Housing's Economic and Social Impacts

Heather MacDonald
Richard Funderburg
David Swenson
Anne Russett
Malynne Simeon

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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EXECUTIVE SUMMARY

Housing is an investment in Iowa's communities and people. This report investigates the following questions:

What impact does affordable housing have

- on neighborhoods?
- on local and state economies?
- on expanding and stabilizing Iowa's labor force?
- on meeting social, individual and community needs?

FINDINGS

HOUSING'S IMPACT ON NEIGHBORHOODS

- Larger family housing developments slowed neighboring property value appreciation in Polk County by 3.8% in the first year or two after developments were approved, but had no significant effect once developments were established (three to four years after approval).
- Mixed-income, high-quality developments had no significant effect on neighboring values during the first year or two, but once developments were established, had significant positive effects on property values, increasing them on average by 8%.
- Elderly housing developments increased neighboring property value appreciation by about 5% in the first year or two, but had no significant further effect.

Many types of affordable housing developments can have positive effects on their surrounding neighbors; well-designed affordable housing can help to jump-start stagnant neighborhood housing markets. Where we observed negative effects, these effects were small and short-lived; affordable housing developments do not appear to endanger neighborhood quality of life.

HOUSING'S IMPACT ON LOCAL AND STATE ECONOMIES

- For every dollar spent on developing affordable housing, an additional $0.64 is produced elsewhere in Iowa's economy. For every dollar earned by a construction worker on an affordable housing project, an additional $0.41 is earned by workers in other sectors. For every two jobs created by affordable housing development, an additional job is created elsewhere in the economy during construction.
- Affordable housing also has longer-term economic impacts. Beyond the construction period, every dollar spent on operating the housing produces an additional $0.47 elsewhere in Iowa's economy. For every dollar earned by a person employed by housing developments, an additional $0.57 is earned by workers in other sectors. For every five jobs created by affordable housing operations, an additional job is created elsewhere in the economy.

- Local impacts are greater in larger, more diversified counties because they have the capacity to supply more of the goods and services a development requires.

While housing is a domestic rather than an export sector, it makes an important contribution to local economies. Spending on affordable housing developments, where demand continues to exceed supply will help the construction sector weather future temporary downturns in the demand for market-rate housing.

HOUSING'S IMPACT ON EXPANDING AND STABILIZING IOWA'S LABOR FORCE

- Workforce housing, affordable to skilled entry-level workers, is in short supply in Johnson, Polk and Story counties. There may be localized shortages in parts of other metropolitan areas, especially in neighborhoods close to employment centers.
- The search for affordable newer housing is driving many younger working households to locate in counties adjacent to metropolitan areas, increasing urban sprawl.
- There appears to be an ample supply of housing affordable to median-earner workers in nonmetropolitan counties, but available housing is likely to be outdated and inadequate. New investment is difficult because construction or rehabilitation would cost more than market prices would justify.

If Iowa is to attract the 150,000 additional skilled workers that it is projected to need by 2012, adequate affordable workforce housing is essential. Different strategies are needed to address the two types of gaps we identify: the "affordability gap" in some of the metropolitan counties where high-skilled jobs are most likely to locate, and the "value gap" in the nonmetropolitan counties where traditional employment is likely to continue to dominate.

HOUSING'S IMPACT ON MEETING SOCIAL, INDIVIDUAL AND COMMUNITY NEEDS

- Housing enriched with services, such as assisted-living services for the elderly or people with mental or physical disabilities, is a far more preferable approach to institutionalization for many. Residents benefit from a more independent living situation, while receiving help that would not be available in conventional housing. It is also more cost-effective to provide just the services individuals need, rather than the intensive services that institutions such as nursing homes provide.
- In each of the communities we studied, tenants did not believe they had reasonable alternatives to the affordable housing they occupied. Safe, healthy housing is in short supply for those on limited incomes. Even for market-rate tenants in Castle on the Hill, decent quality rental options in the community were very limited.
- Home ownership would be out of reach for the working families assisted by Iowa Valley Habitat for Humanity and other home ownership assistance providers across the state. Families are given the opportunity to prove themselves and to become permanent members of their communities.

- Adaptive reuse of historic structures for affordable or mixed-income housing can provide the stable early investment emerging markets need to attract more businesses and homes. Preserving historic structures also preserves the unique identity of places.

The unquantifiable benefits of decent affordable housing are considerable. Community revitalization, expanding home ownership, and the effective delivery of health care and other services are all enhanced by public investment in stable housing. The five case studies we investigated demonstrate the varied ways in which housing improves peoples' lives.

CONCLUSIONS

- High-quality, mixed-income housing can help revitalize stagnant or declining markets; historic preservation incentives to encourage adaptive reuse are valuable.
- Affordable housing should not be concentrated in just a few neighborhoods; local regulations and land buy-downs should enable new developments to locate in a variety of neighborhoods.
- Building development capacity will help small local economies capture more of the benefits of affordable housing investment.
- Iowa's economic development strategy should address the need for workforce housing in the key metropolitan areas likely to attract targeted industry clusters.
- Workforce housing will be difficult to develop in many nonmetropolitan counties unless we can address the value gap.
- Iowa's economy benefits from federally subsidized housing investment, but the state's role should expand: federal resources are not sufficient or well-suited to meeting all the state's needs.

Investments in housing will be repaid in the form of stronger local economies; a stable, skilled labor force; a working social safety net and the revitalization of Iowa's unique communities.

INTRODUCTION

What impact do expenditures on affordable housing have on our communities and on the state as a whole? When we subsidize home ownership for a first-time buyer, or when we assemble financing to develop an affordable rental property aimed at low-wage households, what are the returns on that public expenditure? What impact do investments have on neighborhoods and on important social needs? How does housing serve economic development efforts? This report examines the evidence for the impacts that affordable housing expenditures have on different sorts of local communities, and on the state as a whole.

We address four kinds of impacts that subsidized housing may have. First, we examine the impacts that the construction of new subsidized rental properties have on neighboring

single-family home values. This may be the single most contentious question surrounding affordable housing development. Using property tax assessment data, we estimate the effect that 11 new rental properties developed in Polk County between 2001 and 2004 had on neighboring home values. Is there evidence that new subsidized rental projects have either positive or negative effects on neighborhood home values?

Next, we estimate the full economic impacts that a sample of 10 new subsidized rental properties and one owner-occupied development had on both their local communities and on Iowa's economy. We chose projects from several different types of housing markets and sizes of communities. We estimate the impacts on construction employment, tax revenues, spending on materials and services, and the downstream effects that those expenditures had as tax revenues were used to employ teachers or fix roads as construction workers spent their dollars on a new vehicle or groceries, and so on. We also estimate the long-term economic impacts of spending on operating costs. What contribution do new subsidized rental projects have on local and state economies?

Housing may also be seen as part of the economic infrastructure that ensures an adequate supply of labor to Iowa's businesses. Without adequate appropriately priced housing, businesses will have difficulty attracting the right mix of workers. If people must commute from more distant affordable communities, wages must compensate for these costs. If employees are unable to find appropriate quality housing in smaller communities, they may not consider working in those places. The third part of this report assesses Iowa's supply of "workforce" housing, identifies barriers to expanding that supply and outlines a variety of strategies that may overcome these barriers.

Finally, housing has important social impacts that are impossible to quantify, but that are vital parts of any strategy to strengthen our economy. We present five case studies that assess the contributions that housing investments make to neighborhood safety and vitality, to improving children's environments, to providing services in addition to shelter, and to improving the lives of tenants and neighbors. The cases studies were chosen to represent different solutions to different kinds of housing needs, rather than randomly. We investigated the weaknesses, as well as the strengths, of the projects to offer a balanced picture of achievements.

The report's conclusions summarize our findings and outlines the role that housing plays in economic development. Recommendations are presented on how that role could be strengthened.

SECTION ONE: ASSESSING HOUSING'S IMPACT ON LOCAL PROPERTY MARKETS

Housing investment is fundamentally local, as are its impacts. On the one hand, debates about the impact that housing has on neighbors' home values are at the heart of many of the regulatory restrictions and political opposition that raise barriers to housing development and increase costs. On the other hand, we also have expectations that strategic housing investments will help jump-start communities that have seen little recent development and weak appreciation. Future policy decisions should be based on a clear understanding of what housing investments may and may not achieve. Misunderstanding and ignorance will condemn us to the same unproductive debates, unrealistic expectations or inability to tolerate reasonable risks that we have been engaged in for decades.

There is mixed evidence on housing's effects on local property markets. A brief survey of academic research reveals a wide range of results (Freeman and Botein 2002; Nguyen 2005). We know it is likely that housing has differing impacts in different neighborhoods. There is some evidence that subsidized housing has greater negative effects in more distressed neighborhoods, but that its impact is negligible in stronger, more stable neighborhoods (Galster, Tatian and Smith 1999). However, other research has found that rehabilitating public housing located in very distressed neighborhoods has helped to revive property values (Santiago, Galster and Tatian 2001). Subsidized housing may also have differing effects depending on its design characteristics; some evidence suggests that high-quality projects designed to fit into neighborhoods may have positive or no effects on property values (Cummings and Landis 1993; Briggs, Darden and Aidala 1999). In general, the negative effects found have been small (Nguyen 2005). Many of the outcomes identified in these studies suggest that there may be no single answer to the question: property value effects may depend on many local circumstances.

DATA AND STUDY DESIGN

We examined the impact of subsidized multifamily rental properties on housing markets in Polk County. We studied the 11 newly constructed rental properties developed in Polk County between 2001 and 2004. Map 1.1 shows the locations of the properties. Projects were developed mainly in neighborhoods classified as stagnant or declining; one was developed in a rapidly growing neighborhood.[1] Projects ranged from elderly assisted-living facilities, to family housing, to mixed-income developments. Table 1.1 summarizes the characteristics of the 11 projects.

[1] Types of neighborhood housing markets were defined in a cluster analysis of census tracts, reported in MacDonald (2003).

We studied the impacts that projects had on single-family home values only; duplexes, condominiums and other housing types were excluded.

Initially, we had hoped to select projects in several different sorts of counties across Iowa, but suitable historical property value data were unobtainable even in other metropolitan counties. Only in Polk County was the Assessor's office able to give us access to a high-quality, multiyear database that enabled us to test changes in property values over at least three time periods (1999-2001, 2001-2003 and 2003-2005). The data set included detailed information on each home's characteristics, along with a qualitative assessment of the home's condition. Table A-1 (in Appendix A) lists the characteristics we used in the analysis. This detail enabled us to match each property located within half a mile of one of the projects we studied, with an almost identical property further away. Once we had constructed a series of 2,902 pairs of single-family homes with almost identical characteristics, we were able to compare property value changes for the "treatment" or "experimental" home in the pair (the home located within half a mile of a project) with value changes for the "control" home in the pair (the home located further away from a project). Appendix A discusses the details of our methodological approach. We were able to compare changes in property value before each project was built for each home in the pair with changes after the project was built. This approach is a rigorous test of the effect that subsidized housing projects have on neighboring property values.

PROJECTS IN THE STUDY

The projects included in the study were a diverse cross section of "typical" tax credit developments. They reflect both the statewide public policy goals that guide the allocation of tax credits (through Iowa's Qualified Allocation Plan, QAP) and City of Des Moines criteria. The QAP sets out the criteria used to evaluate tax credit applications and establishes a point-based system used to rank applicants. Points are awarded in order to give priority to the production of housing that meets several social and economic needs. For instance, elderly assisted-living developments receive additional points because previous studies have identified a large unmet need among low-income elderly households who cannot afford market-rate facilities (Kaskie et al. 2003). Bonus points are also awarded for historic preservation projects, high-quality brick construction, location of a project relative to schools and other community facilities, housing that contributes to revitalization efforts, and many other characteristics. The intention is to give higher priority to projects that meet important social needs or that make a positive contribution to communities.

The City of Des Moines has also developed a set of clear criteria[2] to decide whether or not to provide a letter of support for a particular project. This letter is important because

[2] The criteria to evaluate subsidized rental projects are included in Des Moines'

developers receive additional points on their application if they have the city's support. Projects are evaluated based on whether:

- The project's design is sensitive to and compatible with the surrounding neighborhood;
- Management services appear to be adequate for the intended tenants;
- Appropriate amenities, including storage space for large items, are provided; and,
- A recognized neighborhood organization (if one exists) has been able to comment on the project's design, management and amenities.

In 2003, the City Council supplemented these criteria with four additional ones:

- Projects that support mixed-income downtown housing development;
- Projects for which the city has already entered development agreements or provided some other form of support;
- Projects that support the goals of a neighborhood plan;
- Projects that will enable full build out of a multiphase site plan.

(Office of the City Manager, City of Des Moines, recommended Council Resolution 03-559, http://www.dmgov.org/mayor_council/agendas/2003_as/Blue/03-559.htm, accessed March 5, 2007)

The Iowa Finance Authority imposes a cap of 144 units annually that can receive tax credits in the Des Moines metropolitan area, although this cap is occasionally exceeded. Not all of the projects we studied received letters of support from the city council, but none were rejected because they failed to meet the material criteria. More typically, projects were rejected because they did not rank among the top 144 units to which the council usually limited its support.

Three of the 11 projects served elderly residents and two of these offered assisted-living services. The remaining eight served families. One of these was aimed at larger families, especially those with a disabled member, and provided a range of supportive family services. Two projects were part of Des Moines' downtown housing renaissance (Vine Street Lofts and East Village Square). One was a high-quality urban row house project in an historic neighborhood (Sherman Hill) close to downtown. The remaining eight projects were all in neighborhoods characterized by stagnant or declining trends over the 1990s.[3] The downtown and historic neighborhood tracts were also categorized as "declining" or "stagnant." Nonprofit organizations were general or co-general partners

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1994 Comprehensive Plan.

[3] Neighborhood classifications were based on a census tract-based cluster analysis of population change, construction trends, vacancy rates and home value trends from 1990 to 2000. The results of this analysis were reported in the 2003 IFA study.

for three projects. Three of the projects included significant income mixing with fewer than half of units set aside for low-income tenants. The remainder were predominately rent restricted, reflecting the strong financial incentives developers have to qualify for the maximum tax credits. All 11 of the projects commit to preserving low-income use for 50 years. Table 1.1 summarizes their characteristics. Brief descriptions are provided of project design characteristics. Projects were grouped into three categories: (1) low-rise family apartment complexes, (2) urban-scale, mixed-income projects with high-quality design, and (3) elderly assisted-living facilities. We test the effects of each of these types of projects separately as well as the valuation effects for each of the 11 individual projects and their phases.

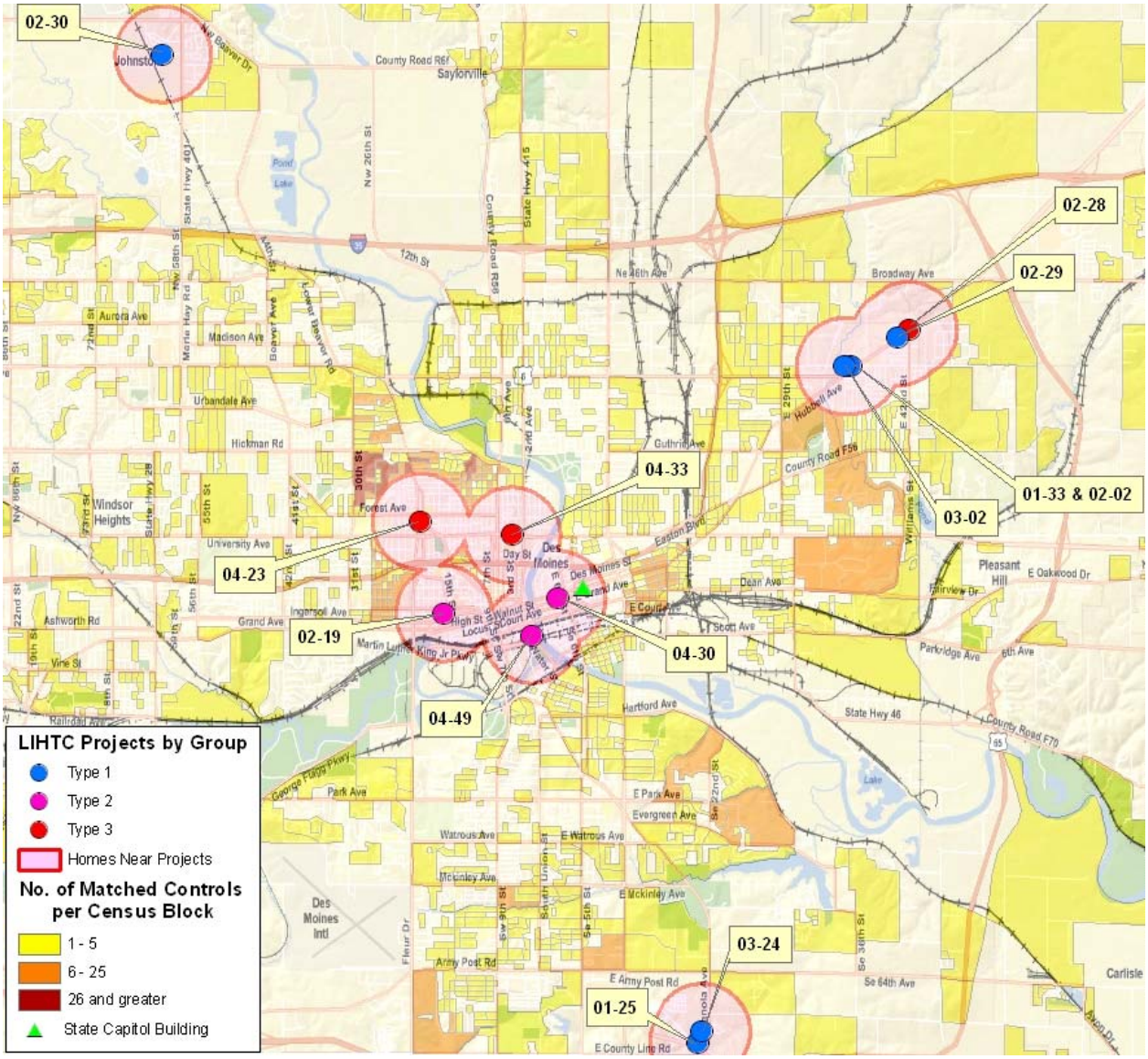
Other projects were developed in Polk County during this period, but they are not examined here. We assumed that acquisition and rehabilitation projects would have different effects than new construction because they would involve existing structures. We also excluded scattered site new construction of duplexes because we assumed their effects would be different from those of multifamily construction. Most neighborhood opposition is likely to focus on multifamily rather than single-family properties.[4]

[4]Although, as one of our case studies demonstrates, even single-family owner-occupied developments may spark neighborhood opposition.

Table 1.1: Projects Studied

Project (grouping)	Neighborhood Classification	Tenants	Size	Percent Low-Income Units	Design Features
Lynn Crossing Apartments 01-25 (Type 1)	Declining	Family	50 units	90%	8 buildings, 1.5-story attached units with individual entryways
Parkside East I, II and III 01-33, 02-02, 03-02 (Type 1)	Stagnant	Family	115 units	100%	6 buildings, three-story walk-up with surface parking and landscaped green area
Woodland Avenue Brickstone 02-19 (Type 2)	Stagnant, historic neighborhood	Family	56 units	29%	1 building, mixed-income, brick row house
Hickory Grove Apartments 02-28 (Type 3)	Stagnant	Elderly	40 units	95%	1 building, two-story brick and stucco construction with surface parking area
Maple Lane Apartments 02-29 (Type 1)	Stagnant	Family	28 units	93%	2 buildings, two-story brick and stucco with surface parking
Chapel Ridge of Johnston 02-30 (Type 1)	Rapidly Growing	Family	206 units	82%	25 buildings, predominately brick structures that look like large, single-family homes; outdoor pool
The Meadows 03-24 (Type 1)	Declining	Family, people with disabilities	48 units	100%	7 buildings, two-story brick and stucco with surface parking
The Rose of Des Moines 04-23 (Type 3)	Declining	Elderly, assisted living	50 units	100%	1 building, three-story brick and stucco construction with surface parking
East Village Square 04-30 (Type 2)	Stagnant, downtown neighborhood	Family	105 units	40%	1 building, five-story brick urban scale
Walden Point 04-33 (Type 3)	Declining	Elderly, assisted living	60 units	100%	1 building, three-story brick and stucco construction with surface parking
Vine Street Lofts (04-49) / (Type 2)	Declining	Family	110 units	40%	1 building, five-story brick and stucco urban scale with adjacent shared parking ramp

Map 1.1: Project Locations



FINDINGS

We began our analysis by investigating aggregate changes in home values for groups of homes. Table 1.2 summarizes the percentage difference in median assessed values for several groups. The columns show the percentage change in median values before any of the projects we studied were built (1999-2001) and the percentage change over two subsequent periods (2001-2003 and 2003-2005). For projects developed in 2001 or 2002, we had two time periods to track value changes.[5] For later projects, we had two previous time periods, but only one post-development period.

The first rows show average annual growth rates for all single-family homes near projects compared to growth rates for all single-family homes in Polk County. Values of homes close to projects had grown somewhat faster on average (1.61%) before projects were built, and although it declined, this difference persisted after projects were developed (to 1.0% and then 1.2%). The next set of rows presents the averages for just those homes where a match was found (of the 3,283 homes near projects, 381 could not be adequately matched to homes elsewhere). Among this group, homes further from projects appear to see faster average annual growth than nearby homes. This differential accelerates over the 2001-2003 cycle, then it reverses between 2003 and 2005.

The remaining rows in the table present aggregate changes for homes around different types of projects and for individual projects. Low-rise family projects are Type 1; high-quality, mixed-income elderly projects are Type 2; and elderly projects high-quality, mixed-income projects are Type 3. Homes near Type 1 projects appear to see relatively smaller growth rates immediately after project approval compared to before, although this difference is negligible by the following period. The opposite occurs for homes near Type 2 projects. There is very little difference in growth rates for homes near Type 3 projects.

