms attach to each other, how finishes are attached to the wall, R-values, foam types, and other features. Introductory information on the most basic product types follows.

### **Benefits: Foundation Walls**

ICFs can be used for full basements, crawlspaces, or stem walls for slabs.

- Foundation walls built with ICFs may be easier and faster to construct than either block or poured foundations, depending on the area and house configuration.
- With ICFs, forms do not need to be removed as they do with normal cast-in-place concrete using wood or metal forms, eliminating another visit to the site by the installer to remove forms.
- The cost differential may be quite small, especially when finished basements are desired.
- ICF walls are ready for interior finishing, although some products may require furring out first.
- Carpentry crews can be trained to build with ICFs quite easily. Studies show that the learning curve is overcome during the first 3 hours of building with ICFs.
- Total labor plus material costs may be less than when building concrete block foundations.
- Scheduling of trades can be simplified because specialty foundation construction-related trades may not be needed.

### **Benefits: Above-Grade Walls**

ICFs can be used in place of wood framing for most above-grade situations, can be placed on slabs, or can be used for basement or crawlspace walls. Possible benefits of ICFs over wood framing include the following:

- Strength, namely resistance to high winds and to wind-borne debris. Can be designed to resist seismic forces and abnormal loadings.
- Energy efficiency, resulting in greater comfort.
- Thermal mass.
- Solid walls, providing excellent noise abatement.
- Durability.

## **Manufacturers**

A number of manufacturers produce ICFs. The choices of which ICFs to use will be based on local availability, cost, and familiarity with the system by the installers.

## **Sources**

ToolBase TechSpecs: Insulating Concrete Forms (ICF) at <http://www.toolbase.org/Technology-Inventory/walls/Insulating-Concrete-Forms>.

## **Additional Information**

The PATH (Partnership for Advancing Technology in Housing) Technology Inventory on the toolbase.org website provides information on the use and sources of ICFs.

## **Author**

Mike Blanford is a research engineer at the U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

## **Impact**

*A regulatory impact analysis must accompany every economically significant federal rule or regulation. The Office of Policy Development and Research performs this analysis for all U.S. Department of Housing and Urban Development rules. An impact analysis is a forecast of the annual benefits and costs accruing to all parties, including the taxpayers, from a given regulation. Modeling these benefits and costs involves use of past research findings, application of economic principles, empirical investigation, and professional judgment.*

---

# **The Impact of the HOPE for Homeowners Program Rule**

**Alastair McFarlane**  
**Edward Szymanoski**  
**Kurt Usowski**

U.S. Department of Housing and Urban Development

*This article reflects the views of the authors and does not necessarily reflect the views of the U.S. Department of Housing and Urban Development.*

---

## **Abstract**

*The HOPE for Homeowners program allows homeowners to avoid foreclosure, using the Federal Housing Administration (FHA) insurance program structure already in place. Certain borrowers facing difficulties with their mortgages are eligible to refinance into FHA-insured mortgages. The benefit of the program is the prevention of foreclosures, which have associated economic costs on the foreclosed-on household, lenders, neighboring properties, and the local government. The cost of the HOPE for Homeowners program to the taxpayer is the subsidy paid to the FHA to cover the cost of the credit guarantee not covered by program revenues. We estimate the expected net benefit of the program to range from \$6,200 to \$35,500 per refinancing. Thus, with only 10,000 participants annually, the program will generate \$62 million to \$355 million of net benefits to society. Program participation could be as high as 100,000 annually, however, with commensurately higher benefits.*

## Overview of HOPE for Homeowners Program

The Housing and Economic Recovery Act (HERA) of 2008 established the temporary HOPE for Homeowners program. The program allows homeowners to avoid foreclosure, using the Federal Housing Administration (FHA) insurance program structure already in place at the U.S. Department of Housing and Urban Development (HUD). Under the program, certain borrowers facing difficulties with their mortgages are eligible to refinance into FHA-insured mortgages. The program was implemented on October 1, 2008, and will last through September 30, 2011. The FHA will insure up to \$300 billion in new loans. Borrowers will pay the FHA an upfront mortgage insurance premium of 3 percent of the original insured mortgage amount and an annual premium of 1.5 percent of the outstanding balance thereafter.<sup>1</sup>

