

The Financial Viability of Housing for Mentally Ill Persons

Joseph Harkness and Sandra Newman
Johns Hopkins University

George Galster
Wayne State University

James Reschovsky
Center for Studying Health System Change

Abstract

Although persons with serious mental illness experience significant unmet housing needs, basic information on how housing is successfully financed, developed, and operated for them is lacking. It is possible that standard housing rules of thumb may not apply to this population. (For example, community opposition may raise development costs.) This lack of information may be a stumbling block to policy makers, planners, and developers.

This article attempts to close the gap by examining the financial profile of 153 properties developed for persons with serious mental illness by five nonprofit housing corporations between 1988 and 1992. Our analysis suggests that although this housing may require more management attention, it is not fundamentally different from market-rate housing for low-income tenants. After more than 10 years, the nonprofit housing developers continue to thrive, and virtually all of the properties continue to serve persons with mental illness, demonstrating that such housing can be successfully developed and operated.

Keywords: Homelessness; Nonprofit housing; Underserved markets

Introduction

The magnitude of the housing need among persons with serious mental illness is dramatic. Some estimates indicate that roughly half of this population may be living in inadequate dwellings or neighborhoods (Newman et al. 1994), that still others are living in unsuitable family or social situations or are inappropriately placed in hospitals and nursing homes, and that about 60,000 to 100,000 are homeless.¹ Although there is surprisingly little systematic empirical research on the influence of housing on such mental health outcomes as functioning and

¹ The estimated number of people who are both homeless and mentally ill is obtained by combining estimates of 300,000 to 400,000 for the total homeless population in the early 1990s (Jencks 1994) with estimates of 20 to 25 percent for the fraction with severe mental illness (Lehman and Cordray 1993; Sullivan et al. 2000).

symptomatology (Newman 2001), an emerging body of work suggests that stable, decent housing in the community may have beneficial effects on some mental health outcomes in persons with mental illness (Culhane, Metraux, and Hadley 2002; Hanrahan et al. 2001; Hurlburt, Wood, and Hough 1996; Newman et al. 1994, 2001; Ridgway and Rapp 1998; Shern et al. 1997).

Despite the intensity of the housing need, basic information on how housing for this population is successfully developed, financed, and operated is lacking. Indeed, Follain (1994) bemoaned the paucity of research on the much broader subject of factors contributing to the success of general multifamily housing, and only a few studies have been published on the topic since then (Abraham 1996; Bogdon and Ling 1998; Galster, Tatian, and Wilson 1999). Other relevant research pertains to the performance of nonprofit housing developers, but this literature is also sparse (Bratt et al. 1998; Rohe, Quercia, and Levy 2001; Walker 1993) and offers few insights into housing for those with serious mental illness. Yet information on the costs and financing of housing for this population is crucial to planners, policy makers, and housing providers alike. Planners and policy makers need to know what sorts of financing schemes have been used successfully to develop housing for persons with mental illness and what scale and type of subsidy are needed. Further, providers of such housing must be able to estimate a project's revenues and costs if they are to assess its financial viability.

Because estimating these quantities is part science and part art, decision makers often rely on rules of thumb derived from personal experience and the accumulated wisdom in the housing field. But it is not known whether such rules apply to housing for the mentally ill population (Newman et al. 2001). There is at least some suggestion in the mental health literature that they do not (Cournos 1987; Depp et al. 1986; Lipton, Nutt, and Sabatini 1988; Witheridge and Dincin 1985). Community opposition to such properties may limit developers' choices; this in turn may raise search costs or force developers to pay a premium to acquire properties. Community opposition may result in construction delays as well and increase carrying charges for the period between property acquisition and occupancy. Financing may also differ if, for example, lenders offer less favorable loan terms reflecting their perception of the greater risk associated with housing for this population. Because tenants may experience a worsening of symptoms and periods of hospitalization associated with the normal course of their illness, standard assumptions may underestimate vacancy rates and turnover. For a tenant with mental illness, problems with social skills, personal habits and hygiene, or impulsiveness; conflicts with staff or other tenants; and lack of knowledge on how to maintain an apartment

may increase operating costs as well. To date, the only study using rigorous statistical techniques to study this topic finds that maintenance and repair costs are higher for apartments occupied by persons who are mentally ill, particularly when there are few other tenants with mental illness living in the same building (Newman et al. 2001).

Our goal is to begin to close this knowledge gap by analyzing the financing mechanisms, costs, revenues, and financial viability of 153 buildings developed for mentally ill populations in four cities that participated in the 1986–91 Robert Wood Johnson Foundation Program on Chronic Mental Illness (RWJF–PCMI). This was a national demonstration program designed to test the benefits of centralizing the responsibility for the organization and financing of mental health and related services—including housing—in local mental health authorities. This systematic analysis is then used to draw lessons that might be of practical use to planners, policy makers, and developers of housing for those with mental illness.

Two key questions are addressed:

1. What are the financial, physical, and environmental attributes of housing developed under the RWJF–PCMI?
2. Does this housing differ substantially in its development costs, operating costs, or rental income from comparable housing developed for low-income tenants who are not mentally ill?

We also explore what the answers to these questions suggest about the level of subsidies necessary to ensure the financial viability of housing for this population.

The following section describes key features of the RWJF–PCMI demonstration, the housing providers, and the properties developed under the program. Next, the data sources used in the analysis are described. Results are presented in the following section, and the last section offers a synopsis of key findings, lays out policy implications, and suggests directions for further research.

Background

The RWJF–PCMI Program

A distinctive feature of the 1986–91 RWJF–PCMI was the inclusion of a significant housing intervention alongside the organizational and

clinical intervention. As part of the demonstration program, each of the nine participating sites (typically mid-sized and large cities whose population ranged from about 350,000 to more than a million) established a nonprofit housing development corporation devoted to the development, ownership, and management of independent housing for persons with chronic mental illness (Cohen and Somers 1990; Newman and Ridgely 1994). The RWJF provided a \$1 million loan with a 4 percent interest rate and a 10-year term to each of the participating development corporations, although most relied on other federal, state, and local grants and low-interest loans for financing. This RWJF loan was used in financing most, but not all, of the properties included in this study.² Because of limited resources, the national evaluation of the RWJF-PCMI focused the research on person-level impacts at four sites with particular promise for implementing local mental health authorities—the basic intent of the demonstration. All of these sites had a single participating housing provider. A fifth provider included in the study—All Angels Development Corporation (All Angels)—was a nonprofit that was devoted to housing development for persons with mental illness and had worked closely throughout the study period with one of the four RWJF-PCMI housing entities.

Eligible tenants were those suffering from chronic mental illness, which was defined by three criteria: diagnosis, disability, and duration. Tenants had diagnoses that produced persistent dysfunction (including schizophrenia, major depression, bipolar disorder, and organic brain syndrome but excluding dementia); were functionally impaired; and had mental illness for a year or more. All of the nonprofit development corporations focused on housing chronically mentally ill persons with severe disabilities, although active substance abusers and those with recent histories of fire setting, personal assaults, or suicidal behavior were excluded. Prior living arrangements included group homes, family settings, institutions, or homelessness. Once tenants with mental illness moved into the independent housing settings, they were typically residentially stable, with about three-quarters remaining in their apartments for a year or more. Most properties in the sample housed a mix of tenants with and without mental illness; an average of 64 percent of the units were occupied by persons with mental illness.

Data

The data for this study cover 692 units in 153 buildings developed by five nonprofit development corporations between 1988 and 1992. We

² Because of its relatively short amortization period, most developers used the RWJF for short-term, not long-term, financing.

drew on multiple sources to build the database used in this article: (1) documents such as settlement statements, operating cost statements, and audited financial statements; (2) surveys of the directors and staffs of each of the development corporations; (3) on-site observations of buildings and neighborhoods; (4) census data at the tract, block group, and block face levels; and (5) cost indexes to adjust estimates for time and geography. Further, in 2001, informal telephone interviews were conducted with the housing directors and other key staff of the corporations to ascertain the status of their operations. These data, therefore, are unique in the study of housing for the mentally ill population. They capture both quantitative data on all relevant aspects of each development (costs, revenues, financing, building, and neighborhood characteristics) and qualitative data useful for background description and interpretation.³

Data on operating costs for this analysis were drawn from 1993, the last year such data were collected. The latest observed year of operation is used to capture the property in steady state (e.g., stable occupancy), thereby better reflecting long-term operating expenses.

Housing providers

Providers were a diverse group. All started small, consisting of a director plus a few key support personnel. All also focused their efforts on acquisition and renovation or rehabilitation—not new construction. And all contracted with property management firms to handle day-to-day management. Beyond these similarities, there were substantial differences in the structure of the nonprofit corporations, the development experience of their directors, the development and financing approaches that were pursued, and their evolution over time. Table 1 provides a thumbnail sketch of each developer and the key physical, locational, and financial aspects of their projects.⁴ One developer, Zenith Housing Associates (ZHA), went through three distinct phases. The buildings developed under each of these phases are consequently treated separately in our analysis and indicated as ZHA-1, ZHA-2, and ZHA-3.

³ Further details on database construction can be found in Harkness et al. (1997) and Newman et al. (2001).

⁴ To preserve confidentiality, we have changed the names of the housing providers and suppressed their locations.