[5]We assumed that values would be affected once projects received an allocation of tax credits and became "public knowledge;" we also tested scenarios using the project completion date to determine whether this altered our results, but it did not.

Table 1.2a: Average annual growth in assessed values between 1999 and 2005 (median growth rate, in percent) for all projects and by major groupings

	Before LIHTC Project Approval	After LIHTC Project Approval	
	1999-2001	2001-2003	2003-2005
3,283 Homes Neighboring Projects	6.47	6.60	5.85
All 94,136 Single-Family Homes	4.86	5.60	4.64
Difference	1.61	1.00	1.21
All 2,902 LIHTC Project Neighbors	6.12	6.44	5.70
2,902 Matched Controls	6.73	7.59	5.64
Difference	-0.61	-1.15	0.06
1,497 Homes Neighboring Type 1 Projects	5.80	4.68	5.23
1,497 Matched Controls	5.42	6.50	4.96
Difference	0.38	-1.82	0.27
168 Homes Neighboring Type 2 Projects	7.15	13.69	7.41
168 Matched Controls	7.13	8.31	6.21
Difference	0.02	5.38	1.20
1,675 Homes Neighboring Type 3 Projects	6.86	8.89	6.72
1,675 Matched Controls	8.20	8.58	6.24
Difference	-1.34	0.31	0.48

Table 1.2b:Projects approved in 2001 and 2002

	Before LIHTC Project Approval	After LIHTC Project Approval	
	1999-2001	2001-2003	2003-2005
5 Homes Neighboring Project 01-25	13.38	8.60	1.81
5 Matched Controls	4.74	6.99	3.71
Difference	8.64	1.61	-1.90
759 Homes Neighboring Project 01-33	6.95	5.13	5.26
759 Matched Controls	5.98	6.69	5.04
Difference	0.97	-1.56	0.22
773 Homes Neighboring Project 02-02	6.93	4.91	5.35
773 Matched Controls	5.97	6.69	5.06
Difference	0.96	-1.78	0.29
85 Homes Neighboring Project 02-19	6.79	11.12	11.27
85 Matched Controls	11.79	9.86	7.11
Difference	-5.00	1.26	4.16
493 Homes Neighboring Project 02-28	6.51	4.31	5.62
493 Matched Controls	5.97	6.65	5.29
Difference	0.54	-2.34	0.33
614 Homes Neighboring Project 02-29	6.38	4.28	5.66
614 Matched Controls	5.50	6.58	5.08
Difference	0.88	-2.30	0.58
279 Homes Neighboring Project 02-30	1.76	4.32	4.21
279 Matched Controls	4.65	5.87	4.31
Difference	-2.89	-1.55	-0.10

Table 1.2c: Project approved in 2003 and 2004

	Before LIHTC Project Approval		After LIHTC Project Approval
	1999-2001	2001-2003	2003-2005
722 Homes Neighboring Project 03-02	6.78	5.55	5.12
722 Matched Controls	6.14	7.04	5.08
Difference	0.64	-1.49	0.04
9 Homes Neighboring Project 03-24	21.64	9.59	2.23
9 Matched Controls	4.74	6.15	6.64
Difference	16.90	3.44	-4.41
922 Homes Neighboring Project 04-23	5.82	12.08	9.26
922 Matched Controls	10.27	9.40	6.60
Difference	-4.45	2.68	2.66
56 Homes Neighboring Project 04-30	8.43	14.61	6.94
56 Matched Controls	4.61	7.49	5.35
Difference	3.82	7.12	1.59
266 Homes Neighboring Project 04-33	15.52	6.28	2.97
266 Matched Controls	8.91	11.45	6.26
Difference	6.61	-5.17	-3.29
34 Homes Neighboring Project 04-49	2.88	25.69	6.27
34 Matched Controls	4.65	7.99	6.12
Difference	-1.77	17.70	0.15

Although these descriptive results are interesting, they do not control many other elements that may affect differential changes in property values. We do not know what role a range of neighborhood factors might play in altering values. A vibrant new retail area may have increased home values in some neighborhoods, while a tedious and messy road construction project may have decreased values in other neighborhoods. We might see these effects in the aggregate changes presented above, but we have no way of disentangling the projects' impacts from broader environmental impacts, without a multivariate model that controls for other potentially confounding variables. What impact does the distance between each home and the neighboring project have on value changes?

What happens to homes that are within half a mile of two or more projects? Do values vary more during one time period than another? We constructed a series of regression models to investigate the effects of controlling for different combinations of variables that might alter our results. These regression equations are explained in detail in Appendix A; we summarize the outcomes of two models in Table 1.3.

Table 1.3: Impact of Project Locations on Single-Family Home Values (dependent variable is log of assessed value)

Variable	Model 5		Model 6	
	Coefficient	(Std error)	Coefficient	(Std error)
Type One 1-2 years since approval	-0.04911	(0.00575)*	-0.03841	(0.00631)*
Type One 3-4 years	0.00497	(0.00704)	0.00848	(0.00727)
Type Two 1-2 years since approval	-0.01108	(0.01611)	-0.00844	(0.01610)
Type Two 3-4 years	0.07802	(0.02341)*	0.08571	(0.02341)*
Type Three 1-2 years since approval	0.02944	(0.00557)*	0.05163	(0.00645)*
Type Three 3-4 years	0.00086	(0.01045)	0.02827	(0.02580)
Type 1 (1-2 Years) X Type 3 (1-2 Years)			-0.08320	(0.01267)*
Type 1 (3-4 Years) X Type 3 (3-4 Years)			-0.05103	(0.02803)
Type 1 (1-2 Years) X Type 3 (3-4 Years)			0.03418	(0.02339)
Assessed Value last year (ln)	0.70662	(0.00486)*	0.70683	(0.00486)*
Year observed dummies	Yes		Yes	
Matched pair dummies	Yes		Yes	
Neighborhood dummies	Yes		Yes	
Adj. R-squared	0.9268		0.9270	
Observations	17,412		17,412	

Note: * Denotes the coefficient is statistically significant at $p < 0.001$

Table 1.3 lists the effect that each "treatment" has on differences in value appreciation between each of the homes in the matched pairs, after controlling for several fixed effects: the neighborhood in which the project is located, the time period during which these changes were observed and the exact characteristics of each pair. Thus, the first row in the table shows the difference in home appreciation between homes close to a Type 1 (low-rise family) project during the first year or two after project approval. Model 5 includes projects by time period; Model 6 also controls the interaction effects that occur when a home is close to both a Type 1 and a Type 3 (mixed-income) project. As Map 1.1 shows, these were the only spatial overlaps with which we had to deal.

Once we control for these spatial interaction effects, we see that homes close to a Type 1 project show a somewhat slower rate of value appreciation (3.8% slower) than very similar homes that are not close to a subsidized project. This difference is statistically

significant. However, three to four years after project approval, there is essentially no difference in price appreciation. The reader should note that this is a 3.8% *slower rate of growth* in home values, *not* a reduction in property values; homes near a Type 1 project still appreciate in value, just not as fast as very similar homes further from a project.

Homes close to Type 2 projects (high-quality, mixed-income developments) see a very slight, but insignificant decline in value growth rates during the first year or two after project approval. However, this is reversed once the projects are established in the neighborhood: homes close to established Type 2 projects in fact see *more rapid* value appreciation (8.5% greater) than similar homes further away, and this difference is statistically significant.

Impacts also appear to be positive for Type 3 projects (elderly and assisted living). During the first year or two after project approval, home values near Type 3 projects grew 5.2% faster than values for similar control group homes. This positive effect was statistically significant, but the effect is short term. Once the project is established, there is no significant difference in price appreciation between treatment and control group homes.

But despite these positive effects for elderly and assisted-living projects, the table also suggests that homes located close to both Type 1 and Type 3 projects see slower rates of price appreciation (8.3% slower) than comparable homes during the first year or two of project approval. These slower growth rates persist once the projects are established, but are no longer statistically significant. In Appendix A, we present a detailed model estimating the effects of each of the 11 projects in our study (and the spatial interactions among individual projects). These findings make the story more complex. Not all projects in the same group have equivalently negative (or positive) effects. While one should interpret these results with caution, as some projects have a small number of matched single-family homes around them, they suggest that individual project characteristics may be as important as design features or type of tenant served.

CONCLUSIONS

These results have several fascinating implications for housing policy. On the whole, it seems that different types of projects may have different effects on neighboring property values. During the early years of a project (typically while the project is being developed and immediately afterwards), a standard low-rise family apartment complex appears to slow value appreciation among neighboring single-family homes. Once the project is established, however, this effect disappears. This may represent the market pricing of "fear of the unknown;" the expectations of adverse impacts on homeowner investments may never materialize after the introduction of low-income family housing in the neighborhood, so the initial slow down in property values disappears. This finding suggests that there is little basis in this evidence for the strong opposition that neighbors occasionally mount against low-income family housing; the effects are fairly small and of short duration.

There appear to be fewer fears about mixed-income projects with award-winning designs; initial slow downs in appreciation barely register. Once projects in this group are established in neighborhoods, they appear to accelerate appreciation. However, individual projects within this group have quite different effects, as Appendix A details, so it is difficult to conclude that projects of this type will always have this effect everywhere. Nevertheless, new mixed-income projects with outstanding design may play a positive role in stimulating residential property markets.

Projects providing housing for the elderly have significant positive effects on value appreciation during the first year or two after development. Once again, though, effects are not uniform among this group. Appendix A describes the detailed results we obtained for each project. The initial positive effects for the group appear to attenuate once the projects are established. Three to four years after approval, neighboring homes continue to see small increments in appreciation, but the effects are not significant.

Last, one finding raises a warning. Homes that are near more than one project see a larger slowdown in value appreciation. This may indicate that clustering subsidized projects may have undesirable effects on neighboring property values. Few of the individual effects we identify are large and significantly negative, but distributing those small costs evenly among neighborhoods is important if we are to avoid exacerbating costs through concentration.

SECTION TWO: ASSESSING THE ECONOMIC IMPACT OF HOUSING PROGRAMS[6]

This section of the report examines the localized and statewide economic impacts of selected housing developments in Iowa. Two dimensions are assessed:

- The overall effects of the short-term construction effects—those that accumulate to the regional or state economy during the actual period of construction as a result of the housing investment.
- The long-term effects of operating a housing facility as an ongoing component of the economy.

The data for these assessments were obtained from a survey questionnaire, and they represent generally reliable estimates of the construction costs and the operational characteristics of the measured housing programs. Twelve projects funded with Low Income Housing Tax Credits, from different types of housing markets (growing versus stagnant and metropolitan versus nonmetropolitan), were included in the sample. Projects were chosen through a random stratified sampling method. One project had not been completed in time to obtain finalized costs and one developer did not respond to our request for information. Thus, our final sample includes 10 rental projects. In addition, we

[6] This section is based on analysis performed by and primarily written by David Swenson, Associate Scientist in Economics at Iowa State University.

obtained information from a nonprofit developer of subsidized owner-occupied homes. This assessment utilizes an input-output model of all of the economies that are measured.[7]

For each project, we determine the amount of measurable construction-related spending, including financing, real estate services and other services and goods purchases associated with that effort, based on the surveys that were returned. For the 10 rental projects, we also obtained information on revenues once they were placed in service, the number of jobs at the facilities and estimates of their payroll. The eleventh project is owner-occupied. Appendix A discusses the details of the methodology we used to assess impacts and the limitations of this method for assessing housing investments.

THE DIRECT DATA

All respondents itemized several elements of construction. These include architecture and engineering costs, legal, land transaction-related activities, site preparation, general construction, and assorted financial and other specialized property and real estate services. These activities are summarized in Table 2.1 to give a sense of the total construction-related costs that were entered into the model.[8] Given the responses, we identified a total of $29.5 million in construction-related activity with the 11 projects.

Table 2.1: Estimated Construction-Related Costs

Pre-construction	$4,768,874
Structure-related	$24,012,874
All other costs	$694,923
Total	$29,476,671

Two levels of construction effects are measured. First, we construct a one-county model for each project—11 models in all—in which we allocate local construction effects. Respondents were asked to estimate the proportion of their itemized construction-related costs that were bid to local (in-county) firms. This estimation allows us to localize the construction effects to the actual economy benefiting from the new housing. For large,

[7] We used Implan to conduct these assessments. Implan is an input-analysis software program for processing annual industrial and institutional transactions estimates for all counties in the U.S.

[8] Most of the projects listed land and land broker fees together. We do not model land purchases—those transactions occur in a different quadrant of the model that reconciles capital accounts, not the portion used to estimate economic values in this report; however, we do model the value in the economy associated with conveying that land for sale. Accordingly, for all instances where land values were substantial, only 10 percent of the value was used in the model to represent the cost of all land transaction services. Land has no economic impact—just the use of the land does—and that value would be captured over time in the rents received on the properties.

metropolitan counties, we expect that a large fraction of construction-related activity will accumulate to local contractors and service providers. For smaller counties with less developed industrial sectors, we expect that much of the construction activity will "leak" out to counties with larger construction firms.

Next, using a model of the entire economy, we allocate the $29.5 million in measurable construction activity into the entire Iowa economy to estimate the statewide effects. As we use the entire state, nearly all of the cross-border leakages among Iowa counties will be captured and the whole state estimate, as a consequence, will be much larger than the constituent parts.

After the projects were constructed, 10 were operated as rental businesses and one project (containing four separate housing units) serves as owner-occupied housing. The 10 rental operations are businesses with an estimate of annual output. We use the sum of all expected receipts (rents, subsidies and miscellaneous sales) as the primary estimate of industrial output for this dimension of the study. Respondents also listed jobs and payroll values. The sum of these is displayed in Table 2.2.

Table 2.2: Direct Values of Reported Operations

Industrial Output	$2,168,879
Labor Income	$567,073
Jobs	54.5

Total industrial output is $2.2 million for the 10 projects, requiring nearly 55 jobs making $567,073 in labor incomes annually. The incomes reported in the surveys were inflated by 15 percent to accommodate payments of state and federal social insurance and other wage-like benefits. The reader will quickly see that the wage value per job is relatively low. These are not likely to be full-time jobs and they may include an additional rent allowance that is not counted as earnings in the survey.[9] Last, for some housing projects, several jobs provide client services to residents.

THE ECONOMIC IMPACTS OF CONSTRUCTION

Most regional analysts are very cautious about doing construction-impact estimates. There are two reasons. First, people often act as if they occur on an annual basis, and thus that they make a continuous contribution to the economy rather than a contribution only during the construction period. Construction activity is often cyclical and hinges on the performance of the broader economy. Second, the costs of capital are already subsumed within the costs of operating a business or taking possession of a home. The timely and appropriate investment of private and other kinds of housing is an important foundation to an economy. The value of the investment is realized in the service value of the product over the life of the project. Our economy measures the output value of the housing as

[9] Were it possible, it is much more desirable to discern rent subsidies, count them as earnings, and to then, concomitantly, boost industrial output by that amount.

either the sum of rents that are charged or the imputed value of rents for single-family homes.[10] The amortized costs of construction are subtracted from these values annually, as when we pay our mortgage off over time. We expect our economy to construct houses for new residents and replace houses for some existing residents. In a sense then, measuring construction impacts is a form of double counting unless they are clearly kept separate from other economic estimates.

Table 2.3 lists the localized construction values for the individual projects. Individual projects are identified only by the type of housing market in which they were developed, to protect the confidentiality of our respondents. Using the first project as an example, the table shows that the measurable construction-related activity of that project resulted in $837,998 in demand for regionally supplied construction, real estate services, and financial and other services inputs. To provide those sales in that local economy, all of the affected firms would have allocated 8.6 jobs making $381,561 in labor income. These are the direct values. Next, all of those directly stimulated firms will require increased inputs of $166,774 from the local economy, which will further stimulate 2.1 jobs and $66,330 in labor income. When the workers in the direct and indirect sectors convert their paychecks into household spending, they induce $276,097 in industrial output from industries that serve households, yielding 3.4 more jobs making $88,975. Added together, this construction project, *for the duration of the project only,* supports $1.28 million in area industrial output, $536,866 in labor income and 14 jobs.

Table 2.3: Individual Rental Project Construction Effects

Projects in Growing Housing Markets						Projects in Stagnant or Declining Markets				
	Direct	Indirect	Induced	Total	**Multi-plier**	Direct	Indirect	Induced	Total	**Multi-plier**
Project 1: Metropolitan (32 units)						Project 2: Metropolitan (50 units)				
Industrial Output	837,998	166,774	276,097	1,280,869	**1.53**	2,833,476	670,996	844,248	4,348,720	**1.53**
Labor Income	381,561	66,330	88,975	536,866	**1.41**	1,098,676	243,181	275,320	1,617,177	**1.47**
Jobs	8.6	2.1	3.4	14.1	**1.63**	28.7	6.7	8.8	44.1	**1.54**
Project 3: Metropolitan (52 units)						Project 4: Metropolitan (32 units)				
Industrial Output	2,180,833	407,900	720,944	3,309,677	**1.52**	2,686,527	493,612	1,039,458	4,219,597	**1.57**
Labor Income	1,062,885	151,446	225,545	1,439,876	**1.35**	1,344,679	184,894	330,540	1,860,114	**1.38**
Jobs	29.1	4.8	8.5	42.4	**1.46**	31.9	6.6	12.5	51.0	**1.60**
Project 5: Metropolitan Fringe (49 units)						Project 6: Metropolitan (36 units)				

[10] This allows economists to allocate mortgage payments into average annual values across an entire economy as payments to financial sectors, realized capital gains and the imputed rental value of the property for the homeowner.

Industrial Output	1,788,374	275,871	407,680	2,471,924	**1.38**	2,892,650	578,136	1,133,774	4,604,561	**1.59**
Labor Income	786,458	95,172	110,925	992,555	**1.26**	1,477,745	211,011	366,138	2,054,893	**1.39**
Jobs	18.0	3.1	4.9	25.9	**1.44**	34.0	6.6	12.5	53.1	**1.56**
Project 7: Nonmetropolitan (23 units)						Project 8: Nonmetropolitan (24 units)				
Industrial Output	865,384	138,687	258,658	1,262,728	**1.46**	412,562	54,960	90,885	558,407	**1.35**
Labor Income	371,317	50,601	83,363	505,280	**1.36**	182,809	18,536	24,038	225,383	**1.23**
Jobs	9.4	1.7	3.2	14.3	**1.52**	6.1	0.8	1.2	8.0	**1.31**
Project 9: Nonmetropolitan (33 units)						Project 10: Nonmetropolitan (36 units)				
Industrial Output	427,724	73,765	100,566	601,605	**1.41**	1,236,345	104,621	162,172	1,503,137	**1.22**
Labor Income	177,541	25,982	28,789	232,311	**1.31**	489,457	31,859	37,331	558,646	**1.14**
Jobs	5.7	0.8	1.3	7.9	**1.39**	16.6	1.4	2.0	20.0	**1.20**

Table 2.4 shows the estimated effects for a project involving single-family construction of owner-occupied homes in a rapidly growing metropolitan area.[11] We did not draw a similar sample of owner-occupied projects; because there is only one data point here drawn from a single city, it would not be fair to conclude that the higher estimated impacts are a result of the type of housing provided rather than the type of housing market.

Table 2.4: Project Construction Effects, Owner-Occupied Homes

	Direct	Indirect	Induced	Total	**Multiplier**
Industrial Output	$467,769	$129,953	$98,809	$696,531	**1.49**
Labor Income	$149,953	$46,804	$29,932	$226,689	**1.51**
Jobs	3.8	1.8	1.2	6.8	**1.82**

Total multipliers are listed in both tables.[12] The industrial output multiplier of 1.53 for

[11] Even though a large portion of the labor for this project was from volunteers, we allocated the expected amount of typical skilled construction labor to that project. Donated labor has value that is ultimately realized by the homeowner in the value of the home and must be counted in some manner.

[12] There are two types of multipliers that are often listed. The first is called Type I. It measures the relationship between the direct sector and the indirect sector. It is simply the sum of the direct and indirect value divided by the direct value. It tells us, given one unit of change in the direct sector (output, labor income or jobs), how much of a change in the indirect sector would be expected. Readers are encouraged to calculate that multiplier from the tables if they feel it is useful. The multiplier displayed here is called the Type Total Multiplier, or Total Multiplier, for short. It is the total value divided by the direct value in the rows.

Project 1 means that for every $1 in direct industrial output created by the project, $.53 in additional industrial output was supported in the rest of the economy *for the duration of the project only*. The 1.41 labor income multiplier means that for every $1 in labor income in the direct sectors, $.41 in labor income is supported in the remainder of the economy. Lastly, the jobs multiplier of 1.63 means that for every job in the direct sector, 63/100th of a job is sustained in the rest of the economy. Multipliers can have plus and minus signs in front of them. If the economy expands by the preceding ratios during the construction period—a positive sign—when the construction is over, the economy must contract by an equal amount—a negative sign. The gains or stimuli are simply short term.

In general, larger, more urban areas tend to have higher multipliers because their economies are more specialized and well developed. That means the probability that direct firms will purchase inputs from regional suppliers or that workers will consume larger fractions in the area where economy goes up as the economy gets larger. Smaller economies, on the other hand, will suffer trade leakages because local firms will not be able to find as many inputs locally, nor will households find as many of their necessary goods and services locally.

Our sample was not large enough to determine whether the differences in multipliers among counties would be generalizable to similar counties, but it does suggest that experience fits these expectations. Projects built in smaller, slow-growing counties appear not to have as great a local impact as projects built in larger or more rapidly growing places. But projects built in stagnant metropolitan areas appear to have similar (or even higher) local impacts compared to projects in growing metropolitan areas. Growing nonmetropolitan or fringe counties capture fewer benefits locally than larger counties, but more than they would if they were stagnant markets.