Participation in the program is voluntary; thus, there must be agreement among all involved parties: the senior mortgage holder, all junior mortgage holders, and the homeowner. Mortgage lenders that might otherwise pursue foreclosure on a loan may find that they can minimize their losses by helping the homeowner refinance into a new mortgage loan insured by the FHA under the program.<sup>2</sup>

HERA sets both general and specific requirements for affected parties. Senior mortgage holders are required to accept, as payment in full, no more than 90 percent of the current appraised value of the property (87 percent after payment of the upfront premium to the FHA). Subordinate mortgage holders must write off the entire amount due to them, in exchange for a share of future property-value appreciation. To qualify, borrowers' debt-to-income ratio on their previous mortgage must be at least 31 percent. The homeowner must agree to pay HUD a portion of the property equity created in the new mortgage (defined as the difference between the appraised value and the initial balance of the new mortgage) and 50 percent of any future property value appreciation. HUD would then pay the subordinate mortgage holders from that 50-percent share.<sup>3</sup> Positive profits (if any) earned by the FHA from the program through the premiums and appreciation-sharing provisions will be used to pay down the national debt. Net losses arising from the cost of providing the credit-guarantee will be paid for by the Treasury but may be reimbursed by Fannie Mae and Freddie Mac to an extent described in Section 1338(b) of HERA.

## Cost-Benefit Analysis

The economic impacts of the rule stem largely from congressional mandates, because the final rule adheres closely to the prescriptive language of the statute. The expected net benefits of the HOPE

---

<sup>1</sup> For more information on the rule, please see the FHA website on the HOPE for Homeowners program (HUD/FHA, 2008) and the regulation itself (Docket No. B-2009-F-01).

<sup>2</sup> Although HUD and the FHA are to administer the program, a statutorily created Board of Directors (consisting of HUD, the Treasury, the Federal Deposit Insurance Corporation, and the Federal Reserve) is charged with establishing the program's standards and policies and providing program oversight.

<sup>3</sup> After the HOPE for Homeowners program was launched, the Troubled Assets Relief Program (TARP) legislation (or the Emergency Economic Stabilization Act of 2008, which became Public Law 110-343) modified some of the program's provisions. Specifically, the TARP authorizes the Board to consider loan-to-value ratios higher than 90 percent and make direct payments to junior lien holders to provide greater incentives for these lien holders to release their liens.

for Homeowners program are substantial. We estimate that, with only 10,000 participants annually, the program will generate \$62 million to \$355 million of net benefits to society. Program participation could be as high as 100,000 annually, however, with commensurately higher benefits.<sup>4</sup>

## Benefits

A benefit of HERA that the rule implements is the prevention of foreclosures, which have associated economic costs. The Joint Economic Committee of the U.S. Congress (Joint Economic Committee, 2007) estimates the costs per foreclosure at almost \$80,000. The foreclosed-on household pays moving costs, legal fees, and administrative charges of \$7,200 (Moreno, 1995). Lenders also bear significant costs in terms of legal fees. A study from the Federal Reserve Bank of Chicago reported that lenders alone can lose \$50,000 per foreclosure (Hatcher, 2006). The \$50,000 loss is estimated for a \$210,000 property. Standard & Poor's (2008) describes these costs as consisting of loss on loan/property, property maintenance, appraisal, legal fees, lost revenue, insurance, marketing, and cleanup. Of these costs, the primary cost to lenders is the cash loss on property sale.

If the loss to a lender from foreclosure is \$50,000, the gain to the lender from participating in the program will be less than \$50,000. To enter the program, the lender must accept, as payment in full, an amount equal to no more than 87 percent of the current property value. In the case of our example property, currently valued at \$210,000, the amount the lender would accept would be \$183,330. In a typical situation in which the senior mortgage lender had an 80-percent loan on the property but local property values have declined by 25 percent, then the original property value would have been \$280,000, and the amount of outstanding indebtedness owed would be \$224,000 for a property currently valued at \$210,000. The loss incurred by the first lien holder from the requirements of the program would then be \$40,670 (\$224,000 less \$183,330). Thus, the gain from participating in the program is the \$50,000 loss in foreclosure, less the \$40,670 cost of program participation, for a net benefit to the lender of \$9,330.