Table 1. Thumbnail Sketches of RWJF-PCMI Developers in the Four Sample Cities

Housing for All (HFA) was a housing development operation run by the local mental health system. Its director had no previous hands-on housing development experience. HFA developed properties in neighborhoods with above-average poverty rates. Unlike other housing providers, HFA developed mostly three-bedroom units and primarily used state low-interest loans rather than grants for financing. Rents for less than half of the tenants were subsidized.

Neighborhood Investment Trust (NIT) was an independent agency, headed by a seasoned developer. NIT evolved over time and by 1993 had achieved a seven-person staff, including a full-time tenant liaison, with an annual payroll of more than \$200,000. Housing was developed in above-average neighborhoods. Two-thirds of the financing was from state grants.

Pinnacle Homes was an independent agency headed by a seasoned developer. Its staff grew over time, and by 1993, it included an architect, an accountant, and an administrative assistant. Although the RWJF loan was used for acquisitions, two-thirds of the long-term financing came from state grants, and, unlike other providers, Pinnacle Homes did not rely on bank financing at all.

Zenith Housing Associates-1 (ZHA-1) consisted of an official from the local mental health board, supported by a housing consultant. ZHA's initial development was already under way before the RWJF-PCMI program began: 39 percent of the financing came from state grants. Relative to other providers, ZHA-1 did little rehabilitation of properties.

Zenith Housing Associates-2 (ZHA-2). In the second phase, after its initial project, ZHA became a participant in the RWJF-PCMI program. Its management remained the same, but its development approach shifted markedly. Half of the financing came from state grants. Less than half of the tenants—less than was the case for most other providers—had mental illness.

Zenith Housing Associates-3 (ZHA-3). In this phase, ZHA underwent a significant management change, hiring a full-time housing professional to serve as its director and adopting a structure similar to that of NIT and Pinnacle Homes in their early phases. Three-fourths of the financing came from state grants. Less than half of the tenants had mental illness, and less than half received rent subsidies; these numbers are lower than they are for most other providers.

All Angels Development Corporation (All Angels) was a church-based entity that was aided by a housing development consultant and developed housing for those with mental illness. Although this preexisting nonprofit did not participate in the RWJF-PCMI, we include it in the sample because it worked very closely with HFA during the early years of the demonstration and operated as an adjunct to the RWJF-PCMI. All Angels received no state funding, but it used a small grant from the city's Community Development Block Grant allocation as well as a Department of Housing and Urban Development Section 202 loan and subsidies. Its properties were in high-quality neighborhoods.

Financing

Table 2 summarizes the key characteristics of the financing schemes used in the four study sites. (Further details are provided in appendix A.) State grants, in the form of forgivable loans, furnished the lion's share of project financing for all providers except All Angels and Housing for All (HFA). Conventional bank loans were the next major source of financing, used for about 60 percent of all properties and providing roughly a third of all capital. Pinnacle Homes was unique in that almost none of its properties used loans of any sort, with funding provided by a combination of state and county grants. Three providers used low-income housing tax credits on one of their projects. All Angels used a Department of Housing and Urban Development (HUD) 202 loan, and Neighborhood Investment Trust (NIT) had one project that used HUD McKinney funds and another that used HUD Section 811 funds.⁵ Only ZHA-2 used the RWJF loan fund as a source of long-term financing, while NIT and Pinnacle Homes used it for acquisitions, but replaced it with state grants as permanent financing.⁶

Finally, the operating costs of most properties were also heavily subsidized. In most cases, these took the form of rent subsidies to tenants, either federal Section 8 certificates or similar state housing assistance programs. Nine properties in the sample benefited from Section 8 Moderate Rehabilitation program rent subsidies, which are attached to housing units, not tenants. Only HFA and ZHA-3 had less than half of their tenant rents subsidized.

Property features

As shown in table 3, the typical building in the RWJF-PCMI is a four-unit apartment building that was constructed in the 1940s, is in good condition, and is located in a moderately poor neighborhood

⁵ Until 1990, the HUD 202 program provided financing for the development of housing for the low-income elderly population and people aged 18 to 62 with disabilities (including those with mental illness). In 1990, development subsidies for housing for nonelderly people with disabilities were shifted to a new program, Section 811. The McKinney housing programs provided subsidies for housing development and supportive services for homeless persons with disabilities.

⁶ The director of Pinnacle Homes argued that using private money for acquisition made worrying about potential community opposition unnecessary. HFA constructed a scheme in which the interest rate differential between the RWJF loan and U.S. Treasury securities was leveraged to pay off the principal on its low-interest state loan, with repayment of principal due in 30 years and interest-only payments required in the meantime.

Table 2. Summary Description of Financing Sources in the Four Study Sites

	Number of Properties	Number of Units	Source	Percentage of Total Financing	Percentage of Tenants with Rent Subsidies
All Angels Development Corporation	3	20	HUD 202 loan	96	100
			City CDBG grant	4	
Housing for All (HFA)	13	24	State loan	65	17
			Tax credits	22	
			State grant	13	
Neighborhood Investment Trust (NIT)	47	220	State grant	66	87
			Bank loan	34	
	10	32	Tax credits	47	100
			Bank loan	44	
			State grant	9	
	2	14	HUD McKinney grant	50	100
			State grant	50	
	1	16	HUD 811 grant	100	100
Pinnacle Homes	34	139	State grant	67	71
			County grant	33	
	2	4	Tax credits	60	100*
			Bank loan	40	
Zenith Housing Associates-1 (ZHA-1)	7	60	Bank loan	61	100*
			State grant	39	
Zenith Housing Associates-2 (ZHA-2)	11	82	State grant	52	52
			RWJF loan	48	
Zenith Housing Associates-3 (ZHA-3)	23	81	State grant	76	27
			Bank loan	24	

Source: 153 properties developed between 1988 and 1992 under the RWJF-PCMI.

Note: HUD = U.S. Department of Housing and Urban Development; CDBG = Community Development Block Grant.

*Section 8 Moderate Rehabilitation rent subsidies.

(i.e., median tract property values at the 37th percentile for the city). All of the housing providers pursued a scattered-site strategy. Thus, properties tended to be small and located in many different neighborhoods throughout the city. Because all of the properties underwent some degree of rehabilitation during the development process, they were generally in good repair. On-site observations indicated that the structures were well maintained, with only 14 percent rated as needing even minor repairs.

Table 3. Characteristics of Buildings in the Sample

	All		Pinnacle					Total
	Angels	HFA	NIT	Homes	ZHA-1	ZHA-2	ZHA-3	
Number of buildings	3	13	60	36	7	11	23	153
Number of units	20	24	282	143	60	82	81	692
Percentage of units with mentally ill tenants	72	83	72	64	72	47	33	63
Types of units								
Efficiency	20	0	8	4	0	1	11	44
1 bedroom	0	2	173	130	44	46	70	465
2 bedroom	0	7	101	9	15	34	0	166
3+ bedroom	0	15	0	0	1	1	0	17
Structure types								
Apartment building	0	1	21	34	7	11	6	80
Duplex	0	1	14	2	0	0	14	31
Town/Row house	0	11	12	0	0	0	0	23
Other	3	0	13	0	0	0	3	19
Number of units in the structure								
1 to 2	0	11	9	2	0	0	13	35
3 to 4	0	2	31	32	3	4	8	80
5 to 10	3	0	19	2	1	4	1	30
> 10	0	0	1	0	3	3	1	8
Year built (average)	1940	1927	1944	1944	1965	1945	1963	1946
Relative census tract property value*	90	33	24	57	67	49	35	37
Census tract poverty rate								
Average	15	33	23	14	8	19	22	21
Percentage > 40	0	15	15	0	0	0	13	9

Source: 153 properties developed between 1988 and 1992 under the RWJF-PCMI.

*Relative census tract property value is the median of the percentile rank of tracts where sample properties were located relative to all tracts in city (1 = properties located in the lowest-value tracts in the city; 99 = properties located in the highest-value tracts).

Representativeness of the demonstration sites

Of the four sites selected for this study, one was in the mid-Atlantic region, and the other three were in the Midwest. The 1990 populations of these cities were in the 300,000 to 750,000 range. To judge the representativeness of the study sites, data from the 1991 American Housing Survey (AHS) were used to compare the characteristics of the housing stock in these four cities with that of other central cities in the nation (U.S. Bureau of the Census 1993). Relative to the nation, the study cities had a somewhat lower proportion of rental housing units located in large buildings and modestly larger apartments. Neighborhood problems, as measured by such indicators as streets needing repair,

vandalized buildings, bars on the windows, and littered streets, were more prevalent in the national sample. Rental units in the study cities also have a greater diversity of land uses nearby, including both a greater prevalence of commercial establishments and a greater presence of single-family homes. All of these differences probably arise because the sample excludes the largest central cities in the nation. In addition, 1990 census data were used to compare median property values and rents in the study sites relative to all cities with populations of 50,000 or more (U.S. Bureau of the Census 1992). Property values and rents in the study sites fell between the 10th and the 35th percentiles and were at or near the mode of the distribution. Thus, the sample appears to be representative of smaller cities with lower-middle-range property values and rents.