Table 2.5 lists the total construction effects using the state of Iowa as the basis for measurement. Here, we capture a very large fraction of the leakages that occur in the small area analyses in the previous table. We estimate that the value of the construction-related activity by all 11 projects is $29.5 million, requiring the equivalent value of 394 construction, finance and real estate jobs that earn $14.4 million in labor income. The firms further purchased $6.2 million in inputs, supporting almost 73 jobs and $2.16 million in income. Worker purchases of goods and services for their households induce $12.6 in output, 140 more jobs and $3.8 million in labor incomes. Total construction-related effects are $48.2 million in output, $20.3 million in labor incomes and 607 jobs.

Table 2.5: Statewide Construction Effects

	Direct	Indirect	Induced	Total	**Multiplier**
Industrial Output	$29,476,671	$6,167,256	$12,562,967	$48,206,894	**1.64**
Labor Income	$14,381,707	$2,157,087	$3,802,278	$20,341,072	**1.41**
Jobs	394.1	72.7	140.4	607.2	**1.54**

For every dollar in industry spending, an additional $.64 in industrial output is supported

in the state's economy. For every two construction jobs, another job is created.

THE ECONOMIC IMPACTS OF HOUSING OPERATIONS

Once built, the housing projects become income-producing enterprises; therefore, they produce industrial output. We itemize the local economic values of each housing operation, considering again just the county in which the project is located. When we measure the regular and ongoing activity of these projects as a regular component of the local or the Iowa economy, we use these operational figures. These values are in Table 2.6. The larger the project, the more it collects in rents and subsidies and the greater the effect of the project on the overall economy.

Table 2.6: Individual Rental Project Operations Effects

Projects in Growing Housing Markets						**Projects in Stagnant or Declining Markets**				
	Direct	Indirect	Induced	Total	**Mult.**	Direct	Indirect	Induced	Total	**Mult.**
Project 1: Metropolitan (32 units)						Project 2: Metropolitan (50 units)				
Industrial Output	174,978	29,782	31,342	236,102	**1.35**	397,262	95,586	96,318	589,166	**1.48**
Labor Income	39,445	10,198	10,096	59,739	**1.51**	117,822	31,363	31,408	180,593	**1.53**
Jobs	2.0	0.4	0.4	2.8	**1.38**	20.0	1.0	1.0	22.0	**1.10**
Project 3: Metropolitan (52 units)						Project 4: Metropolitan (32 units)				
Industrial Output	199,103	36,982	17,970	254,055	**1.28**	127,397	24,045	18,911	170,353	**1.34**
Labor Income	16,560	12,306	5,620	34,486	**2.08**	19,427	7,916	6,012	33,355	**1.72**
Jobs	1.0	0.4	0.2	1.6	**1.58**	1.5	0.3	0.3	2.1	**1.38**
Project 5: Metropolitan Fringe (49 units)						Project 6: Metropolitan (36 units)				
Industrial Output	378,766	67,285	21,096	467,147	**1.23**	234,384	53,188	60,841	348,413	**1.49**
Labor Income	24,191	20,779	5,739	50,709	**2.10**	70,863	17,178	19,642	107,683	**1.52**
Jobs	4.0	0.7	0.3	5.0	**1.24**	3.0	0.6	0.6	4.2	**1.40**
Project 7: Nonmetropolitan (23 units)						Project 8: Nonmetropolitan (24 units)				
Industrial Output	128,051	22,739	23,990	174,780	**1.36**	201,158	28,967	92,270	322,395	**1.60**
Labor Income	30,320	7,889	7,728	45,937	**1.52**	189,758	8,226	24,390	222,374	**1.17**
Jobs	2.0	0.3	0.2	2.5	**1.27**	15.0	0.5	1.0	16.5	**1.10**
Project 9: Nonmetropolitan (33 units)						Project 10: Nonmetropolitan (36 units)				
Industrial Output	129,780	18,640	12,556	160,976	**1.24**	198,000	15,434	14,318	227,752	**1.15**
Labor Income	18,437	6,030	3,591	28,058	**1.52**	40,250	4,361	3,292	47,903	**1.19**
Jobs	2.0	0.2	0.2	2.4	**1.19**	4.0	0.2	0.2	4.4	**1.11**

Generally speaking, housing is not a high-input industry (in other words, an industry that requires lots of services from other sectors) with extensive linkages to the rest of the economy. In addition, there is substantial variation among projects. Some require only a part-time manager, while others provide extensive services to tenants (for instance, in assisted-living facilities). The values in Table 2.6 have been particularized to both the local economy and to the actual project considering their declared gross receipts (their industrial output), the jobs reported for the project and the labor incomes that are paid. If we were to average the overall characteristics of all rental housing in the region, the overall housing operations multipliers would be different.[13]

Table 2.7 takes all of the values reported for the individual counties and places them within a statewide model of the Iowa economy. Again, this allows us to capture cross-border leakages, especially from the smaller counties. In addition, the variance in the individual job and income requirements for these projects is summed, and therefore, averaged across all projects thus yielding slightly more indicative multipliers.

In all, these projects will generate $2.2 million in industrial output in the long term, requiring 54.5 jobs and $567,073 in labor incomes. They will link to $471,224 in additional, state-industry-supplied inputs thus stimulating 5.4 more jobs with $156,132 in incomes. Through induction, $555,902 in additional industrial output will be sustained, requiring 6.3 jobs and $168,246 in labor income. These projects, statewide, link to $3.2 million in industrial output, $891,452 in labor income and 66 jobs.

Table 2.7: Statewide Housing Project Operations Effects

	Direct	Indirect	Induced	Total	**Multiplier**
Industrial Output	$2,168,879	$471,224	$555,902	$3,196,005	**1.47**
Labor Income	$567,073	$156,132	$168,246	$891,452	**1.57**
Jobs	54.5	5.4	6.3	66.2	**1.21**

These are the annual expected and regular values of the housing projects to the Iowa economy. The multiplier ratios are relatively low, similar to the most basic service sectors in Iowa. Lastly, the reader should be cautioned that it is not appropriate to add the values in Table 2.5 and Table 2.7 together. When describing the very short-term value of construction, Table 2.5 is appropriate. When describing the economic role of housing over time, Table 2.7 is appropriate.

CONCLUSIONS

Housing subsidies do not just provide a social safety net for low-wage earners or workforce housing. They also play a role in sustaining the construction sector. The

[13] There is evidence that there are social services mixed in with the traditional housing job and labor income estimates that skew some of the resulting multiplier ratios.

multipliers estimated here represent a positive (if small) contribution to the state's economy. The overwhelming majority of each dollar spent on housing in Iowa comes from federal or private sources. Thus, the $.64 in industrial output, for example, that a dollar of spending results in during construction, may be seen as a net gain for the state. Every two construction period jobs create another job elsewhere in the economy. Although long-term housing operations result in fewer additional jobs than the construction period does, every dollar paid to a housing project employee results in $.57 more income to workers elsewhere in the economy. And, in the long term, managing housing and serving tenants produces additional industrial output for Iowa of $.47 for every dollar spent.

Our analysis suggests that housing investments may have greater local impacts in larger, more diversified economies. In smaller counties, and especially when those places are slow growing, housing construction may have less of an impact on the local (county) economy, because more of the inputs (materials, professional expertise and labor) are likely to be brought in from outside. Without well-developed local capacity, this is inevitable.

Overall, housing is not a major driver of the economy. Housing developments do not use as many inputs as manufacturing firms do. Housing is also consumed locally rather than exported, so it does not bring new dollars into the state or local economy. The long-term jobs it provides are more likely to be part-time in administrative or service occupations. The sector is not a major employer, although individual housing projects, such as assisted-living facilities, may be fairly large local employers. Nevertheless, new housing construction contributes to employment, labor income and statewide industrial output during the construction period, and the longer-term employment and output it creates has steady positive effects on local economies.

SECTION THREE: WORKFORCE HOUSING AS AN ECONOMIC DEVELOPMENT STRATEGY

According to a recent report from the Iowa Works Campaign, "The state faces the danger of worker and skill gaps that could undermine its businesses, erode the earning power of its workers and slow its economic growth" (Iowa Works Campaign 2006, 2). Stagnant growth combined with a population approaching retirement age may result in a severe labor force shortfall. Education and training will be an important part of avoiding this shortfall, but providing attractive, affordable workforce housing is an important complementary strategy. Housing is part of the local economic infrastructure; without an adequate housing stock, local businesses must rely on workers commuting from outside communities at economic, human and environmental cost. Some businesses may not pay wages adequate to cover direct costs and may have difficulty attracting a sufficient labor pool from outside of the community. The National Housing Conference defines "workforce housing" as: "housing for those with at least one full-time worker who earns between minimum wage and the amount needed to afford to live in the area" (Sullivan, 2004, 2).

What counts as "workforce housing" in Iowa under this definition? In Des Moines, for example, workforce housing would be housing affordable to a household earning between $14,872 (working full-time at a minimum wage of $7.15) and $33,565 (the amount needed to afford a median-priced home, assuming a fixed-rate 6% loan and a 5% down payment). We could also define workforce housing based on the typical earnings of the new entry-level workers we need to recruit if the state is to avoid the projected labor force shortfall. Iowa's strategic plan for workforce investment identifies skilled occupations that pay at least $35,000 as the focus of economic development efforts. This section addresses three questions:

- How adequate is Iowa's supply of workforce housing?
- What are the barriers to expanding the workforce housing supply in different communities?
- How could we address those barriers?

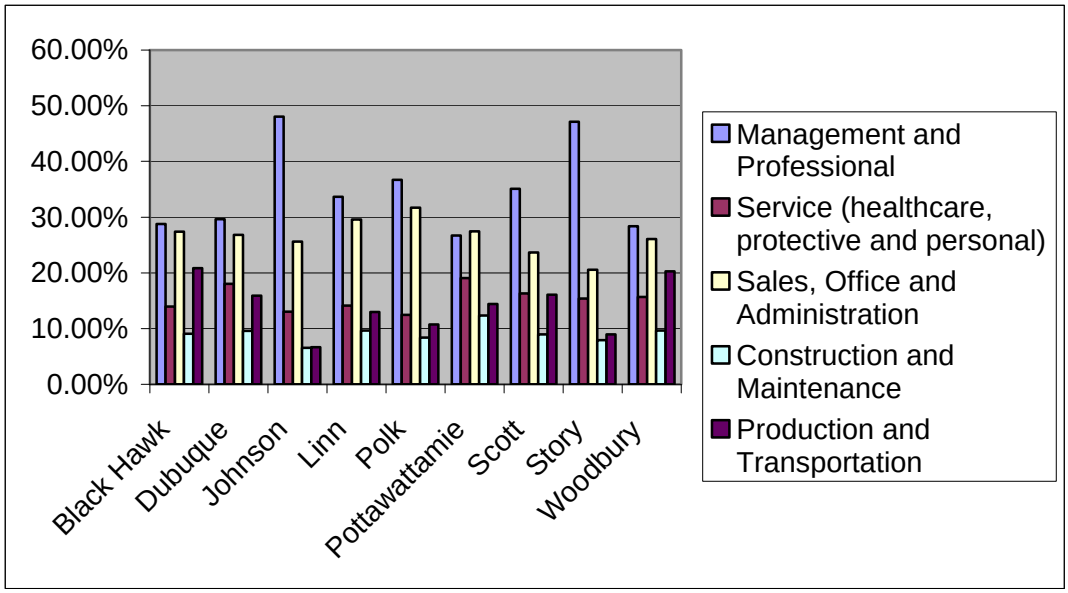
HOW ADEQUATE IS IOWA'S SUPPLY OF WORKFORCE HOUSING?

We begin by examining Iowa's occupational structure in 2005, and the median earnings of full-time workers by occupation.[14] This enables us to calculate the home price a working family, supported by a full-time earner at median wage, could afford in each county. Iowa's metropolitan economies are dominated by professional and managerial workers (who make up a slight majority of the labor force in most places), and the sales, office and administrative workers who support them. Together, those two occupational sectors account for over half of all workers in each metropolitan county; in Polk, Story and Johnson counties, they make up more than two-thirds of all workers. The traditional "blue collar" occupations, including construction, production and transportation, account for

[14] One constraint is that we do not have current data for all counties. However, we extend these estimates to all counties later in the discussion.

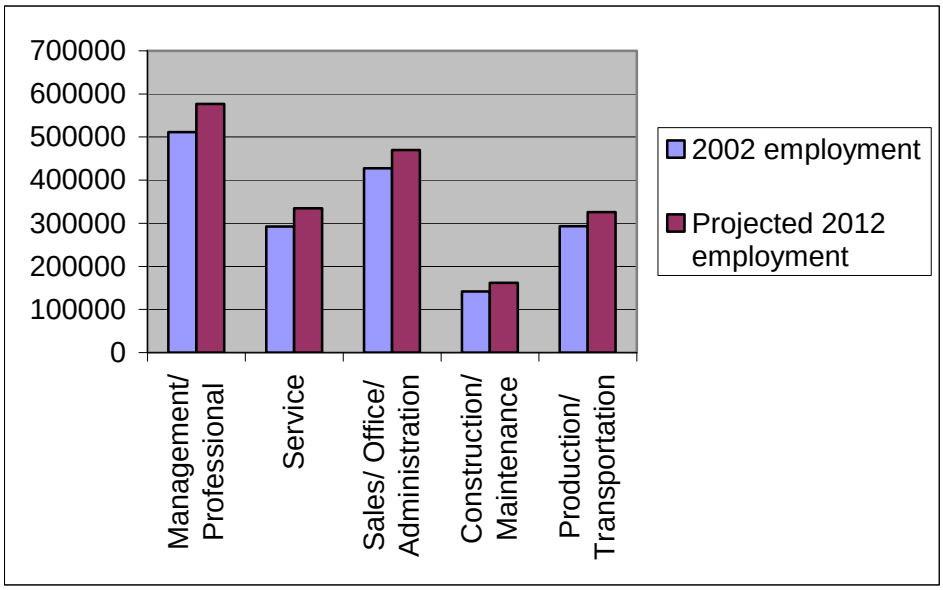
about one in four jobs in most metropolitan counties. The exceptions are Johnson, Polk and Story counties, where they make up less than 20% of all jobs. Chart 3.1 shows the occupational structure by metropolitan county in 2005. In the state as a whole in 2000, construction and production occupations made up a similar proportion of all jobs (26.3%).

Chart 3.1: Occupational Structure by County, 2005



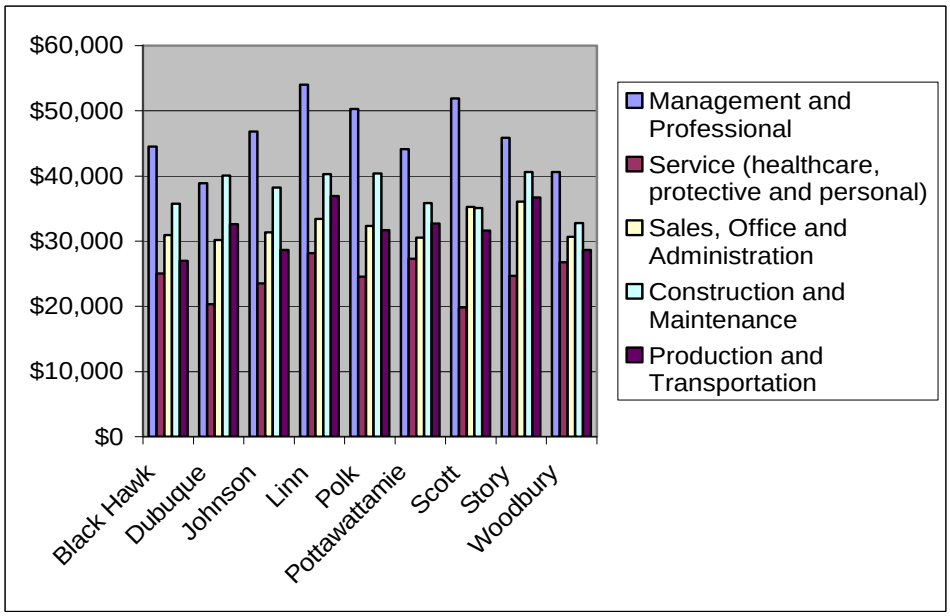
Iowa Workforce Development has developed projections of occupational growth between 2002 and 2012. Chart 3.2 shows that service sector jobs are likely to increase fastest, by 14.6% over the decade. Jobs for sales/office/administrative and production/transportation personnel, have lower than average projected growth rates according to the agency, at 9.9% and 11% respectively. The largest volume of jobs will be added in managerial/professional occupations, which is projected to grow at an overall rate of 12.7%.

Chart 3.2: Projected Growth by Major Occupational Category, 2002-2012



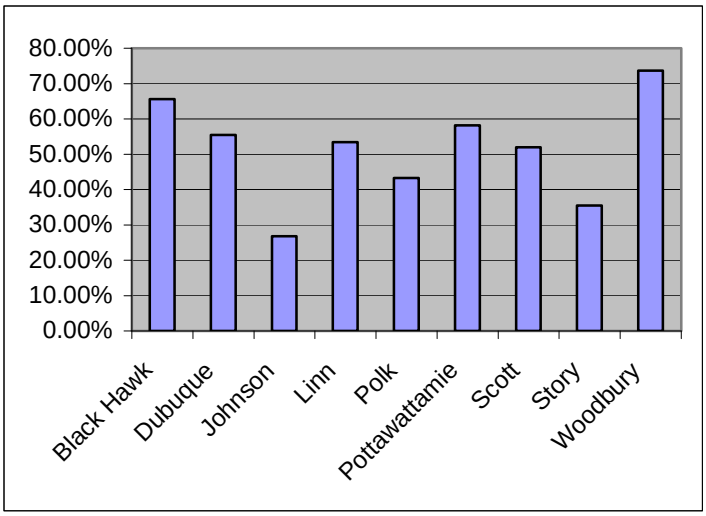
Managerial and professional workers earn substantially more than those in other occupations. Chart 3.3 shows the median annual earnings of people working full time, year round, in each of these broad occupational categories in 2005 (based on American Community Survey estimates). Service sector workers—those providing healthcare support services, fire and public safety protection, food preparation and personal services—earn far less than those in other occupations. There is considerable variation among metropolitan areas in some occupations, especially managerial/professional jobs, and less variation in sectors requiring fewer skills, such as service and sales/office/administrative jobs.

Chart 3.3: Median Earnings by Occupation, 2005



According to Iowa's strategic plan for workforce development, the state is targeting economic development efforts on three industry clusters: advanced manufacturing, information solutions and the life sciences (Iowa Two-Year Strategic Plan 2006). Entry-level jobs in these industries require a high level of skills and jobs would typically pay at least $35,000. We estimate how affordable the owner-occupied housing stock in each metropolitan area would be to households earning $35,000. We assume a down payment of $2,000, a $400 monthly debt load and a loan at 6% fixed (the current price of an IFA FirstHome loan) for 30 years. This would translate into a home price of approximately $124,575. Based on the distribution of owner-occupied home values from the 2005, Chart 3.4 shows the percent of homes priced at this level or less in each metropolitan area.

Chart 3.4: Percent of Homes Affordable to Skilled Entry-Level Workers



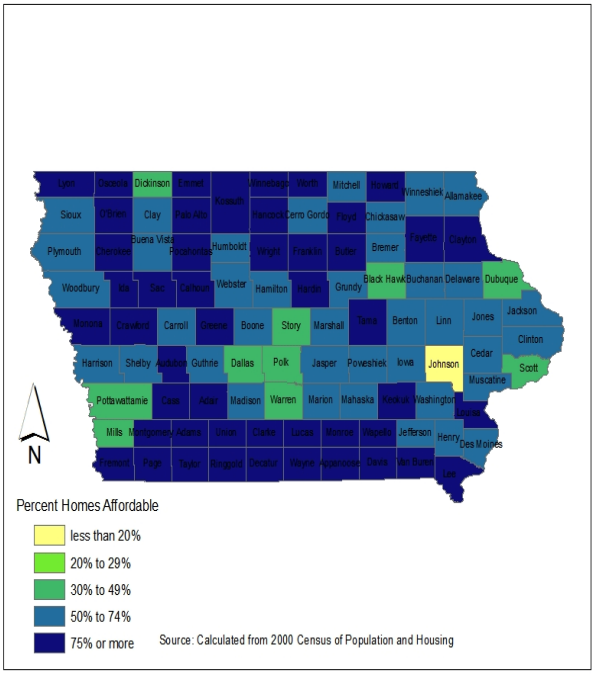
In many metropolitan counties, more than half of the housing stock would be affordable to skilled entry-level workers. But in Johnson, Polk and Story counties, less than half of the stock would be affordable. As these counties are centers of growth and may have the critical mass of existing businesses essential to the targeted industry sectors, this shortfall may be a future constraint on growing the skilled labor pool. According to the Center for Housing Policy's ranking of metropolitan areas by the affordability of their housing stock, Des Moines ranks 134th nationally out of 202 metropolitan areas (Center for Housing Policy 2006). Although this may be seen as positive, Des Moines is less affordable than many competing larger Midwestern metropolitan areas, such as Louisville, KY (142nd); Omaha, NE (148th); Wichita, KS (165th) and Indianapolis, IN (171st).

In the metropolitan areas where high-skilled occupations are most likely to concentrate, entry-level workers will have a limited choice of homes. A second source of income would be needed to buy a decent quality home. For many younger families, increasing earnings will entail an increase in childcare costs, and some may not be prepared to make the trade off in quality of life. Another choice would be to trade off commuting costs and choose an affordable home in a more distant fringe location. Thus, in rapidly growing metropolitan counties, workforce housing faces an affordability gap. The search for affordable housing may be driving suburban sprawl.

High-skill jobs are most likely to cluster in metropolitan areas. Nonmetropolitan portions of the state are more likely to continue to attract "traditional" industries with a preponderance of production jobs. How adequate is the housing stock in those areas for the labor pool employers need? We estimated the home price that a production sector worker with median (not entry-level) earnings could afford. Based on the same financing assumptions we used above, a home of $109,386 would be affordable to households with a single earner in a production occupation.