The benefits to the lender from participating could be greater than \$9,330. It is possible that the loss of property value (\$210,000 before foreclosure) via foreclosure in target areas of the program will be substantially more than the \$50,000 estimate provided in the Federal Reserve study. In a distressed market, the loss of value on the property could be substantially higher. Vacant homes in distressed neighborhoods are also more likely to suffer vandalism, forcing the lender to incur property-rehabilitation expenses. Thus, the final loss to the lender from foreclosure could exceed the \$50,000 estimate. If the lender loss from foreclosure were \$75,000, the lender benefit from program participation in this example would be about \$35,000.

Foreclosures resulting in long-term vacancies have a negative impact on the value of neighboring properties by reducing the physical appearance of the neighborhood, attracting crime, and

---

<sup>4</sup> Note that the estimates presented in this article are slightly different than the ones in the original Regulatory Impact Analysis, which was written before the submission of the final rule. First, we are using the credit subsidy estimates made by the Board and approved by the Office of Management and Budget. These estimates were not finalized at the writing of our initial analysis. Second, we adopt assumptions concerning the program foreclosure rates consistent with the final estimates. Third, our thinking concerning the benefits of participation to lenders has evolved, resulting in a slightly lower estimate of the expected loss to lenders in the event of a foreclosure of one of the new FHA loans.

depressing the local economy. The Joint Committee of the U.S. Congress cites an estimate of \$1,508 by Immergluck and Smith (2006) of the negative externality of a single foreclosure on nearby properties. In addition, the local government loses money from a foreclosure through lost taxes from the foreclosed property, unpaid utility bills, property upkeep, and a shrinking tax base as home prices decrease. The Joint Committee uses an estimate of \$19,227 of the average cost per foreclosure to local governments from a study by Apgar and Duda (2005).

HUD's estimate of the average gross economic benefits of averting foreclosure is \$37,265; however, this benefit will not be realized for every household assisted. Some households will default on their new FHA loan and eventually lose their homes in foreclosure even after the loan writedown. Although the program maintains the FHA's requirement that new loans be based on a family's long-term ability to repay the mortgage, some foreclosure is experienced on all types of FHA loans.

The first lien lenders will retain their full benefit of \$9,330 per loan sent through the program, because these benefits are not affected by foreclosures on the new loans. The lenders who originate the new FHA-insured loans at the writtedown amounts, however, will bear losses of about \$3,780 on each insured loan that ultimately goes to foreclosure, because FHA-insured lenders typically absorb some of the foreclosure costs, estimated to be 2 percent of the unpaid balance. Thus, the net benefit to lenders as a group would fall from \$9,330 to \$8,574 per participant if 20 percent of the participants eventually end up in foreclosure. The net benefit to lenders as a group falls to \$7,818 if 40 percent of participants fail to repay their loans.

The expected benefit per refinancing for other categories (cost avoided for homeowners, local governments, and neighboring properties) is equal to our estimated benefit multiplied by the probability that a property does not go into foreclosure after the writedown.

## Costs

The cost of the HOPE for Homeowners program to the taxpayer is the subsidy paid to the FHA to cover the cost of the credit guarantee not covered by program revenues.<sup>5</sup> The subsidy is the difference between the present value of the cost to the FHA and the future stream of revenues. It is only in scenarios with high program foreclosure rates that positive costs of assistance could be expected. The Board estimates that, as long as the program foreclosure rate is below 34 percent, the credit subsidy rate would be negative. A negative rate implies that the program would generate net budget receipts in present value terms. The possibility of net receipts even under a high program foreclosure rate scenario is due to the very large revenue streams built into this program. HERA mandates that the FHA charge an upfront premium that is twice its normal charge and an annual premium three times its normal charge; the act also mandates that the homeowner agree to pay the FHA a significant portion of the property equity created at the time of the program refinance and to share one-half of all property appreciation with the FHA. Gains by the FHA from the program's credit guarantee would go to the Treasury and would ultimately be used to pay down the national

---

<sup>5</sup> The figure of \$300 billion, which is the amount available through mid-2011 to insure new FHA-issued mortgages to qualified homeowners, is not the cost to taxpayers. First, because participation in the program is voluntary, the total cost of the program is uncertain. Second, the average cost of assistance is not the upfront cash required to purchase the loan but the subsidy required to the FHA to break even on the deal.

debt, while losses would be ultimately reimbursed by Fannie Mae and Freddie Mac to the extent described under Section 1338(b).