Comparative methods

We compared the financial characteristics of the RWJF-PCMI sample of properties with general rental properties by drawing on other studies (Bogdon and Follain 1996; Emrath 1997) and analyzing two nationally representative samples of rental properties: the 1991 Residential Finance Survey (RFS) and the 1995-96 Property Owners and Managers Survey (POMS) (U.S. Bureau of the Census 1994, 1997). We compare the costs of developing and operating properties, revenues, and several key financial ratios that are typically used to assess a property's performance (Bogdon and Ling 1998; Bratt et al. 1998; Galster, Tatian, and Wilson 1999; Rohe, Quercia, and Levy 2001). All comparisons are done on a per unit, not square foot, basis, because none of the sources used for comparison report the area of the units. Operating costs are broken down into five major components: maintenance and repair, taxes and insurance, utilities, management and administration, and debt service. The Consumer Price Index was used to convert all financial data to 1995 dollars.

Comparison data sets

The RFS, the only nationally representative source of data on the financing of residential properties, has been conducted by the U.S. Bureau of the Census as part of the decennial census since 1950. The goal of the POMS, also conducted by the Bureau of the Census, was to learn more about rental housing and its providers. Through questionnaires sent to owners and managers of units surveyed in the AHS, information was collected on maintenance, management practices, tenant policy, finances, owner characteristics, and other topics.

Interviewing for the survey took place between November 1995 and June 1996. Two important differences between the RFS and the POMS are that the RFS sampling frame is based on properties, while the POMS samples housing units, and properties are defined somewhat differently in the two surveys (Bogdon and Ling 1998). Despite these differences, the data sets, using the sampling weights provided, produce similar estimates of the distributions of key features (Bogdon and Ling 1998).

To achieve comparability with the RWJF-PCMI sample, the RFS and the POMS were restricted to properties with between 2 and 20 units, because properties with larger numbers of units are likely to achieve greater economies of scale. The POMS sample was further restricted to properties reported to serve low-income tenants exclusively, because those with mental illness constitute a very low income population, and the financial profiles of properties serving higher-income versus lower-income tenants are likely to be very different.⁷ A similar restriction could not be applied to the RFS, because it does not contain an indicator of tenant income. Average per unit property value for 2 to 20 units was very similar in the RFS and the POMS when the latter was not restricted to properties serving low-income tenants.

Capital costs of developing properties in the RWJF-PCMI sample were computed from primary source documents. Unfortunately, there is no nationally representative data set on the costs of acquiring and rehabilitating small multiunit properties. The best option is reported property value per unit from the 1991 RFS and the POMS, under the assumption that capital costs will closely approximate value, after allowing for depreciation.⁸ A limitation of the RFS is that there is considerable masking of values in the public release file. However, comparison with the results of Bogdon and Follain (1996), who used the internal U.S.

⁷ Comparing small properties serving low-income versus higher-income tenants showed that, in absolute terms, taxes and insurance costs, along with maintenance and repair costs, were lower for properties serving low-income tenants. But as a fraction of property value, these costs were similar for the samples. These relationships are plausible because taxes and insurance are based on a property's value, which is higher for higher-income tenants. Maintenance and repair costs may be higher for higher-income tenants because they are more likely to demand better maintenance (e.g., more frequent cleaning) or because higher-valued properties may have more expensive materials and amenities. Springer and Waller (1996) provide evidence that the costs of maintenance and repair correlate with property values. Management costs were somewhat higher among properties serving low-income tenants.

⁸ Because the RWJF-PCMI properties were located in decent neighborhoods with presumably efficient real estate markets, this assumption is reasonable.

Bureau of the Census file with unmasked values, indicates that using the masked values produces a reasonable approximation (i.e., 6 percent lower).⁹

The POMS is missing substantial amounts of data on operating costs. The results presented here use only cases with complete reporting of costs, about 35 percent of the whole sample. Appendix B describes an alternative approach that retained cases with incomplete reporting; this yielded somewhat different numbers, but the same conclusions.

Comparability of RWJF-PCMI to national samples

The size of RWJF-PCMI properties was quite comparable to that of rental properties nationwide. The largest building contains 17 units. A quarter had less than 3 units, while about half had 3 or 4. By comparison, according to the POMS, somewhat more than half of multiunit rental properties nationwide have 2 units, another quarter have 3 or 4, and only about 5 percent have more than 20 units.¹⁰ About half of the structures in our sample are small apartment buildings, while another third are townhomes or detached duplexes. Roughly two-thirds of the 692 units are one-bedroom units and one-fourth are two-bedroom units. Most were built between 1930 and 1960.

Compared with the rental housing stock across the country, the RWJF-PCMI properties were on average older. Although these properties were only slightly more likely to have been built before 1950 than national samples of rental properties (51 percent of the RWJF-PCMI properties compared with 49 percent of the POMS and 43 percent of the RFS), RWJF-PCMI properties were far more likely to have been built in the 1950–69 period (41 percent versus 20 percent of the POMS sample and 27 percent of the RFS sample).¹¹

Compared with national data from the POMS, the RWJF-PCMI buildings were more likely to have laundry facilities (43 percent for the

⁹ Using the internal Bureau of the Census RFS with unmasked property values, Bogdon and Follain (1996) report an average per unit value for properties with five or more units of \$49,576. Attempting to replicate their analysis using the public release file, we obtain an estimate of \$46,457—6 percent less than theirs.

¹⁰ Shifting the unit of measurement to dwelling units instead of properties changes this picture considerably. Over half of all units are located in properties with more than 20 units, and only a fourth are located in properties with less than 5 units.

¹¹ These and the other statistics in this section derived from the POMS were obtained using the property weights.

RWJF-PCMI versus 30 percent for the POMS), but less likely to have air conditioning (18 percent versus 29 percent, respectively). The latter difference may be a consequence of having no southern city in the RWJF-PCMI. Nearly all properties in the RWJF-PCMI sample (92 percent) were heated with natural gas. By contrast, 15 percent of small properties in the POMS used electric heat, 11 percent used oil, and 11 percent used some other heating fuel.

On average, the census tracts where these properties were located had median home values at the 37th percentile of all tracts in their respective cities, although this varied considerably among providers, ranging from the 90th percentile (for All Angels) to the 24th percentile (for NIT).¹² Census tract poverty rates—the proportion of households with income below the federal poverty line—ranged from 8 percent for ZHA-1 to 33 percent for HFA. Three housing providers, HFA, NIT, and ZHA-3, each had about 15 percent of their properties in tracts with poverty rates higher than 40 percent, one widely used indicator of neighborhood distress.

Analysis

Capital costs

The capital costs of housing for persons with mental illness and for market-rate housing do not differ substantially. Capital costs include acquisition costs, renovation hard and soft costs, and personnel costs associated with acquisition and renovation. Table 4 shows that these costs per unit (in 1995 dollars) ranged from a low of about \$20,000 for ZHA-3 to a high of almost \$66,000 for All Angels. Differences in capital costs across providers closely mirrored the variations in neighborhood conditions described earlier, with the exception of HFA, which had among the highest development costs for properties located in some of the lowest-priced neighborhoods, as we will discuss more fully later.¹³

¹² We examined tract features and rankings for other measures as well, including median income, median housing construction date, owner-occupancy rate, and fraction of boarded-up buildings. These were all highly correlated.

¹³ Excluding HFA, the correlation coefficient between total development costs and median census tract property values is 0.44 ($p < 0.001$). If HFA is included, it drops to 0.22.

Table 4. Average Development Costs per Unit
(In 1995 Dollars)

	All Angels	HFA	NIT	Pinnacle Homes	ZHA-1	ZHA-2	ZHA-3	Total
Hard costs								
Acquisition costs	16,636	21,256	19,743	21,221	27,733	22,706	16,457	20,670
Renovation hard costs	40,623	33,841	8,003	16,378	6,922	2,005	2,584	10,134
Subtotal	57,259	55,097	27,746	37,599	34,655	24,711	19,041	30,804
Developer staff and renovation soft costs								
Developer staff costs*	3,708	3,708	1,823	5,572	562	2,242	1,198	2,585
Renovation soft costs	5,010	4,063	493	52	—	—	—	497
Subtotal	8,718	7,771	2,316	5,624	562	2,242	1,198	3,082
Total development costs	65,977	62,868	30,062	43,223	35,217	26,953	20,239	33,886

Source: 153 properties developed between 1988 and 1992 under the RWJF-PCMI.

*Includes predevelopment costs and renovation management costs.

The average capital costs of \$33,886 per dwelling unit in the RWJF-PCMI properties is somewhat lower than the median per unit property value of \$37,327 for 2- to 20-unit properties in the RFS and somewhat higher than the mean \$31,136 per unit value of small low-income properties in the POMS.¹⁴ The lower property values in the POMS, relative to capital costs in the RWJF-PCMI sample, most likely occur because POMS properties have undergone some depreciation, while properties in the RWJF-PCMI were all newly renovated. Thus, capital costs for the latter properties appear to be no higher than those for comparable properties housing low-income tenants.

One caveat applies, however. Almost none of the housing providers in the RWJF-PCMI properties faced neighborhood opposition and associated delays and design adjustments that could well inflate development costs. The sole exception was HFA, which did encounter such difficulties. HFA had the second-highest average development costs in the sample, and its properties were located in some of the least expensive neighborhoods (i.e., second-worst median census tract property values, as shown in table 3).¹⁵ Although speculative, the evidence suggests that the neighborhood opposition HFA encountered may have contributed to its exceptional development costs, although other factors were important as well.¹⁶ One developer indicated that using private capital (the RWJF loan) for acquisition enabled him to avoid regulations requiring public notice associated with the allocation of public funds and any attendant negative outcry from the community.