A large share of homes would be affordable to production workers outside of Iowa's metropolitan areas, as Map 3.1 shows. Production workers would have a much narrower choice of homes in most metropolitan counties. The map demonstrates why counties within easy commuting distance of metropolitan employment centers have seen rapid new housing growth since 2000.

Map 3.1: Percent of Homes Affordable to Median-Wage Production Worker, 2005



Slower-growing nonmetropolitan counties appear to have an ample supply of workforce housing. But many of the homes that may be affordable to production workers in those counties may also be outdated or of poor quality. Young families with skilled workers are likely to expect energy-efficient homes with central air, modern appliances and at least two bathrooms. The predominately older housing stock in nonmetropolitan counties may be affordable, but may be less likely to have these amenities.

Providing decent workforce housing in Iowa likely will entail building homes that are of somewhat higher cost than the existing stock, or renovating existing homes to higher standards. But there is a constraint: even though a production worker may be able to afford a home of (on average across the state) $109,386, many housing markets would not support such an investment. If median home values are well below $80,000 (as they likely are in at least 49 counties, as Appendix B of the Housing Study report shows), the small new home that could be built at today's construction prices would not appraise for around $110,000. That price would mark the upper quartile of home values in most communities; at an average current price of $125 per square foot, assuming no land costs, a $109,386 construction cost would build a home of 875 square feet. While a home that small may accommodate a young family, it is unlikely that it would appraise for such a price, in comparison to the larger homes in the community. Consequently, it may not be an attractive option for the buyer either.

Although rehabilitation is an option, the significant costs of modernization may encounter a similar value gap. A median-priced older home in good basic condition, but without

modern amenities may require about $25,000 to $30,000 for modernization, representing a very similar total cost. Thus, at least half of all counties in the state may face a significant value gap in providing the housing needed for younger working families.

According to Iowa Workforce Development, the state will have a shortfall of 150,000 skilled workers by 2012 (Iowa Workforce Development 2006). If we are to fill that gap by attracting new skilled workers as well as by upgrading the skills of existing workers, we must address the gaps we face in the supply of workforce housing. Both the affordability gap and the value gap must be bridged if Iowa is to retain and perhaps improve its competitive position compared to other Midwestern metropolitan areas.

WHAT ARE THE BARRIERS TO DEVELOPING AN ADEQUATE SUPPLY OF WORKFORCE HOUSING?

The first report in this series examined Iowa's housing markets and housing programs in detail. Many of the challenges identified there are the barriers we face in expanding the supply of workforce housing. The affordability challenges include:

- Housing prices have grown more rapidly than family incomes over the first half of this decade.
- Prices have appreciated rapidly in the state's growth centers, but some of the most rapid appreciation is seen in fringe counties within commuting distance of job centers. Increasing urban sprawl may be the result.
- Although home buyer assistance programs serve many first-time buyers, they do not target the most rapidly growing places with the largest shortfalls in affordable homes.
- Home prices and rents may be inflated by land-use regulations that restrict the supply of suitably zoned land and by local opposition to affordable housing.

In other communities, home prices have not appreciated fast enough and we face a value gap in expanding the workforce housing supply. Some of these challenges include:

- Rehabilitation subsidies are effectively targeted at communities with older housing stocks, but not necessarily at those with a concentration of high-priced home improvement loans.
- Markets with low median prices cannot attract sufficient new construction because homes will not appraise for what they cost to build.
- Perceptions of affordability may differ—housing costs that are seen as reasonable in metropolitan markets may be perceived as too high in small towns that lack a diverse job market and other urban amenities.
- There is a lack of construction and development capacity in small communities with low volumes of new construction, which is self-perpetuating.
- An older housing stock with limited reinvestment is deteriorating, and a fairly high proportion of homes in some areas pose health hazards to families with children.
- Income eligibility cutoffs for most federal assistance programs are too low in rural areas, so there is a cohort of households that don't qualify for assistance and cannot

find adequate market-rate housing.
- There may be an ample supply of housing in many small communities, but it does not offer the modern amenities that younger families expect.
- An important source of unsubsidized affordable housing—manufactured homes—is disappearing in many communities.
- A heavy reliance on sub-prime lending in some communities may destabilize housing markets in the future as foreclosure rates rise.

HOW COULD WE ADDRESS THESE BARRIERS?

Different strategies are needed to address each type of barriers. A recent report from the Center for Housing Policy identified 22 policy initiatives that could be highly effective in overcoming the affordability gap, although not all are relevant to Iowa (Center for Housing Policy 2005). Several variations on these initiatives were suggested by participants in the housing forums we held in early 2007. The most relevant and feasible fall into four categories.

1. Expand urban land available for affordable development

- **Make publicly owned land available for affordable homes**. Many municipalities find that new infrastructure investments require moving out of centrally located sites to larger fringe sites; the large land parcels vacated may be attractive locations for new housing development at urban densities and low or zero land costs would help ensure new homes were affordable.

- **Reuse vacant, abandoned and tax-delinquent properties**. Some states have initiated more aggressive procedures to speed the transfer of tax-delinquent properties. Brownfield redevelopment assistance can also encourage the reuse of vacant inner city sites for affordable housing. Land assembly could lower the disincentives developers have to go through with the time-consuming process of acquiring many individual parcels.

2. Reduce Regulatory Barriers to Affordable Housing

- **Ensure that zoning policies enable a variety of housing densities and housing types**. It will be difficult to build single-family detached homes at an affordable price. Other configurations (such as attached row houses, cluster homes and high-quality manufactured homes) should be as easy to develop. Sufficient land should also be zoned for multifamily housing, in every neighborhood, to avoid burdening only some neighborhoods and segregating renters in places that may not be close to jobs.

- **Adopt expedited permitting and review processes**. Development costs can be lowered if development approval is more predictable and the process is less burdensome. This does not mean communities must give up control over development quality. They should spell out fair standards and criteria for approval (with widespread public participation) and restrict decisions to determining whether projects meet those criteria or not, rather than allowing endless opportunities for NIMBY opposition.

3. Harness the Power of Strong Housing Markets

- **Use Tax-Increment Financing to raise capital where appropriate**. TIF bonds should be used carefully; the balance between housing needs and other tax purposes (such as education) should be carefully assessed, or communities could end up with many new residents and reduced capacity to serve them. TIF bonds may be best used for infrastructure and amenity investments that support both denser infill housing and other community needs. They are best used in strong markets where there is a reasonable expectation that values will appreciate steadily, enabling revenues to serve other purposes too.

- **Stimulate targeted construction and rehabilitation through tax abatements**. Enterprise zones that focus incentives in areas with high proportions of vacant and abandoned, but well-located land may be an effective strategy to stimulate affordable housing development. Abatements suffer the same danger as TIFs if they are used indiscriminately and they should not be used where development would have occurred anyway. They are also feasible primarily in strong markets where overall revenues are stable or growing.

- **Consider using inclusionary zoning requirements**. In rapidly growing markets, developers may be willing to provide affordable homes in return for regulatory incentives, such as slightly higher densities. Voluntary programs have worked very effectively in strong housing markets, resulting in affordable homes (for both owners and renters) integrated in all newer neighborhoods.

4. Generate Additional Capital for Affordable Development

- **Expand dedicated sources of Housing Trust Fund support**. Revenue sources tied to overall housing market activity are valuable contributors to trust funds. Iowa's State Housing Trust Fund has an admirable leveraging ratio. Several small dedicated revenue sources, such as incremental real estate transfer taxes, could exponentially increase the amount of private capital the trust fund leverages.

- **Provide predevelopment and acquisition financing**. Increasing development capacity will enable more developers to enter the market and meet small-scale needs that larger developers may find less profitable. But seed capital can be an obstacle for small developers, reducing their productivity or discouraging entry.

- **Support housing bond issues**. Iowa spends far less of its own resources on housing subsidies compared to other states and federal sources are too limited to meet most workforce housing needs. Bonds that expand the supply of affordable workforce housing will aid business retention and recruitment and attract the new young immigrants Iowa needs to prosper in the future. Additional capital to develop workforce housing throughout the income range identified above (approximately $15,000 to $35,000) should be understood as an investment that will be more than repaid, rather than a "giveaway."

- **Increase employers' contribution to meeting needs**. Businesses that rely on attracting and retaining a high-quality labor force may find that investing in the local housing market, or providing some form of "in-kind" subsidy to new employees, will aid their efforts. Employer contributions to local housing trust funds, or direct partnership in specific developments, have become common sources of housing support elsewhere. Other businesses that benefit from a supply of low-wage labor may be tied to consumer markets and are not that footloose. Expecting a contribution to the costs of providing affordable rental housing, for instance, for a healthcare worker earning $22,000, would not be unreasonable.

Strategies such as these should be part of a broader statewide housing policy. Although many are local-level strategies, their effectiveness will be strengthened if there is a statewide commitment to meeting the affordability gap.

Fewer research efforts have focused on strategies to address the other barrier we face: the value gap. Nevertheless, there are some potentially effective courses of action. Some have been discussed above. Assistance in reusing vacant and abandoned land may be useful in stagnant as well as growing markets. Increased capital may aid strategies that meet the value gap.

1. Provide capital to jump-start stalled markets

- **"Patient capital" is needed to fill the value gap**. New construction or substantial rehabilitation is less likely where appraised values will not cover costs. Gap financing could take the form of a second mortgage for the difference between the construction or renovation cost and the appraised value of the finished home.[15] If market prices do begin to approach the actual cost of producing housing, the second mortgage could be replaced by conventional financing. If they do not, the gap finance becomes a direct subsidy to the homeowner.

- **Invest in amenities and infrastructure that will make stagnant markets more attractive**. Many small communities do not have sufficient revenues to provide the park systems, public services, downtown investment and other community goods that would make them more attractive places to live. TIF districts and abatements only exacerbate the lack of revenues. Outside sources of capital are needed to make this happen.

2. Investigate alternative ways of delivering housing.

- **Manufactured housing may offer a financially feasible alternative to new construction**. Manufactured is more likely to be both affordable and feasible without a subsidy. But it has limitations that need to be addressed if it is to form an acceptable strategy. Manufactured housing is usually seen as a less desirable home ownership

[15] For example, the New Hampshire Housing Finance Authority contributes to a second-mortgage pool of funds along with local lenders. Second mortgages are made for up to 120% LVR (Collins and Dylla 2001, 12).

option. Homes are often restricted to parks, where owners must rent lots and thus do not enjoy the security of tenure that home ownership should bring. Homes on rented lots are not counted as real estate but as personal property, which restricts financing options, makes appreciation less likely and makes the housing less desirable from the municipality's point of view. Homes that are not permanently fixed on the owner's land are less likely to appreciate in value, so they do not build the wealth that many homeowners expect. However, all three of these barriers may be the result of public policy decisions, rather than characteristics intrinsic to manufactured homes, and they could be addressed by regulatory changes.[16]

- **Cost-effective rehabilitation and modernization will aid reuse of the existing stock.** Uniform rehabilitation standards can smooth the process and make it easier for specialized firms to meet these needs in many different communities. Enhancing capacity through technical assistance and seed funding could increase the number of firms with expertise. Expanding consumer access to fairly priced home improvement loans would expand the market for renovation contractors.

3. Preserve and stabilize the existing stock

- **Home financing affects the stability of home ownership**. Home buyers in less rapidly growing markets are far more likely to use sub-prime loans, and rates of foreclosure on sub-prime loans are high and rising. Ensuring that home buyers are educated about their choices and that they can choose among as wide a range of stable financing options as possible will be essential to stabilize home ownership and thus communities. Although Iowa has some protections against predatory lending, more aggressive measures may be warranted.

- **Short-term emergency funds can help keep families in their homes**. Even with fair financing, low-income owners may face crises (such as unemployment or health problems) that can turn into catastrophes if they default on their mortgage. A short-term fund to avoid default and foreclosure may be a cost-effective way to stabilize ownership among those with volatile incomes.

- **Strategic decisions need to be made about the preservation** of much of the existing subsidized housing stock. Where preservation for current uses is not justified,

[16] For instance, as Richard Genz argues, if local development regulations allowed for small lots both affordable for and suitable for manufactured homes, many more homes could be classified as real estate (Genz 2001). Infill sites where older homes have been demolished, or smaller sites mixed in to new subdivisions, would avoid ghettoizing manufactured homes in just part of the community. Enabling manufactured homes to be permanently fixed to the owner's land, and thus to be classified as real estate, would open up a much wider range of financing options, helping the home buyer avoid the sub-prime loans which serve the majority of "chattel" manufactured homes. It would also make it more likely that homes would appreciate in value, and thus reward routine upkeep and maintenance.

conversion to alternative uses may be viable. Where subsidized units provide a vital part of the local affordable housing supply, physical and financial preservation (which will likely involve recapitalization) should be a priority.

4. Enable Communities to make wise decisions about housing investment

- **Provide a seed fund to enable small communities to evaluate their market needs**. An inadequate local housing stock is perceived as a major barrier to recruiting new businesses, but communities are not always equipped to make wise decisions about how to upgrade that stock. Speculative investment in the hope that new homes will attract new workers who will attract new businesses is often not justified. Lower-cost and lower-risk strategies may be difficult to identify without assistance. Funding for market studies could better target efforts to develop viable workforce housing.

- **Provide alternative funding sources to TIF and tax abatement in slow-growing communities**. While property tax-based strategies may be quite feasible in strong housing markets where values can be expected to appreciate, they are less appropriate in weaker markets. State Housing Trust Funds, housing bond issues, employer participation and tax-exempt bond issues may all be better funding sources.

These recommendations are examples of what could be done to expand workforce housing in different types of markets. The list is not exhaustive and not all of these options may be politically feasible. Workforce housing strategies should be developed within an overall housing policy, recognizing that many strategies are complementary rather than stand-alone options. A scattershot approach, or one that cannot be sustained over time, would be more likely to waste resources.

SECTION FOUR: CASE STUDIES OF AFFORDABLE HOUSING'S IMPACTS ON PEOPLES' LIVES AND ON COMMUNITIES

Quantifiable assessments of housing's economic effects, and of its economic development potential, tell an important story. However, an equally important, but often neglected part of the story are the less-quantifiable impacts housing has on people's lives and on communities. This section of the report discusses five qualitative case studies of projects around Iowa. We chose projects to represent a range of experiences. Our purpose was to examine the positive and negative aspects of the projects. The case studies also offer valuable insight into the challenges that affordable housing development must contend with; they round out the assessment of gaps and challenges developed in the housing forum discussions.

We examined slightly different aspects of the projects in different cases. In three (Castle on the Hill, Jackson Point and The Rose of Des Moines), we focused on the experiences of tenants, although some neighborhood issues were addressed. In one (Plymouth Block), we focused on the impact a project has had on its surroundings. In the final case study (Iowa Valley Habitat for Humanity), we focused on the challenges of providing home ownership opportunities to low-income households.

In conclusion, we consider the unique and common challenges among the projects and outline some lessons for housing policy. In some cases, the challenges faced are fairly intractable and our most appropriate response may be to provide the support that is feasible. In other cases, challenges could be addressed fairly effectively through simple (not necessarily costly) policy changes.

CASE STUDY I: MIXED-INCOME HISTORIC PRESERVATION: CASTLE ON THE HILL, SIOUX CITY

Castle on the Hill, the old Sioux City Central High School campus, dominates the highest point in the city. Built in 1892 in Norman style, of Lake Superior Sandstone, it ended its life as a school in 1972. After standing vacant for nearly three decades, the building was heading for demolition. In 2000, the Iowa Historic Preservation Alliance listed the building as one of the "most endangered" historic resources in the state. However, with the aid of committed local residents, a development company skilled in adaptive reuse and historic preservation, and a variety of sources of public and private funding, the landmark Castle has begun a new life as a mixed-income apartment complex.

The building retains the original entry lobby with historic murals (painted under the Works Progress Administration program) and a statue of Lincoln donated by the class of 1912. The wide corridors remain, but the classrooms have been combined into a variety of one-, two- and three-bedroom apartments. The apartments have high ceilings, large windows, and air conditioning. There is a licensed daycare on the premises, although it currently has only two children registered. There is also a community room and fitness room. A small outdoor gathering space provides a place to grill out and socialize, although there is no children's playground. Given the hilltop location, apartments obviously have great views. A few apartments (mostly market-rate ones) include turrets.

Entryway statue of President Lincoln, showing WPA murals

The rehabilitation was completed and the building occupied in 2003. It is a mixed-income project with 17 market-rate units out of a total of 75 apartments. Market-rate apartments rent for $550 to $640, while rent-controlled apartments rent for between $373 and $580, serving a mix of tenants at 40% to 50% of the median income. It has few vacancies, and usually has a waiting list for one- and two-bedroom apartments. In addition to Low Income Housing Tax Credits, the project was awarded both state and federal Historic Preservation Credits that helped fund the extensive rehabilitation. Without these sources, it would not have been possible to undertake the complex and challenging project. A small part of the building is owned by a nonprofit, Friends of Castle on the Hill, that operates a gift shop and manages the auditorium, which is a venue for concerts and other cultural events.

Tenants are a mix of singles, young parents and elderly households. A few are disabled. Many (28 households) are able to get by without a car, because the building is so conveniently located. Tenants' occupations include operations manager for a local TV station, manager of a large clothing retailer, a meter reader for the energy company, a small-business owner, a home healthcare worker, a University Extension Services faculty member, a production supervisor in a large chemical company, and a daycare employee. We interviewed the building manager, Judie Campbell and three tenants whose names were picked at random from a list. We asked each of them why they had chosen this building and what they saw as the positives and negatives of living here.

Mike Schmidt has lived here for 18 months. He moved to Sioux City when he completed his seminary training as a Lutheran pastor and received his first posting in an inner city Sioux City church. At first, he lived in a suburban apartment, but he wanted to move to the community to which he was ministering. There were no decent alternatives to this. There

are cheaper local apartments, but they are badly managed and maintained. He lives in a market-rate unit. He was surprised by how nice and well-maintained the apartments were and how each one was unique. He likes being part of the neighborhood and being able to walk to work. He personally feels quite safe in the neighborhood, but it does have a bad reputation locally. He is a member of the tenant association. They do a variety of social events and small cleanup and improvement projects, such as around the outdoor seating areas.

Pastor Mike Schmidt in his apartment

Marianna[17] moved to Castle on the Hill in 2005. Before that, she and her young son, Tim, lived with her mom a few blocks away; before that she lived with her ex in a very small, bug-infested apartment that wasn't safe for Tim. She was concerned that the poor living conditions were affecting his health. She waited eight months for housing assistance to come through and waited a few months more for an apartment here. She wanted to live here because her brother had an apartment here and she knew how nice it was. It is very well-managed, each apartment has a washer and dryer, and the apartments are in good condition with large windows. There isn't anything like it in the surrounding area. She knows many of the neighbors and her son plays with other children in the building. The downside is that there is not a good place for kids to play outside. They can play in the community room if other people aren't using it. There isn't playground equipment because of liability issues and there are no safe local parks they could go to. The neighborhood is a negative, but she is close to her mom and other family members, so she wants to live here. Her mom provides daycare for Tim. Marianna is in school finishing her associate degree

[17] Names of tenants have been chan
ged if we did not have explicit permission to identify them.

in accounting. In the past, she has only had entry-level jobs with low pay and no security. She hopes to get a permanent, better-paying job when she graduates and go off housing assistance.

Part of the community room, with children's play area

Lisa has lived there since July 2004. Previously, she was living with her ex in a home they were buying. When she had to move out because they were separating, she couldn't find any good alternative apartments at the price she is paying here. She doesn't know where she would move if she had to; one problem is the high security deposits required in most apartments (her parents helped her with the deposit when she moved here). She is currently unemployed, but she does help out in the office downstairs. She's a member of the tenant's association and knows at least half the other tenants in the building. In the summer, they get together around the outdoor seating areas. The thing she doesn't like about it is that she doesn't feel safe walking in the neighborhood at night. However, she does feel safe in the building. Her upstairs neighbor can be noisy as he wakes very early in the morning, but that is something the building manager is happy to deal with for her.

One of the strengths of Castle on the Hill is clearly its effective, responsive management. Based on discussions with tenants and a brief period observing a tenant intake, rules are clear and are enforced consistently. One tenant put it this way: "Judie is really nice, but you don't want to get on her wrong side...." In a tough neighborhood, this is crucial. Poor management in other rental properties has allowed illegal activities to flourish there, threatening the majority of law-abiding tenants, leading to rising vacancy rates and, in some cases, financial disaster. The strong continued demand for both market-rate and subsidized apartments is a good indication of how well managed it is.

Castle on the Hill Neighborhood

The active tenant's association demonstrates that the building's residents have successfully created a community. Tenants appear to know most of their neighbors and are eager to cooperate to make small improvements and upgrades. They appear to have a real sense of "ownership" rather than feeling merely like tenants. Almost every apartment entry was carefully decorated with seasonal items, unique mailboxes and personal touches. One tenant has painted decorative, color-coded murals at each elevator landing to distinguish the floors and to "brighten the place up." One entry way has a designated place where tenants can leave items they no longer want, such as children's toys, in case other tenants have a use for them. The rather forbidding building is a warm and friendly place inside.

The project has had an important impact on the surrounding neighborhood, although there are still problem houses and absentee or negligent landlords. In addition to rehabilitating a large, vacant property that understandably had a blighting effect on its surroundings, Castle on the Hill has had positive impacts too. Tenants and the building manager work with the police and the local neighborhood association, Near Northside Neighborhood Network, to control what goes on around them. They are valuable partners in the community's revitalization.

CHALLENGES

As with most of the other projects we have examined, assembling so many different sources of financing for this project was time consuming and difficult, even for an experienced developer. Preservation projects are inevitably far more expensive than new construction projects, especially if the historic features of buildings are to be restored. Although State Historic Tax Credits were awarded to the project, they have yet to be paid because there is a backlog of approved, but unfunded projects. Caps on the tax credits, and a five-year limitation on the waiting list, mean that this source is effectively not available to projects being developed this year. Currently, applications are not being accepted for

State Historic Tax Credits; applications will only be accepted July 1, 2010, for tax credits that will be paid out in 2015.