If the program foreclosure rate were 40 percent, HUD estimates a positive subsidy rate of 10 percent, or \$18,333 per loan. If the program foreclosure rate were 20 percent, HUD estimates a negative subsidy of 2.5 percent, or \$4,583.<sup>6</sup> Exhibit 1 shows the economic benefits to various individuals and entities of participation in the HOPE for Homeowners program.

## Exhibit 1

### Expected Economic Benefits per Refinancing

Category of Benefit	Estimated Benefit per Foreclosure Prevented	Expected Benefit per Refinancing at Program Foreclosure Rate of 20%	Expected Benefit per Refinancing at Program Foreclosure Rate of 40%
	(\$)	(\$)	(\$)
Homeowner	7,200	5,760	4,320
Lender	9,330	8,574	7,818
Local government	19,227	15,382	11,536
Neighboring home value	1,508	1,206	905
<b>Total costs of foreclosure</b>	<b>37,265</b>	30,922	24,579
Subsidy to the FHA		- 4,583	18,333
<b>Net benefit to public</b>		<b>35,505</b>	<b>6,246</b>

FHA = Federal Housing Administration.

## Net Benefits

The net benefit of the program to society is equal to the gross benefits of avoiding foreclosures less the cost to the public of providing those benefits. At a high program foreclosure rate of 40 percent, which was assumed by the Board, the expected benefits per household assisted would be \$24,579. Even if the program costs were extremely high, at \$18,333 per household, net economic benefits would amount to \$6,246. At a lower program foreclosure rate, the expected benefits of preventing a foreclosure would be higher and the cost would be lower; thus, the net benefit would be higher because the program foreclosure rate is lower. In the lower foreclosure rate scenario of 20 percent, the expected benefits are greater, at \$30,922, and the FHA receives an average profit of \$4,583 per loan. Because this negative subsidy will be contributed to the Treasury, it can be considered a transfer to the taxpayer. Under a foreclosure rate of 20 percent, the net benefit of the program to the public is \$35,505.<sup>7</sup>

<sup>6</sup> The estimates of the credit subsidy are very sensitive to assumptions concerning the path of future housing prices. The Board's estimates, used here, are based on an allowance for an immediate price decline of 5 percent due to appraisal error, a significant price decline over the next 3 years, and a return to a long-run annual growth trend of 3.4 percent. Using the same model, but assuming no initial drop due to appraisal error, the same decline over the next 2 years, and an eventual long-run growth rate of 3.0 percent, yields a positive subsidy of 2 percent at the 40-percent program foreclosure rate and a negative subsidy of 9 percent at the 20-percent program foreclosure rate.

<sup>7</sup> Under the alternative housing price scenario of lower short-run price depreciation, the net benefit to the public of this rule per refinancing would be \$47,400 for a program foreclosure rate of 20 percent and \$20,900 for a program foreclosure rate of 40 percent.

## Aggregate Impact

The level of participation in the program is a major unknown. The Board estimates that up to 400,000 participants may be in a position to use the program over its 3-year lifespan. In a slightly less optimistic scenario of 100,000 participants annually, the gross benefits could be as high as \$3.1 billion and the net benefits to the taxpayer could be even greater, at \$3.6 billion.

Many reasons suggest that annual program participation will be less than 100,000. Lenders may not find sufficient incentives to participate, even compared with the costs of foreclosure. A lender must be willing to assume a 10-percent loss if it allows mortgage holders to refinance. Foreclosure and the HOPE for Homeowners program are not the only alternatives available to a lender. The lender also has the option of proposing to the borrower a workout plan of the lender's own design.<sup>8</sup>

Some features of the program could discourage homeowners from participating. For example, the homeowner must sign agreements to pay unknown amounts of money to HUD in the future. Although unknown, these amounts might be substantial in dollar terms. For every refinancing, the senior mortgage holder must reach an agreement with the homeowner as well as the junior mortgage holder and the new FHA lender, and must do so relatively quickly. The burden of negotiating among four parties, and doing so quickly, may lead to the failure of some efforts to effect a workout.