Operating costs

Operating costs for housing for persons with mental illness are modestly higher than for market-rate housing, and their composition differs as well. As shown in table 5, management and administration costs are considerably higher for properties in the RWJF-PCMI sample, relative to national samples. Utility costs are also mostly higher, but taxes and

¹⁴ The mean property values of 2- to 20-unit properties in the RFS are considerably higher, because the distribution is skewed upward.

¹⁵ As noted earlier, All Angels had the highest development cost, most likely because its properties were located in the neighborhoods with the highest property values in the sample.

¹⁶ Two other factors could also explain why HFA's development costs were so high: (1) Its director lacked specific housing development experience; and (2) its buildings had a small number of units.

Table 5. Average Annual Operating Costs per Unit
(In 1995 Dollars)^a

	RWJF Sample						POMS 2- to 20-unit properties, low income		
	All Angels	HFA	NIT	Pinnacle Homes	ZHA-1	ZHA-2		ZHA-3	Total
Repair and maintenance	672	1,376	599	912	880	1,055	788	793	745
Utilities	638	1,060	335	775	1,167	931	393	610	514
Taxes and insurance	609	426	454	441	90	86	384	371	657
Management fees and administrative costs ^b	1,055	3,643	1,281	676	823	818	822	1,083	382
Subtotal	2,974	6,505	2,669	2,804	2,960	2,890	2,387	2,857	2,298
Debt service	3,745	1,358	1,030	42	3,530	1,905	558	1,121	1,282
Total	6,719	7,863	3,699	2,846	6,490	4,795	2,945	3,978	3,580

Source: 153 properties developed between 1988 and 1992 under the RWJF-PCMI.

^a Includes only the final observed year of operation.

^b Includes management fees, staff salaries, office overhead, and legal and accounting costs.

insurance costs are lower. Repair and maintenance costs are not appreciably different. Debt service per unit was comparable, but only because a larger proportion of properties in the RWJF-PCMI sample, relative to a national sample, had long-term debt. When samples are restricted to properties with some debt service, payments in the RWJF-PCMI sample are lower.

Excluding debt service, mean annual per unit operating costs in the RWJF-PCMI properties are \$2,858, remarkably close to estimates of operating costs derived from other sources, as reported in Emrath (1997).^{17,18} However, the samples supporting the estimates reported in Emrath (1997) likely contain properties serving higher-income tenants. Compared with small properties serving low-income tenants in the POMS, operating costs in the RWJF-PCMI properties are 27 percent higher. As a fraction of property value, operating costs are 8.4 percent in the RWJF-PCMI properties and 7.4 percent in the POMS. These considerations suggest that operating costs in the RWJF-PCMI properties are modestly higher than those of comparable rental properties serving the general population.

The distribution of costs across different expenditure categories differs from what is found for rental properties nationwide and provides clues as to why operating costs for the RWJF-PCMI properties are somewhat higher than for similar properties in the POMS. One key difference is that, with one exception, management and other administration costs were at least 2 or 3 times larger in the RWJF-PCMI properties than in the POMS. The exception, HFA, had management and administration costs approximately 10 times larger. As a consequence, management and other administration costs absorbed the biggest share of operating expenses in the RWJF-PCMI properties, 38 percent, in contrast to the

¹⁷ Emrath (1997) reports a comparable estimate of \$2,849 using the POMS and \$2,773 using the Institute for Real Estate Management's (IREM's) 1996 Income/Expense Analysis for Conventional Apartments. The third data set examined by Emrath (1997), the National Apartment Association's (NAA's) 1996 Survey of Income and Expenses in Rental Apartment Communities, produced a somewhat higher estimate of \$3,102.

¹⁸ As is the case with development costs, HFA's operating cost profile differs substantially from that of the other housing providers. Its total operating cost, excluding debt service, of \$6,504 per unit is more than twice the mean. Excess management and administration costs are the critical factor here. Although HFA still had the highest operating costs in the sample, even after its high management and administration costs were excluded (34 percent higher than those of ZHA-1, its nearest competitor), this can be attributed to the larger size of HFA's dwelling units (15 of its 24 units had three bedrooms, as shown in table 3). On a per square foot rather than a per unit basis, then, HFA's operating costs, excluding management and administration, were actually among the lowest.

POMS, where these costs constituted about 15 percent of the total. While the small-scale, scattered-site approach adopted by the RWJF-PCMI developers might explain their higher management and administration costs, having tenants with mental illness cannot be discounted as a factor.

The comparison for taxes and insurance is nearly the exact opposite. Across the board, taxes and insurance for the RWJF-PCMI properties were substantially lower than in the POMS, less than half as large in most cases. Two of the housing providers, ZHA-1 and ZHA-2, paid no property taxes at all. Even after excluding these providers, the average cost for taxes and insurance is half that reported in the POMS. Differences in property values could explain differences in taxes and insurance costs, since these costs are typically pegged to property values. But as a fraction of property value (assuming that development costs approximate property values in the RWJF-PCMI sample), taxes and insurance were 1.1 percent in the RWJF-PCMI sample versus 2 percent in the POMS.

Average maintenance and repair costs for the RWJF-PCMI sample were about 7 percent higher than for POMS properties serving low-income tenants. As a fraction of property value, maintenance and repair costs were 2.3 percent, nearly the same as in the POMS. The similarity of these figures makes it difficult to judge whether maintenance and repair costs are higher for properties housing persons with mental illness. Previous research using the RWJF-PCMI sample suggests that they are (Newman et al. 2001).¹⁹ Arguably, the recent renovation of buildings in the RWJF-PCMI should result in lower maintenance and repair costs. Thus, on the one hand, the near parity of these costs in the RWJF-PCMI properties and the POMS sample of small properties with low-income tenants may indicate higher costs associated with tenants with mental illness. On the other hand, the nonprofit housing agencies in the RWJF-PCMI demonstration may have kept their properties in better condition than the typical low-cost housing provider. Although these data are inconclusive, they do not suggest higher maintenance and repair costs associated with occupancy by persons with serious mental illness.

¹⁹ Newman et al. (2001) find that the maintenance and repair costs associated with tenants who have mental illness is greatest with a mixture of tenants with and without mental illness, and that buildings in which 100 percent of the tenants have mental illness experience repair and maintenance costs similar to those for buildings that have no tenants with mental illness. These authors speculate that such a situation may occur if persons with mental illness are more comfortable and secure living with others like themselves. It is possible that service delivery could also be more effective in such settings.

Utility costs in the RWJF-PCMI properties were about 20 percent higher than in the POMS, despite more of the former having gas heat, which is cheaper than electric or oil heat, and fewer being air-conditioned.²⁰ The higher utility costs in the RWJF-PCMI properties may have occurred because the housing providers paid for a larger share of their tenants' utilities than other rental property owners did. But they may also reflect unnecessary consumption by tenants with mental illness or the possibility that they are likely to spend more time at home than other tenants. Whatever the underlying cause of the higher utility costs, however, developers of housing for tenants with mental illness are likely to incur higher utility costs in such properties than in housing for other low-income tenants.

At \$1,121 per unit, annual debt service for the RWJF-PCMI properties is comparable to that for small low-income properties in the POMS (\$1,282). This comparability is deceptive, however, because a higher proportion of units in the POMS had no debt service: 41 versus 31 percent for the RWJF-PCMI sample. Restricting the analysis to properties with debt service, this cost was considerably higher in the POMS. As a fraction of property value, mean debt service for properties that had debt was 9.5 percent for the POMS, versus 5 percent for the RWJF-PCMI. Given the development subsidies involved, this is not surprising.

There were substantial differences in the debt service paid by the RWJF-PCMI housing providers. Annual debt service per unit was highest for All Angels (\$3,745), which used a HUD 202 loan. Pinnacle Homes, whose properties were almost entirely funded by grants, had almost no debt service, and ZHA-3, whose properties were 76 percent funded by grants, had an annual debt service of \$558 per unit. When debt service is added to operating costs, properties in the RWJF-PCMI sample have annual expenses 11 percent higher than small low-income properties in the POMS do.

Effects of property management

Some of the differences between the operating costs in the POMS and the RWJF-PCMI could stem from the fact that all of the latter properties were professionally managed, compared with only about 20 percent in the POMS. The POMS owner-managers may not have considered the cost of their time in calculating management costs, and they may

²⁰ Utility costs in the RWJF-PCMI properties were also somewhat higher than the utility cost estimates reported by Emrath (1997) from the IREM and NAA samples.

also have contributed their labor in maintaining and repairing their properties.

To investigate these possibilities, we divided the POMS sample into owner-managed properties and those with a management company (excluding properties reporting either an on-site or off-site property manager but not a management company). For context, it is worth noting that the average value of professionally managed POMS properties was very low: 21 percent less than POMS owner-managed properties and 27 percent less than in the RWJF-PCMI sample.

Professionally managed properties in the POMS had dramatically higher management costs than owner-managed properties: \$486 versus \$329, respectively. Yet even the higher management costs for professionally managed properties in the POMS are still significantly lower than management costs in the RWJF-PCMI sample. As a fraction of property value, management costs for professionally managed properties in the POMS were 2 percent, versus 3.2 percent in the RWJF-PCMI sample. Thus, although the higher costs of professionally managed properties narrow the difference between the POMS and the RWJF-PCMI sample, a significant gap remains.