As a "market-making" project in a distressed neighborhood, Castle on the Hill faces several challenges from its environment. Some tenants are afraid to walk in the area after dark and there are few attractive safe places for the children in the building to play. Vandalism and neighborhood disturbances create anxiety. Fortunately, the positives the building offers are strong enough to overcome these disadvantages. But revitalizing the surrounding community will be a long-term task. The multiple problems of social stresses, negligent landlords, poor management of the numerous single-family rental properties in the surrounding neighborhood, and lack of amenities need a multifaceted approach. Investment in one building alone, as important this landmark is, is not enough to turn the neighborhood around.

CASE STUDY II: AFFORDABLE HOUSING FOR PEOPLE WITH DISABILITIES: JACKSON POINT, FAIRFIELD

Some of the most difficult housing needs to meet are those of people with mental illnesses and disabilities. People with chronic mental health problems are unlikely to be self-supporting and SSI (Supplemental Social Insurance) payments are extremely low, placing most individuals at less than 20% of the median income. However, although people may qualify for Housing Choice Vouchers, they may not be able to find apartments (or willing landlords) on the private market. They may be perceived as "difficult" tenants, without the supportive services that could help them live as independently as possible. Specialized service-enriched housing is a vital resource for people with mental illnesses or disabilities. A recent *Des Moines Register* article (February 18, 2007) discussed the issue. All 99 counties in Iowa used to own and operate

"county homes" for individuals with mental illness. Today, only five counties operate these facilities. The executive director of the Alliance for the Mentally Ill of Iowa, Margaret Stout, stated in the article that for some individuals with mental illness a group home can provide benefits, but that many mentally ill individuals can benefit from being as independent as possible.

Jackson Point is an 18-unit complex for people with special needs, developed in Fairfield, Iowa in 2006. The project was financed in part with equity raised from low-income housing tax credits. It is operated by ResCare, a specialized service provider for individuals with mental illness that works in 20 counties all across southeast and south-central Iowa. We interviewed Penny Miller, the Director of Property Management at ResCare, and a strong advocate of affordable housing. We spoke with two tenants of the new facility and with the developer of the project, Richard Read, who is also a member of the Jefferson County Board of Supervisors. Jefferson County formerly owned and operated Cedar Creek, a residential care facility (or "county home") for individuals with mental illness. Cedar Creek was closed recently, and although Jackson Point provided a home for many of the home's former residents, the two decisions were taken independently. However, closing the aging Cedar Creek facility was an easier decision, knowing that safe and affordable housing would soon be available at Jackson Point.

Jackson Point is adjacent to a park in a residential neighborhood in Fairfield. There are 16 one-bedroom units and two two-bedroom units. Communal areas are integrated into the design. These areas include two kitchens, two lounges, a computer cluster and an art center. The one-bedroom apartments rent for $354 per month and the facility accepts Housing Choice Vouchers, which enables even extremely low-income tenants to afford the apartments. Only one apartment currently sits vacant, but a new tenant will move in shortly.

Jackson Point Common Area

All apartments are either accessible to or easily adaptable to persons with physical disabilities. All Jackson Point's tenants have special needs and about one-quarter are either mentally or physically disabled. Supportive services help tenants with independent living skills; 24-hour, on-site assistance is provided. The support staff assists tenants in developing a personalized development plan, outlining individual goals. Tenants require assistance with a range of different skills. Some need assistance using their stove, others need help balancing their checkbooks and others need help filing taxes. In combination, the accessible units, the target population and the 24 hour support staff make this project exceptional.

Although some neighborhood residents expected increased noise and police activity in the community with the addition of Jackson Point, the site has had no problems beyond a few oversensitive smoke alarms summoning the fire department. Jackson Point staff and Fairfield's volunteer fire department are working together to address this issue.

On our walk around the complex, a tenant named Daniel greeted us. Daniel explained to us that the slightly misaligned sidewalk concerned him and that an older person could easily trip and hurt themselves. Although the facility posted signs along the sidewalks that made visitors aware of the flaw and asked them to walk cautiously, Daniel agreed to verbally warn visitors to watch their step.

As we entered the facility, an older woman sat on a brand new plush chair in the common area, engrossed in watching *The View*. Penny introduced us and asked her if she would like to speak with us about her new apartment. Penny emphasized the fact that the older woman had a choice—she did not have to speak with us. The woman decided that *The View* was much too interesting. Clearly, the tenants at Jackson Point are allowed and encouraged to make individual and independent choices.

Another tenant, Sam, willingly showed us his apartment. After shaking hands and inviting us in, he immediately began talking about his efforts to keep his apartment clean and apologizing for what he saw as its untidiness. Prior to coming to Jackson Point, Sam and Daniel both used to live at Cedar Creek, the residential care facility formerly owned and operated by Jefferson County. Residential care facilities essentially acted as group homes for individuals with mental illness. At Cedar Creek, residents had very little independence and usually shared rooms with three other individuals. During our conversation, Sam informed us that he was never going back to Cedar Creek. Despite his apparent dislike of Cedar Creek, Sam did have happy memories of the farm the facility operated about 30 years ago.

Daniel had also lived at Cedar Creek for around 20 years. Daniel suffered from intense paranoia while living there. Due to this paranoia, he slept little and weighed under a healthy weight. Since moving to Jackson Point, Daniel has gained 10 pounds and has commented to staff that he "sleeps so deep" at Jackson Point. Much of this progress likely is due to the fact that Daniel has his own apartment, and therefore, feels in control of his surroundings.

Staff are enthusiastic about the facility's positive effects on its residents. Before Jackson Point opened, some family members of its future tenants did not believe that their loved one could progress independently. After a few months at Jackson Point, several family members have commented on the great strides their son or daughter has made. ResCare staff members believe that some tenants may eventually move to complete independence. Our interviews with tenants confirmed the positive effects that staff described.

For people who have always had a place to call home, the euphoria of finally moving into a one-bedroom apartment is hard to understand. A ResCare employee told the story of an older gentleman, deeply grateful for his new apartment. After living in a residential care facility most of his life, the 50-year old man demonstrated his appreciation by kissing the handle of his apartment door after closing it behind him. The joy that filled this man came from having a place to call home.

Without Jackson Point, the housing options available to its 20 tenants would be extremely limited, if not nonexistent. Jefferson County has some affordable elderly and family rental developments, but they cannot provide the types of services that tenants with mental illness need.

CHALLENGES

The developer of the project, Richard Read, described the vital role of Low Income Housing Tax Credits in developing Jackson Point. Without the tax credits, the project would not have been built. Mr. Read also noted that Jefferson County is proud of the facility and glad to support a project that fills a void within the community. But as an inexperienced developer, one challenge he faced was the complex and time-consuming application process required. He noted the cumbersome paperwork and the difficulty of identifying and hiring contractors who work on tax credit projects. In the end, it took

multiple years and a steadfast commitment. If he had not been so committed to seeing the project happen, he might have been discouraged. Local construction and development capacity, especially in smaller communities, is difficult to develop within an unavoidably complex and risky process.

The facility manager, Penny Miller, has been a long-time advocate of affordable housing. She described some of the difficulties that she has faced as an advocate, in dealing with hostile neighbors near other proposed developments. Penny explained people's response to affordable housing as a result of fear and misinformation. When community residents hear "affordable" they think "criminal." Although some community members opposed the Jackson Point project, Penny believed the resistance was minor in comparison to her struggles in other communities. Developing housing for people who may be perceived as a threat is always a challenge, but without safe and supportive housing, communities will face much greater threats. A recent study of Iowa's homeless population found that about one in three homeless adults has some form of mental illness or disability (Iowa Policy Project 2006). Not all of those homeless individuals can be served in conventional housing; supportive services are essential if people are to be integrated into communities without burdening them. Educating community residents about the alternatives, and providing guarantees that a facility of this sort will be well managed and that tenants will be well taken care of, will be important if future developments are to meet the needs that exist in many communities throughout the state. Community opposition can be a tremendous barrier to developments that are urgently needed, but already complex.

A stable source of subsidy is essential to develop housing that serves extremely low-income individuals. Jackson Point had to use both Low Income Housing Tax Credits and HOME funds to be feasible. ResCare has participated in closing three (soon to be four) aging residential care facilities and moving individuals with mental illness and disabilities into supportive housing in the community. Gap financing is critical to continuing these efforts in the many counties which have closed their "county homes."

CASE STUDY III: AFFORDABLE ASSISTED LIVING:

THE ROSE OF DES MOINES

Iowans are living longer. One of the demographic groups that will increase over the next decade is the "frail elderly;" people over 85 with some physical limitations and health problems. As people age, they may find it more difficult to live independently, even in an apartment. Some may continue to live independently with home modifications, but many also need some daily assistance. Cooking nutritious meals, housekeeping, bathing and other activities become more of a challenge, but the person may not need the level of care provided by a nursing home. A previous report on the housing circumstances of Iowa's seniors (Kaskie et al. 2003) identified a severe shortage of affordable assisted-living facilities for people who are too old or frail to live independently, but not ill enough to require nursing home care.

The Rose serves tenants earning 50% of median income or less. Priority is given to the frail elderly. The 52-unit building combines affordable housing with assisted-living services. Lutheran Community Health Services has an office in the building; the agency provides the nursing, therapeutic and homemaking services on contract. The Rose

provides decent housing along with typical amenities found at market-rate, assisted-living facilities. It was funded in part by equity raised from Low Income Housing Tax Credits.

We interviewed the Executive Director of The Rose Affordable Assisted Living Communities, Angela Adams. We also spoke to five tenants of the facility to find out where they lived previously, what other housing options they had and their opinion of the advantages and disadvantages of living at The Rose.

The Rose of Des Moines includes a combination of one- and two-bedroom independent living units. It was constructed on a vacant site in a designated city redevelopment area that is a state enterprise zone. The Rose has a very desirable location because of its high-traffic visibility and close proximity to the senior center. The development had strong local political and neighborhood support and the Des Moines City Council provided a letter of support because the development met several of its objectives. It is a three-story building located in a predominately multifamily residential area east of Drake University. Adjacent to the property sits the senior community center where many of the tenants visit and socialize. King Elementary School, within walking distance of the facility, provides Rose tenants a place to garden.

Each unit is equipped with wireless Internet, a refrigerator and dishwasher, in addition to a living room, full bath and storage. They are designed to accommodate wheelchair-dependant individuals with an accessible bathroom and kitchen and wide halls and doorways. Tenants can request an emergency response device they can use to notify staff if they have any health-related needs. The building is also equipped with a motion sensor response system that can detect a fallen tenant anywhere in public areas. Access to the building is secure and private parking is provided. Tenants enjoy all the amenities of market-rate apartments at affordable costs.

Apartment Living Room

Before the development was completed, there were more applicants than rooms. Priority is given to the frail elderly with incomes at 50% or less of the area median income. In Des Moines, that translates into an income no higher than $23,800 for an individual or $27,200 for a couple. Applicants must be at least 55 years of age. Currently, there are over 70 applicants on the waiting list. For most tenants, their alternative would be a nursing home, even though they may not need the specialized nursing care. This would be an expensive and wasteful alternative. Monthly rental rates for a one-bedroom apartment are from $510 to $637; two-bedroom apartments are $765. The Rose is not in competition with market-rate facilities, because tenants at the income levels it serves would not be able to afford market-rate assisted living.

Residents may choose different billing programs, depending on the amount of assistance needed and number of meals provided. Many of the residents of The Rose are eligible for the elderly waiver through Medicaid, which covers many of these costs. To qualify for the elderly waiver, individuals must require the level of care normally provided only at nursing homes, such as companion services, delivered meals, adult day care and homemaker services. The waiver can go toward food, transportation and other nursing costs. In addition to the elderly waiver, residents may qualify for other affordable rental subsidies such as the Housing Choice Voucher program.

The Rose offers tenants a range of services and amenities. In addition to central dining, there is a beauty shop, a community room with computers, an assisted-bathing area, a library, a chapel/theater and a nurse's office. Residents can invite friends and family to weekly movies and popcorn. There are weekly chapel services and bible study along with group exercise activities. A monthly schedule of events such as birthday celebrations and bingo is distributed by one of the local residents. Residents can live as independently as they please. Assistance is available on-site from the contracted healthcare provider, Lutheran Community Health Services.

Elizabeth "Lil Bit" Hugeback delivers the monthly activities calendar

Many tenants are long-term Des Moines residents, and many were in inadequate or unaffordable housing before they moved into The Rose. Most tenants are single individuals, but there are a mix of couples and related siblings that move in together. One of the people we interviewed had been homeless earlier in life. All the people we interviewed expressed high levels of satisfaction with the management, the amenities and the many services offered. Staff are seen as friendly and quick to respond to resident needs or requests. A maintenance staff is available to help tenants with small household repairs. There has been very little turnover to this point, as the facility opened recently. Tenants may move on to nursing homes if their health declines to the point where the basic care provided is inadequate.

CHALLENGES

When we asked tenants about the disadvantages of living at The Rose, their complaints were very minor. One mentioned that pictures of each tenant should be provided so everyone could get to know everyone else's name. Another complaint was that visiting grandchildren can sometimes be rowdy, but some residents said they enjoyed having rambunctious visiting children. These are minor and easily solved complaints, and the management is clearly seen as very responsive to tenant concerns.

One potential problem with assisted-living facilities that contract out for services is that the day-to-day management staff may not be able to control the quality of the services provided by a third party. The Rose works with an outside contractor for housekeeping and nursing services. They have encountered no problems with the quality of service, so this is not an issue for this facility. However, as an assisted-living facility certification relies on the quality of services provided, a poor provider may put a facility at risk of losing certification.

Another more general challenge is that rents for a full-service facility like The Rose would not be affordable to an extremely low-income elderly person without additional assistance. The Rose's tenants all rely on either an HCBS rent subsidy or a Housing Choice Voucher. These programs provide the deep subsidies needed to house elderly people earning significantly less than $20,000 a year. For elderly Des Moines residents who earn slightly more than $23,800 a year (the eligibility cutoff for this and many other LIHTC-funded properties), but who cannot afford market-rate, assisted-living facilities, there are few good options.

Resident Genaro Mata enjoys a visit from his grandchildren

A final challenge is that The Rose, with 52 units, has a waiting list of 70 households. Even if turnover rates are rapid, many eligible elderly households will wait several years to be accommodated. The security, quality of life and cost-effective basic health care that tenants enjoy should be the social norm for all seniors, but unfortunately it is not the norm for all lower-income seniors. Despite the very positive achievements of the recent focus on subsidizing the development of affordable assisted-living facilities, Iowa has a continuing unmet need as its population continues to age and the number of frail elderly grows.

CASE STUDY IV: DOWNTOWN REVITALIZATION THROUGH HISTORIC PRESERVATION: PLYMOUTH BLOCK / CALL TERMINAL APARTMENTS, SIOUX CITY

Photo Courtesy Downtown Partners, Sioux City

Bringing people downtown 24 hours a day requires attractive housing downtown. Preserving historic structures helps create a distinct identity for downtowns; suburban shopping malls cannot offer the unique urban environments that historic downtown shopping and entertainment districts can. Sioux City is making progress toward its downtown revitalization goals through the rehabilitation of the fine Richardson Romanesque buildings in its Fourth Street historic district. A combination of federal and state Historic Preservation Tax Credits and Low Income Housing Tax Credits (and other sources) made the rehabilitation of one of Fourth Street's landmark structures, the Plymouth Block, feasible.

Local architect Edward Loft designed the building, which was developed by the Boston Investment Company in 1890. The building's unique details include massive arches in a colonnade along Fourth Street, decorative column caps and a horizontal band of cherubs along the length of the front facade (AbsoluteDSM.com 2007). An interior glass-covered atrium provides natural light to all floors. Plymouth Block housed a variety of businesses, including a bank, a saddler, a clothing manufacturer, the Sioux City College of Medicine, the Metropolitan Business College and Aalf's Wallpaper (C.H.I, Inc. 2007). The building stood vacant for some years before Community Housing Initiatives, a nonprofit developer based in Spencer, Iowa, took on the daunting task of renovation and adaptive reuse.

The completed project received the *Outstanding Preservation Project* award from the State Historical Society of Iowa in 2005.

The Plymouth Block Building in 1923

Source: Three Quarters of a Century of Progress, 1848-1923: a brief pictorial and commercial history of Sioux City, Iowa. Obtained from http://freepages.books.rootsweb.com/~cooverfamily/siouxcity/sioux_18.htm

Plymouth Block is a mixed-use building with three stories of mixed-income apartments (75% are reserved for low-income tenants) and two stories of office and commercial space. The 48 one- and two-bedroom apartments have splendid city views and residents can walk to work, restaurants, theaters and other entertainment options. It is close to Mercy Regional Medical Center, a major regional employer, and in the heart of the downtown business district. A few tenants have families, but the small apartments are most attractive to single working adults and couples.

We interviewed Patty Heagel, the community development director for the City of Sioux City, to assess the importance of this project to Sioux City and find out about the city's involvement. We also interviewed Roger Caudron, the executive director of Downtown Partners Sioux City, to assess the project's successes and challenges. Jim Johnson, a local Sioux City developer, provided further insight into the challenges developers of similar properties face.

The development was complex and expensive, with a total project cost of $8 million. It relied on a close partnership between the developer, the city and the state. Because

Plymouth Block met several important city goals of adding to the affordable housing supply and contributing to the revitalization of downtown, the city was aggressive in contributing funds and relaxing regulations. The city relaxed building code regulations by allowing the building to meet international codes for historic buildings rather than the stringent codes that are applied to new construction. In addition, the city allocated approximately $400,000 in Community Development Block Grant (CDBG) funds to the project. Since the project is located within an Enterprise Zone, it received some tax benefits for creating additional housing units within the Zone. The state also contributed HOME funds, and allocated the project Low Income Housing Tax Credits. Initially, the project secured Federal Historic Tax Credits and later received an important allocation of State Historic Tax Credits further in the development process.

The Plymouth Block Building Before the Rehabilitation

Photo courtesy Community Housing Initiatives

All 48 apartments are currently rented. Interviewees saw the project as the crucial stimulus to a downtown residential market; Sioux City now has a total of 320 units downtown (most of them market rate), thanks in part to Plymouth Block's proof that there was a market for downtown living. As more people choose to live downtown, the area becomes more vibrant, benefitting downtown businesses. Both Patty Heagel and Roger Caudron commented on the fact that increasing downtown housing units in turn increases the vitality of small retail stores and markets. Without tax credits and other sources of support, it would have been far riskier to do the adaptive reuse in the hope there would be tenants for an entirely market-rate project.

The demand for affordable rental units is strong enough that occupancy was guaranteed for the 36 low-rent apartments, making it much easier to attract higher-income tenants to the remaining market-rate units.

Interior Atrium

Photo Courtesy Community Housing Initiatives

With the rehabilitation of Plymouth Block, the streetscape also improved. The former vacant warehouse had blighted the Fourth Street area, as the “before” picture shows. Transforming this eyesore back to its historic grandeur preserved not only the building, but also made this part of downtown much more attractive to prospective businesses and customers. Today, what had become an underutilized warehouse is being used for its highest and best purpose. The improvements to the streetscape have spurred more investment in the downtown.

Plymouth Block also benefitted the greater community. As a rehabilitation and historic preservation project, Plymouth Block benefitted construction businesses since the project required more skilled work than new construction typically would. According to Roger Caudron, rehabilitation and preservation projects may have a greater economic impact than new construction projects due to the additional labor and skill required. While we were not able to evaluate the impact that Plymouth Block has had on local property values, based on the findings reported in Section One for Polk County, it is likely that such a landmark reuse project has had a positive impact on surrounding values, thus strengthening Sioux City’s revenue base.

CHALLENGES

Despite its promise, the Plymouth Block project faced many challenges in the beginning. According to Patty Heagal, securing the necessary financing to create an affordable building alongside the expensive historic restoration, proved very difficult. Multiple

sources of financing had to be assembled, a time-consuming and complex task. Both Low Income Housing Tax Credits (LIHTC) and Historic Preservation Tax Credits were critical to the completion of the project. Private, state and federal loans, and contributions from the Federal Home Loan Bank Board, were layered on top of the other financing sources. The project received an allocation of LIHTCs in 1999, and was completed and occupied in 2001.

A second challenge was finding a low-cost way to provide parking for tenants. Although the building is downtown, the residential sector there is still too small to support some essential services such as supermarkets. Thus, tenants may be able to walk to work, but most still need a car. Parking also had to be provided for the new commercial and office spaces. The problem was temporarily solved by the demolition of a few nearby derelict buildings, which provided enough surface parking for both the residential and commercial uses. A parking structure would have increased costs, but surface parking is not an ideal long-term solution for a downtown district.

The commercial and office space on the lower two floors is appropriate for a downtown district, but leasing of this space has been slow. The downtown has not yet revitalized to the point there is steady demand for new commercial and office space. The growing residential sector may aid this in time, but the turnaround cannot be expected to happen within five years. Thus, the project revenues depend heavily on the apartments. This is a major challenge with mixed-use buildings.

Apartment Interior

Photo Courtesy Community Housing Initiatives

Although Plymouth Block successfully incorporates both affordability and historic preservation, the final project had some limitations. In the opinion of our interviewees, the level of interior preservation could have been better. For instance, the exposed brick

walls were covered and apartments are small. The project also lacks outdoor space—there are no gardens and no yards. Although most tenants are single, some do have children. There are few safe places in the vicinity for children to play. This is a challenge for an historic conversion of a downtown property; original downtown blocks were not configured to provide outdoor spaces, and parks suitable for children have not typically been located downtown. Inevitably, tradeoffs must be made to keep costs under control. More spacious and historically authentic interiors would likely have added substantially to costs that were already high; the exterior authenticity should indeed have been the higher priority. Fortunately, tenants appear to have found the apartments quite attractive enough as high rates of occupancy have been maintained.