If the annual level of participation proves to be 10,000, then the gross benefits are \$309 million annually and the net benefits to the public are \$355 million annually at a 20-percent program foreclosure rate. The gross benefits are \$246 million annually and the net benefits to the public are \$62 million annually at a 40-percent program foreclosure rate. Calculated over the program's 3-year lifespan and discounted at 7 percent, these amounts add up to a net benefit of \$175 at a 40-percent foreclosure rate and \$997 million at a 20-percent foreclosure rate.<sup>9</sup> Exhibit 2 displays

### Exhibit 2

#### Aggregate Annual Benefits of Program

Number of Participants	Gross Benefit (\$MM)	Benefit Net of FHA Subsidy (\$MM)	Gross Benefit (\$MM)	Benefit Net of FHA Subsidy (\$MM)
	20% Program Foreclosure Rate		40% Program Foreclosure Rate	
5,000	155	178	123	31
10,000	309	355	246	62
25,000	773	888	614	156
50,000	1,546	1,775	1,229	312
100,000	3,092	3,551	2,458	625

FHA = Federal Housing Administration.

<sup>8</sup> A high participation rate may come to fruition despite some of the barriers discussed for several reasons. For example, Bank of America Corporation has agreed to settle claims brought by state attorneys general regarding certain risky loans originated by Countrywide Financial Corporation. Under the terms of the deal, which involves up to 390,000 loans, Bank of America will first try to refinance borrowers into FHA loans under the HOPE for Homeowners program (Simon, 2008).

<sup>9</sup> Under the alternative housing price scenario of lower short-run depreciation, the aggregate net benefits would be \$474 million for a program foreclosure rate of 20 percent and \$209 million for a program foreclosure rate of 40 percent. The present value of the aggregate net benefits over the 3 years of the program and discounted at 7 percent is \$587 million at a 40-percent foreclosure rate and \$1.3 billion at a 20-percent foreclosure rate.



the aggregate annual benefits of program participation based on the number of participants and likely scenarios under 20- and 40-percent foreclosure rates.

## **Acknowledgments**

The authors thank Charles Capone of the U.S. Department of Housing and Urban Development for his help on the Regulatory Impact Analysis of the HOPE for Homeowners rule and Gigi Yuen-Reed of IBM for explaining credit subsidy estimates.

## **Authors**

Alastair McFarlane is the director of the Economic Development and Public Finance Division at the U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Edward Szymanoski is the associate deputy assistant secretary of the Office of the Deputy Assistant Secretary for Economic Affairs at the U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Kurt Usowski is the deputy assistant secretary of the Office of the Deputy Assistant Secretary for Economic Affairs at the U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

## **References**

- Apgar, William C., and Mark Duda. 2005. *Collateral Damage: The Municipal Impact of Today's Mortgage Foreclosure Boom*. Report prepared for the Homeownership Preservation Foundation. Minneapolis, MN: Homeownership Preservation Foundation.
- Hatcher, Desiree. 2006. "Foreclosure Alternatives: A Case for Preserving Homeownership," *Profitwise News and Views*. Chicago Federal Reserve Bank.
- Immergluck, Daniel, and Geoff Smith. 2006. "The External Costs of Foreclosure: The Impact of Single-Family Mortgage Foreclosures on Property Values," *Housing Policy Debate* 17 (1): 57–80.
- Joint Economic Committee of the U.S. Congress (Joint Economic Committee). 2007. *Sheltering Neighborhoods from the Subprime Foreclosure Storm*. Special Report by the Joint Economic Committee. Washington, DC: Joint Economic Committee of the U.S. Congress.
- Moreno, Anne. 1995. *Cost Effectiveness of Mortgage Foreclosure Prevention*. Report prepared for the Family Housing Fund. Minneapolis, MN: Family Housing Fund.
- Ruth, Simon. 2008. "Bank of America Settlement Worth Over \$8 Billion," *Wall Street Journal*, October 6.

Standard & Poor's. 2008. "The Anatomy of Loss Severity Assumptions in U.S. Subprime RMBS." <http://www2.standardandpoors.com/portal/site/sp/en/us/page.article/4,5,5,1,1204835910066.html> (accessed May 7, 2008).

U.S. Department of Housing and Urban Development, Federal Housing Administration (HUD/FHA). 2008. "HOPE for Homeowners." [http://portal.hud.gov/portal/page?\\_pageid=73,7601299&\\_dad=portal&\\_schema=PORTAL](http://portal.hud.gov/portal/page?_pageid=73,7601299&_dad=portal&_schema=PORTAL) (accessed December 9, 2008).