Consistent with expectations, maintenance and repair costs are also higher among professionally managed versus owner-managed properties in the POMS. Maintenance and repair costs of professionally managed properties in the POMS exceeded the RWJF-PCMI sample by 4 percent. As a fraction of value, maintenance and repair costs were 3.4 percent for professionally managed properties in the POMS versus 2.3 percent for the RWJF-PCMI. These figures strengthen the case for asserting that maintenance and repair costs for the RWJF-PCMI sample were no higher than those for comparable professionally managed market-rate rental properties.

Professional management in the POMS was associated with lower utility costs, widening the gap with utility costs in the RWJF-PCMI sample. Professionally managed properties in the POMS also had lower taxes and insurance costs, which reduced, but did not close, the gap with the RWJF-PCMI sample. As a fraction of property value, taxes and insurance costs dropped from about 2 percent in the full POMS sample of small properties to about 1.6 percent for professionally managed small properties, still higher than the 1.1 percent of property value in the RWJF-PCMI sample.

None of the results for professionally managed properties in the POMS significantly alter the findings. It is apparent that, compared with market rate rental properties, properties in the RWJF-PCMI sample

still have higher management and utility costs and lower taxes and insurance costs. Maintenance and repair costs appear to be roughly comparable.

Rent subsidies and turnover

Rent subsidies and low turnover enabled housing providers to receive revenues equivalent to or better than market rents for their units. As shown in table 6, annual contract rents ranged from \$3,335 (\$278 per month) for ZHA-3 to \$8,126 (\$677 per month) for HFA and averaged \$4,794 (\$400 per month), slightly higher than the average annual contract rent of \$4,464 in the POMS. As a fraction of value, rents in the RWJF-PCMI and POMS samples were nearly identical at about 14.1 percent. When properties serving higher-income tenants were not eliminated from the POMS sample, contract rents were only 11.5 percent of value. These figures suggest that rents in the RWJF-PCMI properties were not much, if at all, below market rates for units of comparable quality. RWJF-PCMI housing developers were probably able to receive something approximating market rents for their units because most tenants had rent subsidies.

Rent losses due to vacancies are low in the RWJF-PCMI properties and average about 4 percent. Only ZHA-2 experienced vacancy losses exceeding 10 percent, which are more typical of the private-market multifamily rental properties reported in the RFS (see table 2 in Bogdon and Follain 1996) and the 10 percent vacancy rate in the POMS. Due, in part, to such low vacancy losses, the average annual rent receipts of \$4,594 per unit for the RWJF-PCMI sample of properties is only 12 percent lower than rent receipts reported in the RFS (see table 2 in Bogdon and Follain 1996), and 15 percent higher than in the POMS. The low vacancy rate in the RWJF-PCMI properties is attributable to demand: Typically there was a waiting list, so units did not remain vacant for long.

Financial viability

Housing for persons with mental illness can be financially viable, but because tenants are poor and operating costs are high, deep subsidies are required. The financial viability analysis uses a variety of ratios that are standard in real estate practice: (1) the ratio of net operating income (NOI) to value (implied capitalization rate or cap rate), (2) the ratio of NOI to debt service (debt coverage ratio or DCR), and (3) the ratio of potential reserve contributions to value (Bogdon and Follain

Table 6. Average Annual Revenues and Key Operating Ratios per Unit
(In 1995 Dollars)

	RWJF Sample						POMS 2- to 20-unit properties, low income		
	All Angels	HFA	NIT	Pinnacle Homes	ZHA-1	ZHA-2		ZHA-3	Total
Contract rent (per unit)	6,730	8,126	4,309	4,518	7,151	5,214	3,335	4,794	4,464
Rent/value (%)*	10.2	12.9	14.3	10.5	20.3	19.3	16.5	14.1	14.3
Vacancy rate (%)	0.00	0.00	1.30	6.68	3.55	12.09	4.72	4.31	10.31
Estimated rent receipts (per unit)	6,730	8,126	4,253	4,216	6,897	4,584	3,178	4,594	4,004
Net operating income	3,756	1,622	1,584	1,411	3,936	1,694	791	1,736	1,706
Implied capitalization rate (%)*	5.7	2.6	5.3	3.3	11.2	6.3	3.9	5.1	5.5
Debt coverage ratio	1.00	1.19	1.54	33.63	1.12	0.89	1.42	1.55	1.33
Reserve potential (\$)	11	264	554	1,369	406	(211)	233	556	424
Reserve potential/value*	0.00	0.42	1.84	3.17	1.15	-0.78	1.15	1.64	1.36

Source: 153 properties developed between 1988 and 1992 under the RWJF-PCMI.

*Total development costs used as a proxy for value in the RWJF-PCMI sample.

1996; Bogdon and Ling 1998; Galster, Tatian, and Wilson 1999).²¹ NOI is defined as rental income minus costs, excluding debt service. NOI minus debt service, or rental income left after subtracting all costs, constitutes funds that could be added to reserves for future repair and replacement needs.

The market value of an asset should reflect the size and risk of its future income stream. Thus, the NOI-to-value ratio, or the cap rate, should hover around equilibrium for for-profit properties. The cap rate of 5.1 percent for the RWJF-PCMI properties is somewhat lower than the 5.5 cap rate in the POMS sample.²² The similarity between RWJF-PCMI and POMS cap rates suggests that in the RWJF-PCMI properties, somewhat higher rental revenues (relative to value) were sufficient to cover their somewhat higher operating costs (relative to value). However, it is worth noting that the POMS subsample in this comparison has very low cap rates. For POMS properties with more than 20 units and higher-income tenants, the median cap rate is nearly 10 percent, compared with 7.2 percent for small low-income properties in the POMS and 5.6 percent in the RWJF-PCMI. Thus, even with their deep subsidies, properties in the RWJF-PCMI sample would not be considered very profitable investments by the real estate industry.

Because they have so little debt, the RWJF-PCMI properties have a favorable DCR of 1.55 versus 1.33 for the POMS. Excluding properties with no debt from both samples, the DCR for RWJF-PCMI properties relative to the POMS is even more favorable: 1.21 to 0.77.²³ Overall, therefore, the former are typically generating enough revenue to cover their debt, although a few housing providers were having problems. ZHA-2 revenues covered only 89 percent of its mortgage payments, and All Angels was barely meeting its payments.

²¹ The ratios presented in table 6 were computed by using sample average costs, rental income, and property values, not by first constructing the ratios and then averaging over the sample. That is, they are ratios of averages, not averages of ratios. This implies that the ratios presented are those of a property with average cost, income, and value. Other options and the reasons for choosing this one are discussed in appendix B.

²² It is substantially less than the cap rate of 9.3 percent computed on the RFS sample (see table 11 in Bogdon and Follain 1996), but the RFS excludes several important operating costs, such as maintenance and repair. Therefore, comparison with the RFS cap rate is not valid.

²³ A DCR of less than 1 in the POMS subsample of properties with debt occurs because 41 percent of these properties failed to generate enough revenue to cover mortgage payments and because aggregating these properties with a low (or even negative) DCR pulls down the average.

Finally, the next-to-last line of table 6 subtracts debt service from NOI to produce an estimate of the reserve funds that might be saved for downstream capital costs, and the last line shows the ratio of this potential reserve contribution to a property's value. These measures are perhaps the most relevant to judging the long-term financial viability of the RWJF-PCMI properties, because they measure the capacity to meet future capital needs without further subsidy. Bratt et al. (1998) suggest that the capital reserve contribution should be at least 2 percent of value. Overall, the RWJF-PCMI properties did not meet this standard, with potential contributions to reserves reaching, on average, only 1.6 percent of value. However, at 1.4 percent of value, potential reserves in the POMS comparison sample were even lower. Thus, it is not clear whether the failure of the RWJF-PCMI properties to meet the "2 percent threshold" is a serious concern. In any event, the average performance of RWJF-PCMI developers at generating reserves does not appear out of line with other owners of small rental properties.

As with other viability indicators, there is substantial variation across housing providers in the potential reserve-to-value ratio. For Pinnacle Homes, which had little debt, this ratio exceeded 3 percent, suggesting that it should have little difficulty addressing future capital needs. At the other extreme, ZHA-2 was operating at a loss.

Update

On the basis of the foregoing analysis of financial data from the early 1990s, we conclude that two housing providers were doing very well (Pinnacle Homes and NIT), two were faring modestly well (ZHA-1 and ZHA-3), and three faced potential problems (All Angels, HFA, and ZHA-2). Brief telephone interviews with the directors of the RWJF-PCMI nonprofit housing development corporations in spring 2001 generally corroborated this conclusion. Moreover, these interviews suggest both common lessons learned by housing providers and insights into the economies that can be achieved when the scale of operation increases.

In 2001, all of these nonprofits continued providing housing for persons with mental illness, and most were thriving. Between 1993 and 2001, nearly all had more than doubled the number of units and buildings they owned. The sole exception is All Angels, which never intended to expand beyond its three properties. With an increased scale of operation, it also became economically feasible to move more functions such as property management and tenant screening in-house, although this

occurred later than expected and, in some cases, after a few false starts. Again, All Angels is the exception, since it still relies on an outside management company. All of the properties examined in this study are still operating and serving the mentally ill population, except for one building that had to be shut down and sold because of drug activity and other deterioration in the neighborhood.