CASE STUDY V: IOWA VALLEY HABITAT FOR HUMANITY
CEDAR, IOWA AND JOHNSON COUNTIES

Habitat for Humanity International is one of the best-known providers of home ownership opportunities for low-income families. It uses a unique model combining financial, material and labor donations, alongside public subsidies, and a significant investment of sweat equity from partner families. The Iowa Valley chapter builds homes

in Johnson, Iowa and Cedar counties. IVHFH has built 44 homes in a little over 10 years. Their ability to expand their model is limited by the availability of low-cost land and the competition for public subsidies and charitable contributions. These problems are shared by most other Habitat affiliates. We interviewed Executive Director, Mark Patton; two families who own homes thanks to Habitat, Joe and Evelyn Kennen and Mona Ibrahin; and a Kirkwood faculty member who volunteers with the organization.

Habitat serves an income level for which home ownership is usually out of reach. For a three-person family, an eligible income would be in the range of $17,000 to $35,000 in Cedar and Iowa counties, or $19,000 to $39,000 in Johnson County. Families must be able to repay the interest-free mortgage Habitat originates and each adult must contribute at least 200 hours of sweat equity to build their own and other families' homes. Adults are also required to attend a home ownership education course, delivered in four two-hour sessions. The course covers taxes and insurance, financing, home maintenance and landscaping.

The Iowa Valley Habitat affiliate was launched in 1984 to respond to the growing demand for affordable housing, but it was 1994 before they built their first home. Most homes are new construction, but occasionally homes are rehabilitated. On average, IVHFH completes five to six homes a year. During 2007, it plans to build seven new homes. The typical starter homes Habitat builds have air conditioning, two bedrooms, one bathroom and a family room. They come equipped with a refrigerator and stove, donated by Whirlpool. They are designed to fit into urban neighborhoods of modest single-family detached homes.

The organization relies heavily on volunteers and donations and is skilled at using these effectively. An innovative program is the ReStore in Johnson County, which accepts donations of building materials (i.e. windows, flooring, appliances) and resells items at a discount. Earnings help to fund IVHFH projects. The materials are generally donated by businesses, contractors or home builders with overstock or incorrect materials. This program not only recycles valuable building products and raises funds; it also provides a low-cost way for homeowners to find materials to maintain and repair their homes.

IVHFH partners with many local businesses and benefits from the partnerships formed by the national Habitat network. For instance, Whirlpool donates appliances to each new home. The Home Depot has a national partnership with Habitat as well. A more local partnership is the one with Kirkwood Community College, where students in construction trade programs work on Habitat homes under the supervision of Kirkwood faculty. Kirkwood faculty members and employees of local construction firms also volunteer their time to oversee work on homes. Coordinating volunteers with many different skills and abilities can be challenging, so expert supervision is essential. However, the experience is invaluable for students and plays an important role in expanding skills in the construction trades.

Donations from businesses, churches and other organizations, and individuals are critical;

fund-raising is an important activity for Habitat's small staff and board. Organizations can sponsor a home, raising the necessary funds and perhaps also providing some of the volunteer labor. Habitat has effectively marketed sponsorship as a valuable "team-building" strategy for businesses and other organizations. Another donation source is the national Cans for Habitat program. People collect soda cans and the redemptions go toward funding homes for participating families.

A volunteer works on a Habitat home

Although Habitat is an extremely creative fund-raising organization and the Iowa Valley affiliate benefits from the direct solicitation campaigns of its parent, donations alone are not enough. Public funding is essential for Habitat developments. IVHFH is sometimes offered donations of building sites, but most sites must be purchased. Land values are high, especially in Johnson County. In addition, most materials must be purchased and overworked staff must be paid. Essential sources of support are the HOME and CDBG funds, provided through Iowa City for homes in the city, or by the state of Iowa for homes elsewhere (Iowa and Cedar counties do not have any jurisdictions that receive their own block grant funds). Another valuable source are the loans made by the Johnson County Housing Trust Fund, which is supported by the State Housing Trust Fund. Grants from nongovernmental sources, such as the Federal Home Loan Bank's Affordable

Housing Program, or from large banks such as Wells Fargo, play an important supplementary role in assembling the needed financing.

Families who apply for Habitat housing are carefully screened and must demonstrate their eagerness and motivation to partner with Habitat. They must have been legal residents of either Cedar, Johnson or Iowa counties for the previous year. Families living in severely inadequate housing or in overcrowded conditions are eligible. Most are renters living in substandard apartments, but some are owners of mobile homes. Rising energy costs and deteriorating conditions may threaten the stability of their housing, even though they are technically owners. Families must meet income-eligibility guidelines (between 25% and 50% of the area's median income) and must also be able to demonstrate that they will be able to make mortgage, tax and insurance payments each month. IVHFH ensures family budgets are adequate to meet these payments and staff continue to maintain close contact for at least the first six months of ownership.

The application process takes about two to three months. First, the selection committee evaluates each application to ensure that all requirements are met, and the applicant's credit is checked to ensure they will qualify for a loan. Applicants who meet the requirements then schedule a home visit with IVHFH representatives. If the home visit goes well, the application is approved and recommendations go to the board for a final review. Applicants who pass the final review are considered partner families. For families to be put on the waiting list, they must first demonstrate their willingness and dedication by providing 50 hours of volunteer time. On average, there are about 10 to 12 families on the waiting list.

Each adult of the partner family must contribute 200 hours of sweat equity to help build their own and other partner family homes. This "sweat equity" is a way to build relationships with the families. Families usually work Fridays and Saturdays; hours may be spent painting homes, working at the IVHFH office, providing food to the volunteers and attending home ownership classes. To earn additional hours, partner families can encourage friends and family to participate to earn additional hours.

When the home is complete, an interest-free, first-mortgage loan is made to the family. In addition, a 15-year silent second mortgage is originated for the difference between the first loan and the fair market value of the home. No payments are required on this second mortgage and it begins to be forgiven in the eighth year. By the fifteenth year, the second loan is entirely forgiven. This ensures that Habitat's subsidy is recaptured if the family sells the home during the first eight years, but it also allows owners to build up 100% equity in the home if they stay for at least 15 years. IVHFH stays in contact with the families for at least six months from move-in day to provide financial counseling and household maintenance advice if needed.

CHALLENGES

Habitat's model has many strong points, but the organization does face challenges that slow the pace at which it can meet the demand for affordable homes. Many of these are shared by other Habitat affiliates across the nation. One of the major challenges for the Iowa Valley affiliate is finding a sufficient supply of affordable building sites, especially in the Iowa City area, where demand is concentrated. As we saw in the study of housing markets, the Johnson County area in general has high housing prices and higher rates of affordability problems for low-income households. In Iowa City, IVHFH has been purchasing land further and further south of Highway 6, where land is available and affordable. However, the city of Iowa City is concerned that lower-priced housing is increasingly being concentrated in that neighborhood. Neighborhood opposition to further concentrations of affordable housing in just one elementary school district led to the establishment of a Scattered Site Housing Task Force in 2004. The Task Force recommended that future subsidized housing development should occur in other neighborhoods with lower concentrations of affordable homes. Thus, the city has concerns about providing HOME and CDBG funds to IVHFH for homes south of Highway 6. However, Habitat has great difficulty finding affordable land in other neighborhoods. This is a dilemma: residential segregation of low-income households is not good for families or neighborhoods, but funds are insufficient for single-family home sites in more expensive neighborhoods. Typically, HOME or CDBG funds provide between 30% and 40% of the price of a home site. New subdivisions in more expensive neighborhoods also may not provide small enough sites to be affordable to Habitat. This is a constraint on Habitat's ability to increase its production.

Although qualified families remain on the waiting list longer than they would if Habitat had easier access to land, the organization also reports it has difficulty finding qualified families. Some of the families that apply do not meet minimum requirements. They may need assistance, but may not be able to afford the required mortgage payments and other

monthly costs, or their credit may not be acceptable. Habitat is a good solution for some families, but it cannot serve all who are in need of decent affordable housing. The Iowa Valley affiliate does not build higher-density homes (duplexes or fourplexes). However, affiliates in other higher-cost housing markets have begun to build denser homes because land costs put single-family detached homes out of reach even of families at the upper end of Habitat's income range. Credit counseling is another strategy that could increase the number of qualified families. Habitat's homeowner education classes are offered to families who already meet its minimum requirements, so they cannot address more fundamental credit problems.

Financing is another constraint on Habitat's productivity. IVHFH staff and board members spend significant time searching for sponsoring groups and other financing sources. Conventional bank financing is not feasible because families are charged no interest on the mortgage. However, this means that Habitat must have sufficient capital to originate the no-interest loans and the deferred second mortgage that is often forgiven. Loans are usually paid back over a 20- or 25-year period, so it will be some time before the Iowa Valley affiliate is able to recycle scarce capital. There is no appropriate source of liquidity (such as a secondary market) that could speed this process. Relying on grants or long-term, zero-interest financing means the process of developing each home is laborious and resource intensive.

Another obstacle the Iowa Valley affiliate has faced is neighborhood opposition. Habitat builds modest single-family homes, typical of the homes built in the 1950s and 1960s that make up many stable, attractive family neighborhoods throughout Iowa and the nation. However, neighborhood residents have raised concerns about the appearance of the homes and the effect that they expect subsidized housing to have on their quality of life and property values. Despite the careful screening process for each partner family, and the effort families put into qualifying for a home, some neighbors are convinced that *any* low-income housing will result in decreasing property values and increasing crime rates. Some neighbors have argued that Habitat homes do not fit in their neighborhood and will be too obviously "low-income housing." Many Habitat affiliates report similar problems. Social expectations of what a "starter" home should include have been rising, along with

average home sizes. Three decades ago, an acceptable starter home had two bedrooms, one bathroom and a kitchen. Now, many believe it should have at least three bedrooms, two bathrooms, a two-car garage, air-conditioning, a dishwasher and many more expensive features. This is a dilemma: on the one hand, Habitat must keep homes modest to keep costs down, but neighborhood opposition further limits the availability of both land and public subsidies.

CONCLUSIONS

The five projects examined here are a small sample of both the success stories we have to tell about developing housing that changes people's lives and builds communities, and of the challenges that developers, local governments, social service providers, lenders and others face in making these success stories a reality. Based on our discussions with the participants in these projects, we identify several implications for future housing policy discussions.

FINANCING

The tax credit application process could be made simpler and easier for inexperienced developers meeting important local needs. Hands-on technical assistance for new developers could help streamline the process and enable local leaders to take the initiative in solving their community's problems. Access to a combined pool of subsidies and loans could also streamline the process for smaller, less experienced developers.

Assembling financing for unique, high-profile projects is time consuming and challenging even for experienced developers. The waiting list for state historic preservation tax credits has likely slowed the pace at which innovative adaptive reuse projects are occurring. Adaptive reuse is a valuable strategy that preserves not only unique structures, but can also create a sense of "place." It will be far less effective at this, however, if only isolated investments occur. A critical mass must be created if our investments are to pay off. Another strategy that could ease the process could be the selective use of state guarantees for private lenders.

Mixed-use projects are desirable in downtown areas, but developers need some guarantee that commercial space will not be a burden on the low-rent housing. Guaranteed leasing or some other mechanism is needed for projects where the current market is unlikely to absorb enough space in the short to medium term. Affordable housing should not be placed in the position of subsidizing vacant commercial space that is in the city's interests.

For developers of homes for sale to low-income buyers, a more predictable supply of funding for deferred second mortgages, and more liquidity for no-interest first mortgages, could increase capacity. Currently, public subsidies cover only a small portion of the funds needed for each home, and fund-raising absorbs a significant amount of staff and board time in most organizations. This slows production. Recycling low- or no-interest first mortgages over a shorter time period would also capacity. A "social investment" oriented secondary market outlet that blended pools of mortgages with different interest

rates (similar to the secondary market established by Enterprise and the NeighborWorks Network) could be an effective strategy. Given the screening and supports that many home ownership assistance organizations provide, mortgages are likely to be low risk.

REGULATION, PUBLIC EDUCATION AND OUTREACH

Educating community residents about the role housing plays in satisfying important social needs is crucial. Neighbor's fears should not automatically be dismissed as prejudice, but neighbors do need to be engaged in broader discussions about how communities will meet the needs of the least-well-off residents (such as people with special needs). Presenting examples of how other communities have met these needs, and the effects that projects have had on neighborhoods, may be an effective way to educate people about the options. Neighbors also deserve guarantees that management will be held accountable to the community and that any future legitimate concerns will be addressed.

Not all opposition to subsidized housing can be justified as motivated by fear. Some opposition is motivated by the desire to maximize the price of neighboring development, which might be in the interests of individual homeowners but is rarely in the community's interest. Fair standards for design guidelines could be agreed to by neighbors ahead of time, forestalling opposition to specific projects that meet those standards. Design standards would have to be carefully developed to ensure homes could still be built affordably. But reasonable solutions do exist; for instance, duplexes can be designed to look like large single-family homes. One good starting resource is Affordable Housing Design Advisor (http://www.designadvisor.org/).

More creative approaches are needed to deal with the shortage of land for affordable housing in rapidly growing areas. Land costs could be reduced if densities could be raised, but sufficient appropriately zoned land would have to be available throughout the community. One strategy some communities have used is to provide a density bonus for affordable housing only; the bonus could be made conditional on meeting agreed-on design standards.

APPENDIX A: METHODOLOGY

PROPERTY VALUE IMPACT ANALYSIS

Planning initiatives designed to increase the supply of affordable housing in local communities often encounter neighborhood opposition due to a perception that such projects depress values of nearby homes. In this study, we design a natural experiment in Polk County and estimate the valuation effects from new construction of Low Income Housing Tax Credit (LIHTC) projects on neighboring single-family homes. Operationally, we define neighboring homes as all single-family parcels within a half-mile radius of each of 11 new LIHTC projects approved between 2001 and 2004. Using data from the county assessor's 1999 residential inventory, we employ a propensity score matching technique to define pairs of properties. This technique assigns a control property from the same county to each parcel that meets the neighbor criterion. Matches are based on 1999 assessed value and common Hedonic pricing variables including specific parcel, neighborhood and market characteristics. The evaluative models estimate the impact from LIHTC project locations on assessed values using a 1999–2005 panel of neighbors and their matches, while controlling for unobserved heterogeneity.

In this study, we estimate that the siting of low-rise family LIHTC-subsidized apartment complexes slowed the valuation of neighboring single-family homes by between zero and 3.84%, depending on the particular project and neighborhood. At one extreme, the nine single-family homes neighboring Lynn Crossing Apartments (01-25) and The Meadows (03-24) projects experienced sharp declines in their growth rates of assessed valuation since those projects were approved. With so few neighboring single-family homes, we believe the estimated coefficients for those two projects, located in the extreme southern part of the county, do not reliably measure typical effects from type 1 projects (low-rise family apartment complexes). However, one cannot easily dismiss the consistent findings of negative effects for every type 1 project approved for the county during this period. Although no single model estimates negative effects that are significantly different from zero for every type 1 project, the negative effect for every type 1 project was found to differ from zero significantly in at least one of the models. We believe model 6 in Table A-3 below provides the most reliable estimate of a detrimental impact on property values from type 1 projects, amounting to a 3.84% slower rate of growth for neighboring single-family homes. It is also important to point out that the negative impact from type 1 projects appears to be short-lived. Only project impacts from one to two years after its approval differ significantly from zero; impacts on the rate of property valuation in the third to fourth year after approval are much smaller and are not statistically different from zero.

On the other hand, we found divergent neighborhood valuation effects among type 2 (high-quality mixed-income) projects and among type 3 LIHTC projects for the elderly, with positive impacts from individual projects dominating negative effects for the estimates by groupings in model 6. We estimate the neighborhood impact from type 2 projects to range from slowing the growth rate by 8.09% for the 34 homes neighboring

the Vine Street Lofts (04-49) project to accelerating the rate of valuation by 7.54% in the case of the 85 neighbors to the Woodland Avenue Brickstone (02-19) project. Although the coefficient in model 6 is negative for effects one to two years after type 2 project approval, it is not significantly different from zero because the positive effect from project 02-19 counters the negative effect from project 04-49. The coefficient for three to four years after project approval is significantly positive because project 04-49 has not yet been observed three to four years after its approval in 2004. For the third project of this type, East Village Square (04-30), both models 8 and 14 estimate a negative effect, although the coefficient is statistically different from zero in model 14, but not in model 8.

Similarly, we found that the effects for type 3 (elderly) projects range from slowing the rate of valuation by 4.49% in the case of the 266 neighbors to the Walden Point (04-33) project, to accelerating the growth rate by 6.99% for the 922 single-family homeowners near The Rose of Des Moines (04-23) project. For the third project of this type, Hickory Grove Apartments (02-28), we estimated a coefficient that is statistically close to zero. Because projects 04-23 and 04-33 were both approved in 2004, we interpret the significantly positive coefficient for one to two years since approval as evidence that the positive effect from 04-23 has dominated the negative effect from 04-33. Our best estimates for the effects from type 3 LIHTC projects for the elderly suggest that they have accelerated the rates of valuation for neighboring single-family homes by 2.29% (in model 13) to 5.16% (in model 6).

STUDY LIMITATIONS

These estimates may have significant policy implications. We plan to continue the study to address its limitations. The first limitation is the reliance on equalized assessed values of single-family homes as the measure of home prices. The strength and justification for using assessed values rather than another measure, such as sale price, is to obtain a complete coverage of homes neighboring LIHTC projects and their matches; many fewer homes will have sold during the period for which data are available and even fewer will have sold more than once. An alternative approach to a natural experiment such as this one is to use repeated arm's-length sales data. Although it is extremely unlikely we could find an adequate number of repeated sales among homes near the 11 projects, we will test the current models with sales data for each year (1998 through current) to ensure that findings are not driven by timing of neighborhood revaluations or other particulars in the assessment process.

Second, the models have been designed to test for effects at distances shorter than one-half mile. We will examine results for single-family homes located within one-quarter mile and one-eighth mile radii of the 11 LIHTC projects. While there is some reason to anticipate that any negative effects should be more negative at shorter distances and less negative or nonexistent further away, we are uncertain whether this or the opposite hypothesis is better grounded. Some research has observed that effects have become more negative at greater distances (of course, still within a reasonable distance threshold of, say, one-half mile). We believe this could potentially be driven by decreasing

compatibility between the stock of single-family homes and the project as distance increases, and not necessarily driven by model misspecification.

Third, the effects of LIHTC projects examined in this study include the more general impact on single-family home values that might arise from siting *any* multifamily housing structure. In other words, the comparison we make is LIHTC project to no LIHTC project. Although an examination of the effects of multifamily housing in general is beyond the scope of the current study, we believe such a study would be worthwhile to test whether valuation effects arise from the particular status of a subsidized multifamily project versus one that is financed entirely with private resources. We will identify the locations of all new multifamily housing units constructed in Polk County between 1997 and 2004 to enable further research on the topic.

METHODS

Our analytical method is to examine temporal changes in assessed values before and after the approval of the 11 LIHTC projects in the county and we use quasi-experimental research techniques to understand what would have happened to the values of neighboring single-family homes if the projects had not been approved. The basic approach to evaluating the impact of a project or intervention on an outcome Y in classical research design is to randomly assign cases into two groups or trials T, that is, a treatment group of cases that receive the intervention ($T = 1$) and a control group that does not receive the treatment ($T = 0$). Random assignment assures an unbiased experiment in that any observed or unobserved characteristics among cases other than receipt of the intervention under question have an equal probability of falling into either group. Another key aspect of experimental research is measuring the outcome before and after the intervention. In an experiment with two time periods, $t = 0$ indicates a period before the treatment group receives the intervention and $t = 1$ indicates a post-treatment time period. Every case will have two or more observations, at least one pretreatment and at least one posttreatment observation, and cases are indexed by $i = 1,..., N$. In classical research design, the outcome Y_i is typically modeled as:

$$Y_i = \alpha + \beta T_i + \gamma t_i + \delta(T_i \cdot t_i) + \varepsilon_i \qquad (1)$$

where α is a constant term, β is a treatment group specific effect accounting for average permanent differences between treatment and control groups; γ is a time trend common to treatment and control groups; δ is the true effect of the intervention; and ε_i is a random, unobserved error term that contains all determinants of Y_i that the model omits. The goal of program evaluation is to find the best estimate of δ with the available data.

When the assumptions of the classical linear regression model hold as in a pure experiment where cases are assigned randomly to treatment and control groups prior to intervention, the simple difference in difference estimator is an unbiased estimator of δ. The difference in difference estimator $\hat{\delta}_{DD}$ is the difference in average outcome in the

treatment group before and after treatment minus the difference in average outcome in the control group before and after treatment

$$\hat{\delta}_{DD} = \overline{Y}_1^T - \overline{Y}_0^T - \left(\overline{Y}_1^C - \overline{Y}_0^C\right)$$

or equivalently,

$$\hat{\delta}_{DD} = \overline{Y}_1^T - \overline{Y}_1^C - \left(\overline{Y}_0^T - \overline{Y}_0^C\right) \quad (2)$$

where $\overline{Y}_1^T$ and $\overline{Y}_1^C$ are the sample averages *after* intervention for the treatment and control group, respectively, and $\overline{Y}_0^T$ and $\overline{Y}_0^C$ are the sample averages *before* intervention for the corresponding groups. Difference in difference estimates can be obtained for this study from Table 1.2 simply by subtracting any "before LIHTC project approval" difference from a corresponding "after LIHTC project approval" difference in the same row.

In a *natural* experiment such as the location of Low Income Housing Tax Credit projects, "treatment" cases experiencing the intervention have been predetermined by project siting and policy, not by random assignment. Lacking the ability to randomly assign cases and restrict which group receives the treatment, the researcher can use quasi-experimental techniques to mimic the research design of controlled experiments, allowing the possibility of easy-to-understand inferences about the impact of the program. First, one must identify a treatment group affected by the project and a group of potential controls not affected by the project. Quasi-experimental techniques can be used to find and match the cases among the set of potential controls that are most similar in every respect to the treatment group, except that the control group did not experience the intervention, thus preserving the intent behind random assignment in experimental design.[18] If the matching technique sufficiently controls for other factors that might

[18] For discussions and applications of quasi-experimental techniques, see Cook, T.D. and Campbell D.T. (1979). *Quasi-Experimentation: Design and Analysis Issues for Field Settings*. Boston: Houghton-Mifflin; Dehejia, Rajeev H. and Sadek Wahba. (1999). "Causal Effects in Nonexperimental Studies: Reevaluating the Evaluation of Training Programs," *Journal of the American Statistical Association*, 94, pp. 1053–1062; Dehejia, Rajeev H. and Sadek Wahba. (2002). "Propensity Score Matching Methods for Nonexperimental Causal Studies," *Review of Economics and Statistic*, 84, pp. 151–161; Holzer, Harry J., John M. Quigley, and Steven Raphael. (2003). "Public Transit and the Spatial Distribution of Minority Employment: Evidence from a Natural Experiment," *Journal of Policy Analysis and Management* 22, pp. 415–441; Rosenbaum, Paul R. and Donald B. Rubin. (1983). "The Central Role of the Propensity Score in Observational

explain the variables of interest (values of single-family homes in this study), then a simple comparison of means across experimental and control groups such as the difference in difference estimator $\hat{\delta}_{DD}$ in Equation (2) would be meaningful and unbiased. However, in the instance of housing, which is notoriously heterogeneous, any differences between the treatment and control groups in important variables that affect the value of a home could bias $\hat{\delta}_{DD}$ as an estimator of δ in Equation (1). In instances when the matching technique is not so perfect, as often is the case, a common solution to this problem is to combine quasi-experimental methods with regression analysis to further control for possibly confounding factors, such as unobserved heterogeneity. For an outcome variable Y, the general modeling approach is

$$Y = a_0 + \mathbf{X_1} a_1 + \mathbf{X_2} a_2 + a_3 I' + u \tag{3}$$

$$I = b_0 + \mathbf{X_1} b_1 + \mathbf{Z} b_2 + v \tag{4}$$

where Y is the outcome variable; I is an indicator variable equal to 1 if the observation is in the treatment group and 0 if the observation is in the superset of potential controls; I' is a dummy variable equal to 1 for observations in the treatment group and 0 for observations in the matched control group based on the propensity score analysis; $\mathbf{X_1}$ is a vector of variables associated with group membership I and the outcome variable Y; $\mathbf{X_2}$ and $\mathbf{Z}$ are additional vectors of variables associated with Y or I, respectively; a_0, a_1, a_2, a_3, b_0, b_1, and b_2 are coefficient vectors or scalars to be estimated; and u and v are error terms.

Adapting the above general model to the case of Low Income Housing Tax Credit projects and valuation of neighboring single-family homes, the Y variable is the log of a parcel's total assessed value and I is a dummy variable indicating whether the parcel is located within a threshold distance of a new LIHTC project constructed between 2001 and 2004. The impact of the LIHTC project on single-family home values is measured by a_3, the coefficient on I'. In our quasi-experimental approach, Equation (4) is the logistic regression we use to estimate the propensity scores by which control parcels are matched to treatment parcels that are near projects. The propensity scores are the estimated probabilities from the model of each parcel receiving an LIHTC project in its neighborhood $\Pr(I = 1)$. Our use of propensity score matching in this instance differs from the most common applications that examine the effect of specific programs such as welfare or job training programs for individuals or enterprise zone programs for

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Studies for Causal Effects," *Biometrika*, 70, pp. 41—55; Smith, Jeffrey A. and Petra E. Todd. (2005). "Does Matching Overcome LaLonde's Critique of Nonexperimental Estimators*?" Journal of Econometrics*, 125, pp. 305–353.

geographic areas.[19] Rather than predicting a parcel's selection for participation in a program, we use the selection regression in Equation (4) simply to choose as controls the parcels located farther than one-half mile from any LIHTC project that are most similar to those treatment parcels located near a project approved between 2001 and 2004. The indicator variable I' is constructed based on matched pairs from the propensity score regression in Equation (4) and the propensity score is based on finding pairs of parcels that are similar in regard to a number of specific parcel, neighborhood and market characteristics.

PROPENSITY SCORE MODEL

Observed characteristics at the parcel, neighborhood and market level must be held constant across the treatment and control group prior to the intervention; therefore, on the right-hand side of Equation (4) we include total assessed value, age of the structure, distance to the state capitol, the parcel's land area, the structure's total living area, number of bedrooms, number of bathrooms, basement area, attached garage area, condition of the structure, exterior wall material, foundation material, heating type, the block's minority population, home ownership rate, and its homeowner vacancy rate and the census tract's median family income, poverty rate and its rate of population growth 1990–2000. Table A-2 provides the logistic regression results for the propensity score matching model. For several of the parcel-specific characteristics, we lacked a prior hypothesis, but we are somewhat surprised by coefficients indicating a higher probability of receiving an LIHTC project between 2001 and 2004 in the vicinity of Polk County single-family home parcels that in 1999 were newer, had larger lot sizes, greater living area, more bedrooms and/or were in better than normal condition, each trait holding other variables in the model constant, of course. On the other hand, coefficients indicating a higher probability for receiving a project as a neighbor among lower-valued homes, with fewer bathrooms and smaller or nonexistent attached garages, located on blocks with more minorities and a lower home ownership rate, and located in census tracts with lower median family incomes and higher individual poverty rates appears in line with what one might expect for the siting of low-income housing.

Given the estimated coefficients β in Table A-2 and the values of the variables x, we calculate the propensity scores by way of the logit link function

$$\Pr(I = 1) = \frac{e^{\beta' x}}{1 + e^{\beta' x}}$$

[19] For an example of the quasi-experimental approach applied to a job training program, see Dehejia, Rajeev H. and Sadek Wahba. (1999). "Causal Effects in Nonexperimental Studies: Reevaluating the Evaluation of Training Programs," *Journal of the American Statistical Association,* 94, pp. 1053–1062. For an example of a quasi-experimental approach applied to an enterprise zone program, see O'Keefe, Suzanne. (2004). "Job Creation in California's Enterprise Zones: A Comparison Using a Propensity Score Matching Model," *Journal of Urban Economics,* 55, pp. 131–150.

Then for each parcel located within one-half mile of a project approved between 2001 and 2004, we attempt to match a potential control parcel that has the closest propensity score to the treatment parcel, as calculated from the equation above. To accomplish this enormous search through nearly 100,000 records, we employed a 5-to-1 digit greedy matching algorithm. First, the algorithm attempts to match the treatment parcels to controls based on five digits of the propensity score. For those that did not match, cases are then matched to controls based on four digits of the propensity score. This continues down to a one-digit match on propensity score for those that remained unmatched. Therefore, the process ensures that "best" matches occur first, "second-best" matches next, and so on in a hierarchical sequence until no more matches can be made. Best matches are those with the highest digit match on propensity score; in other words, those that have the least absolute difference in propensity scores.

Table A-1 provides descriptive statistics on each of the matching variables for the parcels near LIHTC projects, their matches, and all of Polk County. As one can see, the matching performed quite nicely in this instance. First, a match rate of 88 percent of treatment cases is fairly high compared to similar studies. Incomplete matching may result due to two reasons: cases have missing data or there are disjoint ranges of treatment and control propensity scores. Data must be complete for all covariates in the multiple logistic regression analysis used to calculate the propensity score. If any covariate data are missing or the raw value of a variable to be logged is zero, the case is eliminated from the analysis and a propensity score is not calculated. Incomplete matching will result and the cases with missing data will be excluded. Alternatively, the treatment cases and the controls may contain a disjoint range of propensity scores. Incomplete matching will result and the treatment cases with the highest propensity scores and the controls with the lowest propensity scores will be excluded. We found no significant differences between the 381 treatment cases excluded (for either reason) and the 2,902 that remain, so we anticipate no problems have been introduced to the analysis through case omission. A close inspection of the descriptive statistics variable by variable in Table A-1 demonstrates how well the propensity score matching method selected controls with no meaningful difference from the treatment group in terms of central tendency or spread for any of the observable characteristics deemed important to home values.

In addition to identifying the locations of the new LIHTC projects in Polk County, Map 1.1 identifies the half-mile radius around each project and the locations of the control parcels. As the map emphasizes, many of the controls are located just beyond homes within the half-mile radius of a project. In fact, roughly half of all controls are in the yellow census blocks with very few controls, while the red and orange regions combined make up the other half. We believe this to be a strength of this analysis as it indicates we have some degree of assurance that controls are also in neighborhoods that are similar to their matched treatment cases.

EVALUATION MODELS

This section describes each of the models displayed in Tables A-3 and A-4. Among these, we have the greatest confidence in the matched pair fixed effects models 6 and 8 in Table A-3. Ignoring for the moment the quasi-experimental approach developed in Equations (1) and (3), the simplest test of the effects of distance to any LIHTC project on the value of single-family properties is:

$$\ln(Value_{i,t}) = \alpha_0 + \beta \ln(DTP_{i,t}) + u_{i,t} \qquad \text{(Model 1)}$$

in which case we have a pooled regression of the four time periods and the current value of a single-family home is a function of only the current distance to the nearest LIHTC project $DTP_{i,t}$. To construct this measure of nearest distance to a project, we assigned to every property as a 1999 baseline its straight-line distance to the nearest project approved between 1997 and 1998. The 2001 distance is then the minimum of distances to a project approved in 1999 and the 1999 baseline. That minimum then becomes the baseline for calculating nearest project distances for 2003 and so on. In that way, the distance to nearest project is at most the value of its length in 1999 and generally is getting shorter in subsequent years. Naturally, distances to nearest project for the treatment group are becoming shorter much quicker over time than for the control group.

MATCHED PAIR FIXED EFFECTS MODELS

Of course, one would expect that the value of a home is caused by many other consequential factors besides the proximity to LIHTC projects, so we would anticipate the coefficient β above to be a biased estimator of the impact of projects on home values. Furthermore, the distance-to-project measure may be altogether inappropriate since there is no maximum threshold over which we might expect effects from *proximity* to occur. It is therefore somewhat surprising that when we pool our matched controls chosen from the propensity score method described above with the treatment cases, the coefficients on $DTP_{i,t}$ for this model and that in model 2 test consistently with findings of project impacts in our better quasi-experimental models 6 and 8. Including a dummy variable for each of the 2,902 matched pairs in the equation for model 1 above allows each matched pair to have its own intercept and this is our approach in model 2. As one can see, this reduces the estimate of the impact of proximity to a project β, but it remains significantly different from zero. Because the functional form of these models is in double-log, the coefficients on covariates are elasticities. Thus, the interpretation of findings for model 2 is that a home located twice as far from an LIHTC project as another is worth 1.26 percent more than the home located half the distance to a project.

Extending the approach in Equation (4), regressions with fixed effects for each matched pair of parcels provide estimates of the impact of LIHTC projects on single-family home valuation across all parcels, while controlling for the valuation that could have been expected in the absence of the project. These regressions take the form:

$$\ln(Value_t)_i = \alpha_j + \beta_1 \text{Project}_{i,t}^{\text{yr1-2}} + \beta_2 \text{Project}_{i,t}^{\text{yr3-4}} + \beta_3 \ln(Value_{t-1})_i + u_{i,t} \qquad \text{(model 4)}$$

where t represents biennial observations coinciding with the equalization cycle, i indexes parcels, and j indexes a matched pair composed of a parcel neighboring an LIHTC project and a non-neighbor from the same county. The project neighbor variable I' in Equation (3) is divided into two periods, 1 to 2 years since project approval and 3 to 4 years after project approval, to estimate how property valuation effects may differ over time. Controlling for the home's value last year, the coefficients of interest β_1 and β_2 approximate the effect of the Low Income Housing Tax Credit project's approval on single-family home valuation. Each of the matched pair fixed effects models also gives each neighborhood its own spatial fixed effect by including a dummy variable for every neighborhood that has one or more parcels (treatment or control) in the regression.

Models 3, 5, 6, 7 and 8 have small but important variations from the basic form in model 4 above and model 3 combines the $\text{Project}_{i,t}^{\text{yr1-2}}$ and $\text{Project}_{i,t}^{\text{yr3-4}}$ variables into a single project neighbor variable similar to I' in Equation (3). In models 5 and 6, the two periodic project neighbor variables are divided further into three project types as discussed in Section One. In models 7 and 8, the project neighbor variable is divided into separate effects for each of the 13 individual project numbers (Note that 01-33, 02-02 and 03-02 have been counted as the same project among the 11 mentioned earlier, but are treated individually here due to their different locations and different years of approval, bringing the actual number of projects to 13). Model 8 differs from model 7 in that the former also controls for the overlap (or interaction) that occurs when a home is located within a half-mile radius of more than one project. Also we should point out here that the project effects cannot be divided into the two time periods when the effects are separated into the 13 individual projects due to a redundancy that occurs over this relatively short time horizon. The project number indicates the year of approval so all information about the duration of the individual project's effect is already contained when homes enter as treatment in period t. Model 6 differs from model 5 in respects similar to how model 8 differs from model 7 and that regression takes the form:

$$\begin{aligned}\ln(Value_t)_i = {} & \alpha_j + \beta_1 \text{Type1}_{i,t}^{\text{yr1-2}} + \beta_2 \text{Type1}_{i,t}^{\text{yr3-4}} + \beta_3 \text{Type2}_{i,t}^{\text{yr1-2}} + \beta_4 \text{Type2}_{i,t}^{\text{yr3-4}} + \beta_5 \text{Type3}_{i,t}^{\text{yr1-2}} + \beta_6 \text{Type3}_{i,t}^{\text{yr3-4}} \\ & + \beta_7 \left(\text{Type1}_{i,t}^{\text{yr1-2}} \times \text{Type3}_{i,t}^{\text{yr1-2}}\right) + \beta_8 \left(\text{Type1}_{i,t}^{\text{yr3-4}} \times \text{Type3}_{i,t}^{\text{yr3-4}}\right) + \beta_9 \left(\text{Type1}_{i,t}^{\text{yr1-2}} \times \text{Type3}_{i,t}^{\text{yr3-4}}\right) \\ & + \beta_{10} \ln(Value_{t-1})_i + \sum_{t=1}^{T-1} \alpha_{0,t} YEAR_t + \sum_{m=1}^{M-1} \alpha_m NBHD_m + u_{i,t} \qquad \text{(model 6)}\end{aligned}$$

where the three terms on the second row of the equation for model 6 control for the interaction effects on all homes located within one-half mile of more than one project that has been approved (these are the only overlaps that actually occurred among our matches of treatment parcels and their controls); $\sum_{t=1}^{T-1} \alpha_{0,t} YEAR_t$ are the two-year observed dummy

variables for 2001 and 2003 (2005 is the reference year and 1999 is lost due to the lagged assessed value on the right-hand side); and $\sum_{m=1}^{M-1}\alpha_m NBHD_m$ are the $M-1$ neighborhood dummy variables for the spatial fixed effects.

RANDOM GROWTH MODELS

As an alternative to the matched pair fixed approach in models 3 through 8, we also tested random growth models in which we include fixed effects for every parcel and rely on variation in assessed values before and after the LIHTC projects were approved to give each parcel a separate linear growth trajectory.[20] Returning to notation in Equation (1) the random growth rates model of Heckman and Hotz is designed to control for the possibility that stagnant or declining housing markets were targeted by the LIHTC approval process.[21] That specification is given in the equation below

$$\ln(Value_{i,t}) = \alpha + \beta_i t + \gamma_i YEAR_t + \delta_1 \text{Type1}_{i,t}^{\text{yr1-2}} + \delta_2 \text{Type1}_{i,t}^{\text{yr3-4}} + \delta_3 \text{Type2}_{i,t}^{\text{yr1-2}} + \delta_4 \text{Type2}_{i,t}^{\text{yr3-4}} + \delta_5 \text{Type3}_{i,t}^{\text{yr1-2}} + \delta_6 \text{Type3}_{i,t}^{\text{yr3-4}} + \varepsilon_{i,t}$$

where the variables are defined the same as in model 6 although the value of the home in the previous year and other local characteristics captured by the neighborhood dummy variables are now omitted because they are either subsumed into each parcel's time-invariant fixed effect or are assumed to be orthogonal to the siting of the LIHTC projects. The unique intercept for each parcel is next introduced through first-differencing the equations, which yields:

$$\Delta\ln(Value_{i,t}) = \beta_i + \gamma_i \Delta YEAR_t + \delta_1 \Delta\text{Type1}_{i,t}^{\text{yr1-2}} + \delta_2 \Delta\text{Type1}_{i,t}^{\text{yr3-4}} + \delta_3 \Delta\text{Type2}_{i,t}^{\text{yr1-2}} + \delta_4 \Delta\text{Type2}_{i,t}^{\text{yr3-4}} + \delta_5 \Delta\text{Type3}_{i,t}^{\text{yr1-2}} + \delta_6 \Delta\text{Type3}_{i,t}^{\text{yr3-4}} + \Delta\varepsilon_{i,t} \quad \text{(model13)}$$

where β_i is a parcel-specific effect, a unique component of the regression intercept for each parcel that controls how values differ across parcels. Since the equation contains this parcel-specific effect, it is estimated using deviations from means, a standard fixed

[20] For discussions and applications of the random growth approach to testing for economic development effects in the case of enterprise zones, see Boarnet, Marlon G. (2001). "Enterprise Zones and Job Creation: Linking Evaluation and Practice," *Economic Development Quarterly*, 15, pp. 242–254 and Boarnet, Marlon G. and William T. Bogart. (1996). "Enterprise Zones and Employment: Evidence from New Jersey," *Journal of Urban Economics*, 40, pp. 198–215.

[21] See Heckman, J. and V. Holtz. (1989). "Choosing Among Alternative Nonexperimental Methods for Estimating the Impact of Social Programs: The Case of Manpower Training," *Journal of the American Statistical Association*, 84, pp. 862–875.

effects technique for panel data estimation. The term $\gamma_i \Delta YEAR_t$ accounts for differences in rates of valuation across parcels by allowing each parcel to have a unique linear growth rate. Thus, the regression for model 13 allows each parcel in the data set to have its own intercept (initial value) and its own linear growth rate. Conditional on those unique starting points and trajectories, the periodic project neighbor variables, $\text{Type1}_{i,t}^{\text{yr1-2}}$, $\text{Type1}_{i,t}^{\text{yr3-4}}$, $\text{Type2}_{i,t}^{\text{yr1-2}}$, . . ., $\text{Type3}_{i,t}^{\text{yr3-4}}$, test the link between the sitting of Low Income Housing Tax Credit projects and the valuation of neighboring single-family homes. The strategy applies equally to the small but important variations in models 9, 10, 11, 12 and 14. The results for regressions of these random growth models are reported in Table A-4 following:

Table A-1
Descriptive statistics for single-family homes near LIHTC projects, matched homes and all Polk County homes in 1999

Characteristic	Homes near projects	Matched homes	All Polk County homes
	Mean (st. dev.)	Mean (st. dev.)	Mean (st. dev.)
Property Characteristics (parcel & structure)			
Total assessed value ($)	59,664.28	60,363.90	101,277.77
	(45,688.62)	(41,017.72)	(71,674.43)
Age (years)	68.02	67.04	50.42
	(33.59)	(32.51)	(27.28)
Distance to state capitol (miles)	3.37	3.76	5.42
	(1.86)	(2.99)	(2.99)
Land area (sq. ft)	12,095.24	13,485.66	15,429.08
	(17,155.43)	(28,100.81)	(31,139.13)
Total living area (sq. ft.)	1,230.28	1,188.50	1,366.08
	(467.35)	(458.99)	(607.69)
No. of bedrooms	2.85	2.79	2.86
	(0.79)	(0.80)	(0.79)
No. of bathrooms	1.21	1.20	1.43
	(0.49)	(0.46)	(0.63)
Basement area (sq. ft.)	751.54	739.66	922.48
	(349.42)	(371.40)	(433.74)
Attached garage area (sq. ft.)	59.88	60.55	13.09

	(175.72)	(166.73)	(26.09)
Condition			
Very Poor	0.007	0.006	0.001
Poor	0.034	0.035	0.009
Below Normal	0.138	0.136	0.052
Normal	0.351	0.350	0.426
Above Normal	0.316	0.320	0.357
Very Good	0.140	0.139	0.140
Excellent	0.014	0.014	0.014
Exterior wall type			
Asbestos	0.050	0.054	0.026
Brick	0.030	0.036	0.085
Composition	0.015	0.017	0.003
Concrete block	0.002	0.001	0.002
Concrete board	0.000	0.000	0.001
Frame plus brick	0.004	0.004	0.016
Masonite	0.193	0.189	0.305
Masonry	0.000	0.000	0.000
Metal siding	0.269	0.263	0.224
Mixed frame	0.051	0.053	0.032
Stone	0.000	0.000	0.000
Stucco	0.019	0.016	0.017
Vinyl siding	0.120	0.119	0.100
Wood siding	0.244	0.244	0.185
Other	0.002	0.003	0.003
Foundation			
Brick	0.390	0.346	0.167
Concrete block	0.239	0.257	0.484
Masonry	0.043	0.052	0.047
Pier	0.001	0.000	0.001
Poured Concrete	0.324	0.342	0.298
Stone	0.000	0.001	0.001
Wood	0.002	0.001	0.001
Heating			
Electric forced air	0.003	0.004	0.011
Floor wall	0.004	0.005	0.007

Gas forced air	0.966	0.969	0.958
Geothermal	0.000	0.000	0.000
Gravity hot air	0.009	0.010	0.005
Heat pump	0.001	0.002	0.008
Steam-heated water	0.015	0.010	0.011
No heat	0.001	0.002	0.001
Neighborhood Characteristics (census block)			
Minority population	35.45	33.90	13.09
	(39.12)	(49.50)	(26.09)
Home ownership rate	0.712	0.731	0.847
	(0.248)	(0.227)	(0.189)
Homeowner vacancy rate	0.017	0.017	0.012
	(0.043)	(0.038)	(0.034)
Market Characteristics (census tract)			
Median family income	40,714.40	41,588.65	58,331.41
	(19,588.81)	(16,545.51)	(17,429.06)
Population change	0.089	0.098	0.141
	(0.232)	(0.194)	(0.263)
Poverty rate	0.183	0.173	0.072
	(0.107)	(0.114)	(0.059)
Number of obs.	3,283	2,902	94,136