Pinnacle Homes

The foregoing financial analysis indicated that, in the early 1990s, the housing provider with the deepest development subsidies, Pinnacle Homes, had the most favorable long-term profile, with the largest surplus after operating expenses and debt service. More than 70 percent of its tenants also had rent subsidies. Pinnacle Homes acquired buildings in census tracts with above-median property values, and it had higher development costs than most of the others did. But rents were low enough to be affordable to at least some tenants without rent subsidies. Thus, deep development and rental subsidies not only enabled Pinnacle Homes to achieve a large operating surplus, but they also allowed it to provide unsubsidized tenants with quality units in decent neighborhoods and at reasonable rents. This development and operation plan continued in 2001. No major repairs have been necessary. Having built up considerable equity, Pinnacle Homes no longer uses grants from the county for part of its financing, although it does continue to use state funds. This supports our earlier observations on the financial strength of its properties and also suggests a model in which generous subsidies in the early phases can lead to a more self-sustaining housing development agency in the long run.

NIT

NIT had access to generous, though not full, development subsidies and worked in a higher-cost housing market than the other developers. Low development and operating costs, in combination with a substantial fraction of rent-subsidized tenants, produced a fairly optimistic long-term viability profile for these properties in the early 1990s. Less encouraging is the fact that NIT achieved its low-cost development strategy by sacrificing the neighborhood quality of some of its properties; 15 percent of them were located in census tracts with poverty rates exceeding 40 percent.²⁴

²⁴ It should be noted, however, that such neighborhoods do not necessarily constitute bad places for persons with mental illness to live. In fact, some research indicates that

NIT continues to pursue the same creative path it forged in the earlier period, having expanded its mission beyond serving only those with mental illness to those with substance abuse problems and using a mix of funding sources for different kinds of projects. It, too, has not had to make major repairs on the properties developed between 1988 and 1992. In addition to its scattered-site housing, NIT has also developed some larger projects, because they are more cost-effective and lend themselves better to the 24-hour on-site staff required by their new type of residents.

ZHA

The financial analysis suggested that ZHA-1 and ZHA-3 were faring moderately well in the early 1990s; both were able to contribute slightly more than 1 percent of value annually to reserves. The approaches taken for these two sets of properties differed dramatically, however. All of ZHA-1's properties were subsidized under the Section 8 Moderate Rehabilitation program, allowing it to provide units in fairly affluent neighborhoods and to charge rents high enough to cover a heavy debt burden while still achieving a modest surplus for future capital needs.

By contrast, only a quarter of ZHA-3's tenants had rent subsidies. Even though three-quarters of its development costs were covered by state grants, which are deep development subsidies, ZHA-3 had to follow a low-cost approach to make its units affordable to unsubsidized tenants, with per unit development costs significantly below those of other housing providers. Although ZHA-3 had the lowest rents in the RWJF-PCMI properties, the fact that only a third of its tenants had mental illness suggests that units may have been unaffordable for much of this population. Thus, ZHA-3 appeared to be walking a tightrope between offering its units at rents affordable to persons with mental illness and sustaining the long-term viability of its properties.

In contrast to the other two sets of ZHA properties, ZHA-2 was operating at a loss in the early 1990s, despite its fairly high cap rate. This situation not only raised the specter of loan default, but also threatened

the social integration of people who are mentally ill may be better in neighborhoods exhibiting some degree of social diversity or disorganization (Newman et al. 1994; Segal, Silverman, and Baumohl 1989; Trute and Segal 1976). Thus, NIT's cost-saving strategy of siting properties in lower-quality neighborhoods may have produced better mental health outcomes. Our continuing research on the housing component of the RWJF-PCMI will address this question.

the longer-term ability to maintain and repair the developments. ZHA-2's 12 percent vacancy loss, the highest among the RWJF-PCMI properties, provides a partial explanation. The vacancy loss may have been a consequence of its rents, which were also among the highest in the sample and were probably not affordable for 50 percent of its tenants without rent subsidies. But the long-term outlook for ZHA-2 may be less dire than these statistics imply. It was the only provider to use the RWJF-PCMI loan fund for permanent financing. The reason most housing providers did not use the fund in this way, despite the low interest rate, is that monthly payments were high because of the short amortization schedule. Therefore, ZHA-2 had a heavy debt service obligation during our analysis period. But after the 10-year loan term, all of the revenues previously used to make monthly payments on the loan would be available for capital needs. While this is a risky strategy, because unforeseen rent shortfalls or unexpected repair needs in the interim could cause serious cash flow problems, it is apparently proving viable in the long term.

Our conversation with ZHA's director confirmed our concerns about the viability of some of its properties. Although all of the properties that ZHA developed between 1988 and 1992 are still operating, their financing was restructured dramatically in 1998, resulting in substantial savings. Some major repair work, such as replacing plumbing systems, has been required, and ZHA has just embarked on a three-year, \$600,000 capital improvement process. In contrast to past practice, ZHA now performs more extensive renovation when properties are acquired, which suggests that some of the properties developed earlier may have needed more upgrading at acquisition than they received. Also in contrast to the past, ZHA now aggressively pursues federal McKinney grants and has received one McKinney grant every year since 1998.

All Angels

All Angels failed to generate surplus rental income to save for future needs, raising concerns in the early 1990s about the long-range prospects for its properties. All Angels followed an approach similar to that of ZHA-1. Using federal subsidies in the form of a Section 202 loan and the Section 8 unit-based rent subsidies that came with it, All Angels acquired fairly high-cost properties in some of the more affluent census tracts in its city. Unlike ZHA-1, however, rental income was low relative to development costs (or value). Consequently, All Angels had little cash left over after making its sizable loan payments.

All Angels continues to operate its three properties, and unlike the other corporations, it had no aspirations to develop additional properties. Therefore, it has not moved property management in house, nor has it expanded its tenant population beyond those with mental illness.

HFA

Finally, our financial analysis raised concerns about HFA's long-term viability. HFA resembled ZHA-3 because few of its tenants had rent subsidies. In both cases, the housing providers seemed to have taken this key factor into consideration by acquiring properties in the lower-cost tracts of their cities. HFA's strategy was distinct, however, in that it developed properties with a much higher proportion of two- and three-bedroom units than the other housing providers. The motivation was apparently to economize by having two or more tenants with mental illness share an apartment.

While this approach was an attempt to cope with a difficult financial situation, it was marred by excessive development, management, and administration costs. HFA's development costs per unit were exceeded only by those for All Angels and were more than twice as large as NIT's and ZHA-3's, despite the fact that HFA neighborhoods had the highest poverty rates in the sample.

After 1993, HFA's difficulties with the properties developed between 1988 and 1992 proved to be even more serious than our financial viability analysis suggested. Not only was a major refinancing required to reduce debt service, but significant repairs were also needed because of insufficient renovation at acquisition. This latter assessment was a surprise, because HFA spent far more on renovation and had much higher development costs than all of the other housing providers in the sample except for All Angels. Much of this spending was apparently inefficient. Partly as a result of these difficulties, HFA now uses a different approach for its properties, relying much more heavily on Section 8 vouchers. Like NIT, HFA also reports that larger buildings (about 15 units) are much more cost-effective to maintain and operate than the very small one- or two-unit buildings developed between 1988 and 1992.

Conclusions

A key finding of this study is that after more than 10 years, the non-profit housing developers spawned by the RWJF-PCMI continue to

thrive, and virtually all of the properties developed in the 1988–92 period continue to operate and serve persons with mental illness. Thus, housing for this population can be successfully financed, developed, and managed. This result is all the more noteworthy because, while most of the directors of these nonprofit corporations had housing experience, none had previously worked with tenants with mental illness. The main challenges in developing and managing housing for those with serious mental illness therefore appear to be securing sufficient funding, capable staff, and effective partnerships with service organizations to both assess and meet tenant needs. Such challenges increasingly characterize housing development for other vulnerable populations, such as the frail elderly and poor families with children.

The demonstration also provides insights into the development and operating costs and subsidy requirements of housing for persons with mental illness. Housing development costs for this population do not differ appreciably from costs for market-rate housing that is of similar age, size, and type and located in the same sorts of neighborhoods. While neighborhood opposition may raise development costs, our study could not test this hypothesis because only one housing provider in the sample experienced any opposition; at the same time, however, this provider was also characterized by other attributes that increase costs. As suggested by one of the developers, having a private source of funding to finance acquisition may have been instrumental in keeping development costs low. Since not all developers of housing for persons with mental illness will have access to private capital, identifying other ways to mitigate neighborhood opposition would be a worthwhile task.

In contrast to development costs, there is evidence of higher operating costs, particularly management and administration costs, in housing for persons with mental illness compared with general multiunit rental properties. Utility costs to the housing provider were also somewhat higher than for comparable multiunit rental properties, probably because providers must bear a greater share of such costs. These higher costs are partially offset by lower taxes and insurance. As previously noted, some of the properties in the sample benefited from tax breaks from the jurisdictions in which they were located. The relationship between occupancy by persons with mental illness and costs of repair and maintenance is not clear.

The higher management and administration costs in this sample may be somewhat idiosyncratic, however. The RWJF–PCMI providers were all just getting started, operated on a relatively small scale, and had portfolios composed of small buildings on scattered sites. Each of these factors could contribute to relatively inefficient management and,

hence, higher costs. Some evidence that the scattered-site, small-building approach may have contributed to higher operating costs is demonstrated by the fact that two of the housing agencies have begun to develop at least some larger-scale projects, citing greater efficiency as a motivating factor. In addition, HFA, which was the most extreme example of scattered-site development, averaging less than two units per property, had much higher management and administration costs than any of the other providers. Thus, different development strategies and more operational experience could result in lower management and administration costs.

However, it seems unlikely that greater efficiencies could achieve the 50 percent reduction in management and administration costs needed to bring them more into line with those found in typical rental properties. This suggests that properties housing persons with mental illness require greater management attention and effort. Indeed, two of the most successful developers (NIT and Pinnacle Homes) had dedicated staff acting as tenant liaisons or “housing case managers.” Whether such special services contribute to better outcomes for tenants with mental illness is an open and very important question.

It is also unclear that focusing on larger-scale developments is necessarily a better approach. While this strategy may reduce some costs, several studies spanning two decades have consistently found that tenants with mental illness are less residentially stable in buildings with more units (Harkness, Newman, and Salkever 2004; Linn, Klett, and Caffey 1980; Nagy, Fisher, and Tessler 1988; Newman 2001). Therefore, the net benefits and costs of larger buildings are not clear.

Finally, subsidizing both development costs and rents is necessary to ensure the long-term financial viability of the small buildings on scattered sites that characterized this demonstration. While this finding cannot be generalized to other types of buildings and spatial configurations, it is hard to imagine alternative configurations for which heavy subsidies would not be required. The housing providers with the most financially viable properties, Pinnacle Homes and NIT, had at least two-thirds of their development costs subsidized by grants, and two-thirds of their tenants had rent subsidies. Housing providers with fewer subsidies of either kind had less secure long-term profiles.²⁵

²⁵ For example, All Angels and ZHA-1 both had moderate subsidies for development costs, and they generated only a small surplus, despite having all rent-subsidized units. HFA and ZHA-3 illustrate the opposite case. Both had almost fully subsidized development costs. But because few of their tenants had rent subsidies, both attempted to keep

Deep development subsidies appear to be a necessary, but not sufficient, condition for success. Providers of housing for tenants with mental illness need rent subsidies, together with development subsidies, to keep out-of-pocket rent payments low while also covering operating costs. Although no single formula emerged from the RWJF–PCMI on how best to structure financing, the ability to secure rent vouchers for prospective tenants was instrumental in the long-term financial viability of projects. Ensuring that persons with mental illness receive their fair share of rent vouchers is an important component in efforts to increase the supply of independent housing for this population.

Two key policy questions concerning the development of independent housing for persons with mental illness need to be addressed: whether such housing should be developed and, if so, what kind. An affirmative answer to the first question is supported by evidence suggesting a generally favorable social cost-benefit ratio for investments in housing for those with mental illness. For example, on the cost side, the results of this study indicate that independent housing can be provided to persons with mental illness at a reasonable cost, while other studies report that stable, community-based housing confers mental health benefits. Improvements in mental health and residential stability appear, in turn, to produce significant service cost savings.

As demonstrated here, however, housing costs vary widely depending on features of the housing, its neighborhood, and its management. Likewise, emerging evidence indicates that residential features can significantly affect the cost of the mental health services used, suggesting that certain residential features may improve functioning and reduce psychiatric symptoms (Harkness, Newman, and Salkever 2004). If costs and benefits depend significantly on the features of the housing, its neighborhood, and its management, then an average cost-benefit ratio is a meaningless statistic. Instead, we need to understand how tenants with mental illness fare in particular residential settings and how much it costs to provide these settings. Research on what kinds of housing and service configurations yield the greatest improvements in resident satisfaction and mental health at the lowest cost is needed to address these questions.

costs low enough to make their apartments affordable for tenants with mental illness. HFA seems to have run into difficulty carrying out this strategy, however. Although ZHA-3 appears to have met with some success, the quality of its buildings may have been compromised.

Appendix A

Detailed description of the financing schemes

All Angels Development Corporation acquired and rehabilitated three properties containing 20 units. A Department of Housing and Urban Development (HUD) 202 loan with a 9 percent interest rate and a 40-year term provided 96 percent of the financing. A city Community Development Block Grant forgivable loan supplied the rest. All tenants had Section 8 rent vouchers. This developer did not participate in the RWJF-PCMI program.

Housing for All developed 24 units in 13 properties as a single project. Three sources of financing were used. A state Department of Housing loan with a 3 percent interest rate and a 30-year term, with interest-only payments over the term, provided 65 percent of the financing. To pay off the principal, a portion of the RWJF funds was invested in 30-year federal securities. (The rest of the RWJF funds was invested in securities with maturity dates corresponding to the 10 repayment dates on the RWJF loan, thus leveraging the loan to pay both for itself and for the principal on the state loan.) Another 13 percent of the financing was provided by a grant from the state Department of Mental Health. Tax credits supplied the final 22 percent. While most tenants were required to pay only 30 percent of their income for rent, just 17 percent were reported as receiving state rental assistance.

As its primary model, used in 47 of its 60 properties, **Neighborhood Investment Trust (NIT)** relied on a state Department of Mental Health program for roughly two-thirds of its project costs and bank financing for the remainder. The state Department of Mental Health provided no-interest loans forgivable in their entirety in 40 years if the property continued to serve tenants with mental illness. These loans were to be used for acquisition, furnishings, and equipment. Because the Department of Mental Health would only reimburse already incurred costs, the RWJF loan was used as a source of short-term funds for acquisition. Eight of these properties were subsequently refinanced with a bond issue replacing the bank portion. Roughly 85 percent of the tenants in NIT's properties received rental assistance, primarily through state or local programs.

NIT put together a tax credit deal for 10 properties containing 32 units. RWJF loan funds, along with the developer's equity, were used for acquisition. A no-interest loan from the state Housing Finance Agency served as collateral for a bank loan that financed the renovation. (The developer retained the interest earned on the Housing Finance Agency loan, resulting in a net interest rate of approximately 3 percent.) Investor equity in exchange for tax credits supplied 47 percent of the

project's permanent financing. Because this equity was paid in over a 10-year period, the state Housing Finance Agency supplied a 10-year bridge loan at 4.75 percent interest. A bank loan with an 11.25 percent interest rate and a 15-year term provided another 44 percent of the permanent financing. The final 9 percent was covered by an energy efficiency improvement grant from the state Housing Finance Agency. About half the units in these properties received Section 8 Moderate Rehabilitation rent subsidies.

NIT also put together a project involving two properties with 14 units that used roughly equal proportions of state Department of Mental Health forgivable loan program funds and McKinney Permanent Housing for the Handicapped grants. The McKinney grants, in addition to property rehabilitation, covered operating and supportive service costs for the first five years of operation. The RWJF loan was used for short-term acquisition funds.

Finally, NIT used HUD's Section 811 program for one property with 16 units. HUD funds covered all development costs plus an operating subsidy for 20 years.

For all but 2 of the 36 properties it developed, *Pinnacle Homes* used a model similar to NIT's primary model. The main difference between the two was that the county Mental Health Board provided Pinnacle Homes with grants for renovation. Thus, Pinnacle Homes relied on the state Department of Mental Health forgivable loan program for roughly two-thirds of project costs and county Mental Health Board funds for the remainder. A variety of short-term sources were used to fund acquisition: the RWJF loan, no-interest loans from the county Mental Health Board, and the developer's equity. About 70 percent of tenants received state rental assistance.

Pinnacle Homes' other two properties used conventional bank financing and low-income housing tax credits in roughly equal proportions. The bank loan had a floating interest rate (10.5 percent for the first year) and a 15-year term. Because the partnership contributions in exchange for tax credit were paid in over a 10-year period, the state Housing Finance Agency supplied a bridge loan with a 5.5 percent interest rate and a 6-year term. Rents in these properties were subsidized under HUD's Section 8 Moderate Rehabilitation program.

Zenith Housing Associates (ZHA) experienced two significant management changes, and we therefore treat it as three different developers. In its first incarnation, ZHA-1 put together a project consisting of 60 units in seven properties. A bank loan with an 11 percent interest

rate and a 15-year term supplied 61 percent of permanent financing, and a state Department of Mental Health forgivable loan provided the rest. All units have Section 8 Moderate Rehabilitation rent subsidies. This project was already under way before the RWJF program and therefore used no RWJF funds.

Using a state Department of Mental Health forgivable loan and the RWJF loan in roughly equal proportions, ZHA-2 acquired and rehabilitated 11 properties containing 82 units. No other developer in our sample used the RWJF loan for permanent financing. Short-term acquisition and rehabilitation financing was provided by conventional bank loans for most properties, but three relied on a no-interest loan from the state Housing Finance Agency. Somewhat more than half of the units are occupied by tenants who receive rent subsidies from the state.

ZHA-3 relied on nearly the same method as the primary model used by NIT to finance the development of 81 units in 23 properties: state forgivable loan funds plus bank financing. Because ZHA-2 exhausted the RWJF loan fund, ZHA-3 also had to rely on banks to provide short-term acquisition financing.

Appendix B

POMS data issues

Data set. Considerable amounts of missing data pose a problem in the POMS. Each cost component is missing data for roughly 35 percent of cases. Since the larger cost categories used in this article are built by aggregating lower-level components (e.g., maintenance and repair costs consist of cleaning, repairs, trash disposal, grounds maintenance, and labor), an important question is whether estimates should be derived by (a) first estimating the mean for each individual cost component and then summing or (b) first summing the components and then estimating the mean.²⁶ The former retains more information, but different sets of properties may be represented in different cost categories. The latter drops cases where data on one or more cost components are missing (about 65 percent of the cases), but ensures that the estimates represent a consistent set of properties. Both approaches were tried. Although the estimates obtained differed in certain respects, they led to the same conclusions. The estimates presented in the article were

²⁶ Another alternative for deriving total expenses would have been to simply sum whatever was reported. However, this approach, which essentially amounts to treating missing items as zeros, was deemed inappropriate.

therefore derived using the latter approach, which was thought to be more reliable since it used a consistent set of properties.

Financial viability ratios. The calculation of the financial viability ratios for comparison with the RWJF–PCMI sample presents several empirical challenges. Three alternative approaches were considered: (a) form the ratios for each case and then compare the means; (b) form the ratios for each case and then compare the medians; and (c) compute average costs, income, and property values and then form the ratios using these averages. Option (a) was ruled out because numerous unrealistic outlier cases unduly distort estimates in the POMS sample. For example, in the POMS, 10 percent of implied capitalization rates are above 25 percent, which suggests either serious overreporting of net operating income or underreporting of property value. Overall, financial viability ratios in the POMS are more highly skewed, with thicker tails, than in the RWJF–PCMI sample. This raises serious concerns about whether it is appropriate to compare the means of financial viability ratios between samples.

The remaining two options yield substantively similar conclusions, with option (b) resulting in slightly more favorable estimates of financial viability ratios in both the POMS and the RWJF–PCMI samples. The tables use option (c) for two reasons. First, comparing medians for the debt coverage ratio is problematic because a large number of cases have no mortgage payment: namely, 35 percent of small properties and 41 percent of small low-income properties in the POMS, and 31 percent of units in the RWJF–PCMI. In these cases, the debt coverage ratio is mathematically undefined. Option (c) is also more transparent in the sense that the ratios can be verified based on the underlying quantities reported in the tables.

Authors

Joseph Harkness is an Associate Research Scientist at the Institute for Policy Studies at Johns Hopkins University. Sandra Newman is Professor of Public Policy and Director of the Institute for Policy Studies at Johns Hopkins University. George Galster is the Clarence Hilberry Professor of Urban Affairs at Wayne State University. James Reschovsky is a Senior Health Researcher at the Center for Studying Health System Change.

This research was sponsored by the National Institute of Mental Health (R01–MH46097). The authors are grateful to the nonprofit housing providers and managers who generously shared data and insights; to Sally Katz, Amy Robie, and David Kantor for research assistance; and to Laura Vernon-Russell for production assistance.

References

- Abraham, Jesse. 1996. On the Use of a Cash Flow Time Series to Measure Property Performance. *Journal of Real Estate Research* 11:291–308.
- Bogdon, Amy S., and James R. Follain. 1996. Multifamily Housing: An Exploratory Analysis Using the 1991 Residential Finance Survey. *Journal of Housing Research* 7(1):79–116.
- Bogdon, Amy S., and David C. Ling. 1998. The Effects of Property, Owner, Location, and Tenant Characteristics on Multifamily Profitability. *Journal of Housing Research* 9(2):285–316.
- Bratt, Rachel, Avis Vidal, Alex Schwartz, Langley Keyes, and Jim Stockard. 1998. The Status of Nonprofit-Owned Affordable Housing: Short-Term Successes and Long-Term Challenges. *Journal of the American Planning Association* 64:39–51.
- Cohen, Martin, and Stephen Somers. 1990. Supported Housing: Insights from the Robert Wood Johnson Foundation Program on Chronic Mental Illness. *Psychological Rehabilitation Journal* 13:43–50.
- Cournos, Francine. 1987. The Impact of Environmental Factors on Outcomes in Residential Programs. *Hospital and Community Psychiatry* 38:848–52.
- Culhane, Dennis P., Stephen Metraux, and Trevor Hadley. 2002. Public Service Reductions Associated with Placement of Homeless Persons with Severe Mental Illness in Supportive Housing. *Housing Policy Debate* 13(1):107–63.
- Depp, Frederick, Joan Dawkins, Nancy Selzer, Charles Briggs, Robert Howe, and George Toth. 1986. Subsidized Housing for the Mentally Ill. *Social Work Research and Abstracts* 22:3–7.
- Emrath, Paul. 1997. Property Owners and Managers Survey. *Housing Economics* 35:6–10.
- Follain, James R. 1994. Some Possible Directions for Research on Multifamily Housing. *Housing Policy Debate* 5(4):533–68.
- Galster, George C., Peter Tatian, and Charlene Wilson. 1999. Alternative Measures for the Financial Condition of the Multifamily Housing Stock. *Housing Policy Debate* 10(1):59–73.
- Hanrahan, Patricia, Daniel Luchins, Courtenay Savage, and Howard Goldman. 2001. Housing Satisfaction and Service Use by Mentally Ill Persons in Community-Integrated Living Arrangements. *Psychiatric Services* 52:1206–09.
- Harkness, Joseph, Sandra Newman, George Galster, and James Reschovsky. 1997. Life-Cycle Costs of Housing for the Mentally Ill. *Journal of Housing Economics* 6:223–47.
- Harkness, Joseph, Sandra Newman, and David Salkever. 2004. The Cost-Effectiveness of Independent Housing for the Chronically Mentally Ill: Do Housing and Neighborhood Features Matter? *Health Service Research*, forthcoming.

Hurlburt, Michael, Patricia Wood, and Richard Hough. 1996. Providing Independent Housing for the Mentally Ill: A Novel Approach to Evaluating Long-Term Longitudinal Housing Programs. *Journal of Community Psychology* 24:291–310.

Jencks, Christopher. 1994. *The Homeless*. Cambridge, MA: Harvard University Press.

Lehman, Anthony, and David Cordray. 1993. Prevalence of Alcohol, Drug, and Mental Disorders among the Homeless: One More Time. *Contemporary Drug Problems* 20:355–83.

Linn, Margaret, James Klett, and Eugene Caffey. 1980. Foster Home Characteristics and Psychiatric Patient Outcome. *Archives of General Psychiatry* 37:129–32.

Lipton, Frank, Suzanne Nutt, and Albert Sabatini. 1988. Housing the Homeless Mentally Ill: A Longitudinal Study of a Treatment Approach. *Hospital and Community Psychiatry* 39:40–45.

Nagy, Michael, Gene Fisher, and Richard Tessler. 1988. Effects of Facility Characteristics on the Social Adjustment of Mentally Ill Residents of Board-and-Care Homes. *Hospital and Community Psychiatry* 39:1281–86.

Newman, Sandra. 2001. *Housing and Mental Illness: A Critical Review of the Literature*. Washington, DC: Urban Institute Press.

Newman, Sandra, Joseph Harkness, George Galster, and James Reschovsky. 2001. Bricks and Behavior: The Development and Operating Costs of Housing for Persons with Mental Illness. *Real Estate Economics* 29:277–304.

Newman, Sandra, James Reschovsky, Keith Kaneda, and Anne Hendrick. 1994. The Effects of Independent Living on Persons with Chronic Mental Illness: An Assessment of the Section 8 Certificate Program. *Milbank Quarterly* 72:171–98.

Newman, Sandra, and Susan Ridgely. 1994. Independent Housing for Persons with Chronic Mental Illness. *Administration and Policy in Mental Health* 21:199–215.

Ridgway, Priscilla, and Charles Rapp. 1998. *The Active Ingredients of Effective Supported Housing: A Research Synthesis*. Lawrence, KS: University of Kansas, School of Social Welfare.

Rohe, William, Roberto Quercia, and Diane Levy. 2001. The Performance of Nonprofit Housing Developments in the United States. *Housing Studies* 16:595–618.

Segal, Steven, Carol Silverman, and Jim Baumohl. 1989. Seeking Person-Environment Fit in Community Care Placement. *Journal of Social Issues* 45:49–64.

Shern, David, Chip Felton, Richard Hough, Anthony Lehman, Stephen Goldfinger, Elie Valencia, Deborah Dennis, Roger Straw, and Patricia Wood. 1997. Housing Outcomes for Homeless Adults with Mental Illness: Results from the Second-Round McKinney Program. *Psychiatric Services* 48:239–41.

Springer, Thomas, and Neil Waller. 1996. Maintenance of Residential Rental Property: An Empirical Analysis. *Journal of Real Estate Research* 12:89–99.

Sullivan, Greer, Audrey Burnam, Paul Koegel, and Jan Hollenberg. 2000. Quality of Life of Homeless Persons with Mental Illness: Results from the Course-of-Homelessness Study. *Psychiatric Services* 51:1135–41.

Trute, Barry, and Steven Segal. 1976. Census Tract Predictors and the Social Integration of Sheltered Care Residents. *Social Psychiatry* 11:153–61.

U.S. Bureau of the Census. 1992. *1990 Census of Population and Housing, Summary Tape File 3A*. Machine-readable data file. Washington, DC.

U.S. Bureau of the Census. 1993. *American Housing Survey for the United States in 1991*. Machine-readable data file. Washington, DC.

U.S. Bureau of the Census. 1994. *1991 Residential Finance Survey*. Machine-readable data file. Washington, DC.

U.S. Bureau of the Census. 1997. *Property Owners and Managers Survey, 1995–96*. Machine-readable data file. Washington, DC.

Walker, Christopher. 1993. Nonprofit Housing Development: Status, Trends, and Prospects. *Housing Policy Debate* 4(3):369–414.

Witheridge, Thomas, and Jerry Dincin. 1985. The Bridge: An Assertive Outreach Program in an Urban Setting. *New Directions in Mental Health Services* 26:65–76.