Table A-2
Logistic regression results. Estimated probabilities provide 'propensity scores'

Variable	Coefficient (std. error)
1999 assessed value (ln)	-1.36910
	(0.06480)*
Age (ln)	-0.41530
	(0.05680)*
Distance to state capitol (ln)	0.88130

	(0.05400)*
Land area (ln)	0.34890
	(0.03710)*
Living area (ln)	0.57450
	(0.09970)*
No. of bedrooms	0.24820
	(0.03490)*
No. of bathrooms	-0.15300
	(0.05800)*
Basement area (sq. ft.)	0.00002
	(0.00006)
Attached garage area (sq. ft.)	-0.00100
	(0.00016)*
Condition (reference = ‘Normal’)	
Very Poor	-0.53820
	(0.28820)
Poor	-0.33270
	(0.12960)*
Below Normal	-0.15630
	(0.07960)*
Above Normal	0.18520
	(0.06990)*
Very Good	0.56720
	(0.07900)*
Excellent	0.51260
	(0.16730)*
Exterior wall type (reference = ‘Masonite’)	
Asbestos	0.11670
	(0.16840)
Brick	-0.43840
	(0.17520)*
Composition	0.42140
	(0.23280)
Concrete block	-0.56380
	(0.45370)
Concrete board	-1.10580

	(0.95850)
Frame plus brick	-1.06910
	(0.33150)*
Masonry	-0.44840
	(1.07240)
Metal siding	0.12200
	(0.14460)
Mixed frame	0.28860
	(0.16630)
Stone	2.81520
	(1.12920)*
Stucco	-0.27130
	(0.19900)
Vinyl siding	-0.18340
	(0.15160)
Wood siding	0.23820
	(0.14540)
Other	0.05540
	(0.39090)
Foundation (reference = ‘Concrete block’)	
Brick	0.04450
	(0.19650)
Masonry	-0.38480
	(0.20920)
Pier	-0.37560
	(0.55280)
Poured Concrete	1.09120
	(0.19240)*
Stone	-1.09150
	(0.89060)
Wood	0.70180
	(0.50120)
Heating (reference = ‘Gas forced air’)	
Electric forced air	0.53910
	(13.07390)
Floor wall	0.17470

	(13.07270)
Geothermal	-4.31050
	(91.48760)
Gravity hot air	1.17660
	(13.07170)
Heat pump	0.16730
	(13.07990)
Steam-heated water	1.62360
	(13.07130)
No heat	-0.85760
	(13.07970)
Census block minority population in 2000	0.00308
	(0.00057)*
Census block home ownership rate in 2000	-0.89250
	(0.10410)*
Census block homeowner vacancy rate in 2000	-1.67540
	(0.56270)*
Census tract median family income in 2000 (thousands)	-0.00951
	(0.00305)*
Census tract population change 1990 – 2000 (%)	0.00158
	(0.00128)
Census tract individual poverty rate in 2000 (%)	0.15410
	(0.00461)*
Log likelihood	-9,646.77
Pseudo R-squared	0.331
Number of obs.	91,006

Table A-3
Impact of LIHTC project locations on single-family home valuation (dependent variable is log of assessed value)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Distance to project (ln)	0.03738	0.01359						
	(0.00249)*	(0.00266)*						
Project neighbor			0.00108					
			(0.00453)					
1–2 years since				-0.00406				

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
approval				(0.00416)				
3–4 years since				-0.00250				
approval				(0.00611)				
Type One 1–2 years					-0.04911	-0.03841		
since approval					(0.00575)*	(0.00631)*		
Type One 3–4 years					0.00497	0.00848		
					(0.00704)	(0.00727)		
Type Two 1–2 years					-0.01108	-0.00844		
since approval					(0.01611)	(0.01610)		
Type Two 3–4 years					0.07802	0.08571		
					(0.02341)*	(0.02341)*		
Type Three 1–2 years					0.02944	0.05163		
since approval					(0.00557)*	(0.00645)*		
Type Three 3–4 years					0.00086	0.02827		
					(0.01045)	(0.02580)		
Type 1 (1–2 Years) X						-0.08320		
Type 3 (1–2 Years)						(0.01267)*		
Type 1 (3–4 Years) X						-0.05103		
Type 3 (3–4 Years)						(0.02803)		
Type 1 (1–2 Years) X						0.03418		
Type 3 (3–4 Years)						(0.02339)		
Project 01-25							-0.09481	-0.12548
							(0.07495)	(0.08553)
Project 01-33							-0.00721	0.01935
							(0.01788)	(0.03446)
Project 02-02							-0.02925	-0.02448
							(0.01751)	(0.03403)
Project 02-19							0.07577	0.07541
							(0.02116)*	(0.02116)*
Project 02-28							-0.00794	0.03456
							(0.01161)	(0.02137)
Project 02-29							-0.02280	-0.03120
							(0.01090)*	(0.02120)
Project 02-30							-0.00971	-0.01022

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
							(0.01230)	(0.01232)
Project 03-02							0.00798	-0.03698
							(0.00892)	(0.02559)
Project 03-24							-0.14368	-0.19330
							(0.06981)*	(0.09339)*
Project 04-23							0.07062	0.06988
							(0.00715)*	(0.00718)*
Project 04-30							-0.03018	-0.03787
							(0.02616)	(0.02776)
Project 04-33							-0.04309	-0.04490
							(0.01209)*	(0.01227)*
Project 04-49							-0.06738	-0.08093
							(0.03269)	(0.03628)*
01-25 X 03-24								0.11196
								(0.14040)
01-33 X 02-02								-0.03485
								(0.04874)
01-33 X 02-28								0.03325
								(0.09657)
01-33 X 02-29								-0.03311
								(0.09677)
01-33 X 03-02								-0.02201
								(0.04922)
02-02 X 02-28								-0.07151
								(0.09677)
02-02 X 02-29								0.05422
								(0.09721)
02-02 X 03-02								0.06293
								(0.04347)
02-28 X 02-29								-0.03705
								(0.03047)
02-28 X 03-02								0.02893
								(0.03223)
02-29 X 03-02								0.02556

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
								(0.02420)
04-23 X 04-33								0.05836
								(0.07549)
04-30 X 04-49								0.06851
								(0.08266)
Assessed value last year	0.94170	0.70868	0.70845	0.70833	0.70662	0.70683	0.70617	0.70629
(ln)	(0.00238)*	(0.00485)*	(0.00485)*	(0.00487)*	(0.00486)*	(0.00485)*	(0.00484)*	(0.00484)*
Year observed dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Matched pair dummies	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Neighborhood dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-Squared	0.9160	0.9167	0.9263	0.9263	0.9268	0.9270	0.9272	0.9273
Observations	17,412	17,412	17,412	17,412	17,412	17,412	17,412	17,412

Table A-4
Random Growth Models (dependent variable is log of assessed value)

Variable	Model 9	Model 10	Model 11	Model 12	Model13	Model 14
Distance to project	0.00108					
(ln)	(0.00230)					
Project neighbor		-0.01045				
		(0.00384)*				
1-2 years since			-0.00715			
approval			(0.00416)			
3-4 years since			0.01562			
approval			(0.00811)			
Type One				-0.04933		
				(0.00605)*		
1-2 years since					-0.04352	
approval					(0.00570)*	
3-4 years					-0.01349	
					(0.00848)	
Type Two				-0.03465		
				(0.01494)		
1-2 years since					-0.02051	

Variable	Model 9	Model 10	Model 11	Model 12	Model13	Model 14
approval					(0.01610)	
3-4 years					0.02817	
					(0.03242)	
Type Three				0.01730		
				(0.00532)*		
1-2 years since					0.02290	
approval					(0.00569)*	
3-4 years					0.03238	
					(0.01335)*	
Project 01-25						-0.23288
						(0.09263)*
Project 01-33						0.01437
						(0.02290)
Project 02-02						-0.04973
						(0.02260)*
Project 02-19						-0.00917
						(0.02106)
Project 02-28						-0.00306
						(0.01457)
Project 02-29						-0.04883
						(0.01368)*
Project 02-30						-0.02555
						(0.01190)*
Project 03-02						-0.01498
						(0.00867)
Project 03-24						-0.39591
						(0.06908)*
Project 04-23						0.05704
						(0.00708)*
Project 04-30						-0.05699
						(0.02617)*
Project 04-33						-0.06503
						(0.01219)*
Project 04-49						-0.05030

Variable	Model 9	Model 10	Model 11	Model 12	Model13	Model 14
						(0.03348)
Year observed dummies	Yes	Yes	Yes	Yes	Yes	Yes
Matched pair dummies	No	No	No	No	No	No
Neighborhood dummies	No	No	No	No	No	No
Adj. R-Squared	0.0099	0.0103	0.0112	0.0138	0.0149	0.0215
Observations	17,412	17,412	17,412	17,412	17,412	17,412

APPENDIX B: ASSESSING THE SOCIAL IMPACTS OF HOUSING SUBSIDIES

In addition to the impacts that housing subsidies have on property markets and on local and state economies, subsidies have other less easily measured, but nevertheless important impacts. This was not an initial focus of this study, but we believed it would be helpful to review the academic literature on the relationship between housing quality, short- and long-term health and educational outcomes. Most of the studies we identified deal with children, but a few address these relationships for adults too.

HOUSING AND HEALTH

There are three main ways in which housing affects health. The physical characteristics and quality of homes produce environmental effects that may result in health problems, such as allergies or injuries. Unstable housing may affect access to health care and may also have mental health effects. High housing costs may affect how much the household spends on other essential items such as nutrition and health care, which may result in health problems.

HOUSING QUALITY AND ENVIRONMENTAL IMPACTS

Our homes are the indoor environments in which we spend a majority of our time. Substandard housing can result in a wide range of environmental contaminants and other dangers (Breysse et al. 2004). Two of the most prevalent illnesses are asthma and lead poisoning. Poorly maintained housing may have water leaks and harbor pests that can trigger allergies (allergic asthma) to mold, pests and other environmental contaminants. It is estimated that approximately 80% of childhood asthma is an allergic reaction to indoor environmental triggers such as dust, mold and pests (Breysse et al. 2004). Asthma affects approximately one in five children in poor neighborhoods (Proscio 2004). Housing with exposed lead paint can cause developmental disabilities in children who breathe in contaminated dust. Among six-year-olds tested in Iowa in 2005, nearly 7% (1,584) of children were affected by lead poisoning (Iowa Department of Public Health, 2006).

Furnaces in poor condition can increase carbon dioxide to dangerous levels. Homes with basement cracks can expose residents to higher levels of radon. Homes without adequate smoke alarms, fire retardant materials, safe wiring and fire escapes increase the danger of injury and death from home fires. Many physical components, such as poorly lit stairs, unstable railings and numerous other features increase the risk of other injuries (Krieger and Higgins 2002). Even well-maintained homes can pose environmental dangers from chemical compounds used in wall and floor finishes, or exposure to passive smoking; but adequate ventilation can diminish these dangers. While building codes and other regulations should deal with some of these problems, they do not address all and are not uniformly enforced, especially in low-priced rental housing.

An assessment of the total annual costs for childhood diseases attributable to environmental factors estimates this at $54.9 billion across the U.S. in 1997 (Landrigen et al. 2002). The bulk of this amount ($43.4 billion) was attributable to lifetime earnings loss to children with lead poisoning, but other environmentally attributed childhood

illnesses (asthma, cancer and neuro-behavioral disorders such as mental retardation, autism and cerebral palsy) imposed substantial financial costs as well. Together, these costs account for approximately 2.8% of all disease-related costs in the U.S. In comparison, the nationwide annual costs of vehicle accidents is $80.6 billion, and of strokes, $51.5 billion. These estimates include only financial costs of lost earnings, health care and hospitalizations, not the emotional costs of disease or the long-term consequences that childhood illness has on adult health and well-being. Poor quality housing has a significant impact then on the costs of children's health care, and perhaps more importantly on the quality of life that children in substandard housing can attain.

UNSTABLE HOUSING AND HEALTH INDICATORS

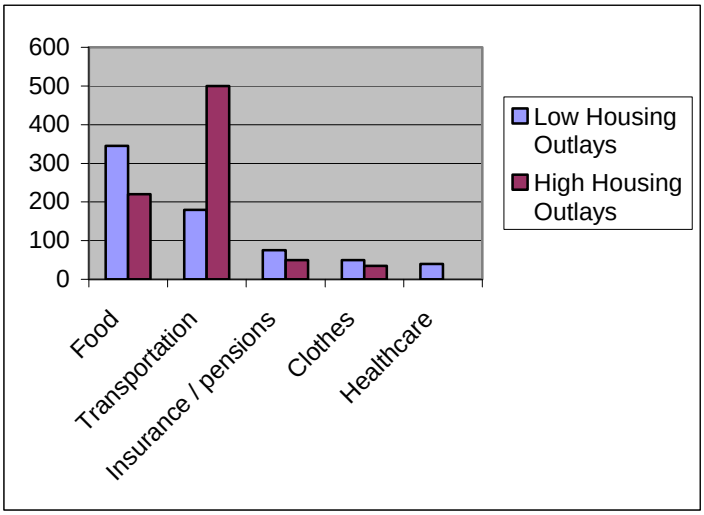
"Housing instability" is a concept that differentiates people who are not homeless from those who have stable, permanent housing. People in unstable housing include those paying more than 50% of their income (the severely cost-burdened), those who move frequently (three or more times each year), those living in overcrowded conditions, and those living doubled up with family or friends. It may be similar to the concept of the "near-homeless."

For adults, there is a strong statistical association between living in unstable housing and increased emergency room use and hospitalizations. As we might expect, people living in unstable housing are less likely to have a usual source of medical care and more likely to postpone medical visits and the purchase of medications (Kushel et al. 2006). Those living in crowded housing (and especially those in the overcrowded conditions of most homeless shelters) are significantly more likely to suffer from diseases like tuberculosis and respiratory infections (Krieger and Higgens 2002). Crowding has also been found to be associated with sleep deprivation and psychological distress. Frequent moves have been found to be associated with socio-emotional development problems in children and may result in psychological damage (Bronfenbrenner and Evans 2000; Bartlett 1998).

HIGH HOUSING COSTS AND HEALTH EFFECTS

Lower-income households who pay a significant share of their income for housing have less to spend on other necessities. Chart B.1 compares spending on several basic budget items for very low- and low-income households who spend more than 50% of income for housing and those in the same income categories who spend less than 30% of their income for housing. Very low-income households with high-housing cost burdens spend much less on food and nothing on health care, compared to equivalent low-income households with affordable housing (Joint Center for Housing Studies 2006).

Chart B.1: Expenditures for Households in the Lowest-Income Quartile, 2003, by Housing Outlays



Note: High-housing outlays account for more than 50% of household income; households with low outlays pay no more than 30% of income for housing. Source: Joint Center for Housing Studies 2006.

Other researchers have found significant differences in children's nutrition among extremely poor households: children in extremely poor families living in subsidized housing were far less likely to be underweight for their age than children in equally poor families without housing assistance (Meyers et al. 2005). This effect persists even after controlling for receipt of other assistance, such as WIC or food stamps. Children who are underweight are more likely to suffer from several health and learning problems. They are more vulnerable to infection and more likely to show delayed mental development and reduced intellectual capacity (Meyer et al. 2005). These effects impose additional costs on the public health care and school systems.

HOUSING AND EDUCATION

If housing quality and affordability affect health, especially for children, we may expect that they affect children's educational performance too. School days lost to asthma and infections, neuro-behavioral disorders from environmental contaminants, and the longer-term effects of undernourishment and lead poisoning on reduced intellectual capacity, all impact a child's educational achievement. In addition, several studies have examined the relationship between school mobility and educational outcomes. Not all of those studies separate out the effects of changing schools frequently from the effects of being low income, and the two are obviously intertwined.

A GAO study in 1994 found that 17% of third-grade children had attended three or more schools. Children who had moved that frequently were far more likely to score below grade level on both reading (41% of frequent movers compared to 26% of those who didn't move) and math (33% of recent movers compared to 17% of those who didn't move) (GAO 1994).

And, children from low-income families were far more likely to move frequently; 30% of third-grade children in low-income families had attended three or more schools.

This burdens schools, especially those with more children who move frequently, and may affect the ability of schools to meet academic standards (Hartman 2006). Others have found a relationship between frequent moves and greater likelihood of behavioral problems that lead to suspension (Engec 2006). Longitudinal studies that track children over time have shown a strong association between mobility and not completing or graduating from high school (Rumberger and Larson 1988; Swanson and Schneider 1999).

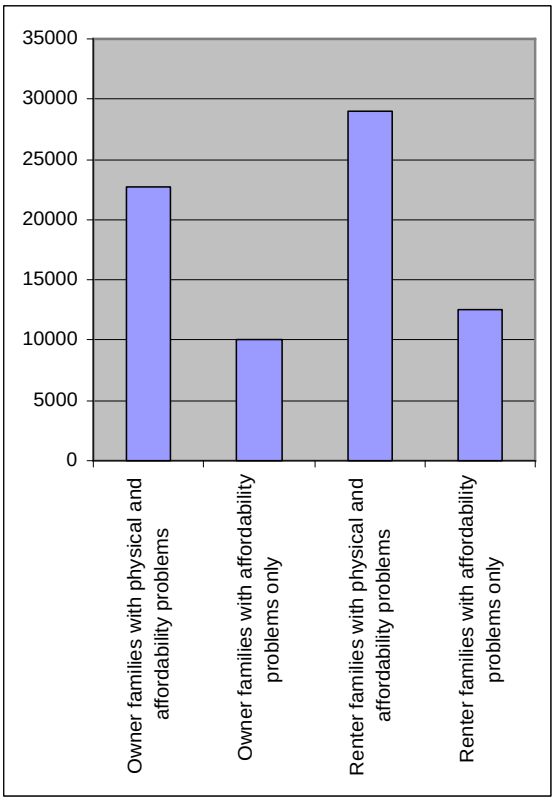
However, not all studies have controlled for other important sources of variation in children's academic achievement. Low family incomes may expose children to many other reasons for poor school performance, in addition to being far more likely to move frequently than others. A recent study controlled for the effects of income and early achievement. That study found that changing schools frequently before the third grade resulted in significantly lower reading and math scores among sixth-grade children. It was also significantly associated with the likelihood of being held back at least one grade (Heinlein and Schinn 2000). Because the study controlled not only for socio-economic status but also for the student's early achievement (which may be affected by some of the environmental factors described above, as well as the home learning environment and other potentially confounding variables), it may offer a more solid piece of evidence for the effect residential mobility has on educational outcomes. Other studies that have controlled for family characteristics have also found a significant association between mobility and educational achievement and high school graduation rates (Haveman and Wolfe 1994; Mao, Whitset and Mellor 1997). However, some studies have concluded that mobility is merely one among several influential factors in predicting test performance (Wright 1999; Parades 1993; Tucker, Marx and Long 1998). School quality, parental involvement, family structure and other factors may matter more. Nevertheless, residential mobility is a factor affecting performance.

But to what extent is school mobility a voluntary choice? Mobility can be a way for a family to improve its circumstances, by pursuing a better paying job for instance. A recent study of student mobility in rural upstate New York found that a high proportion of school moves were caused by "push"(where the family had no choice but to move) rather than "pull" factors. In this low-income rural setting (not dissimilar to parts of Iowa), housing factors overall accounted for 72% of moves, with the remainder attributable to moves related to employment or family restructuring. Housing "push" factors, such as eviction, moving out of temporary housing, moving on from a temporary stay with a family or friend, or moving to find cheaper housing, accounted for 62% of all moves (Schaft 2006).

Thus, there is a reasonable amount of evidence that housing instability related to problems with housing affordability, quality and the rising incidence of near-homelessness among families has damaging effects on both children's educational

achievement and the burden placed on schools to accommodate children who are forced to move frequently. In most cases, these moves are not the parents' choice (in Schaft's study, parents interviewed were aware of the damaging effects that moves had on their children's schooling), but are an outcome of their battle to find stable, decent, affordable housing.

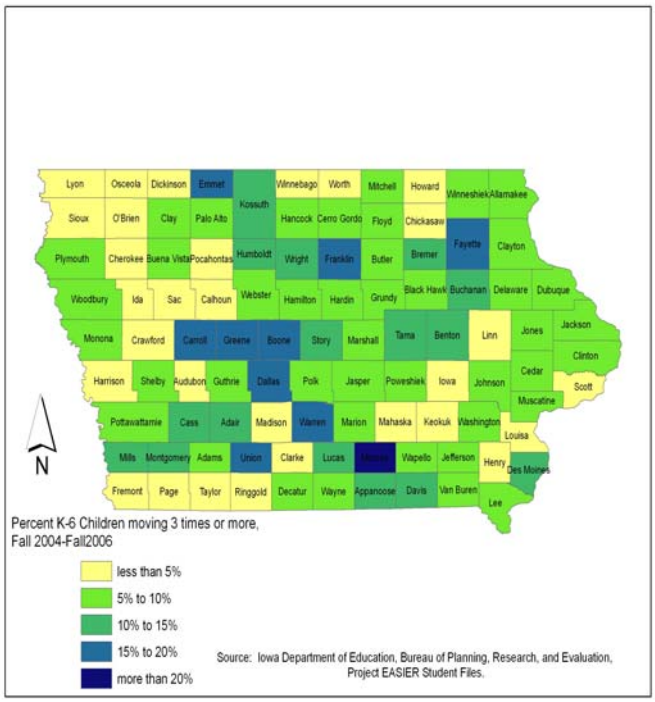
Chart B.2: Estimated Number of Iowa Families with Housing Problems, 2000



While it is possible to estimate some of the public costs resulting from housing instability, not all impacts are quantifiable. The social and individual consequences of poor school performance or chronic poor health are immense. In schools, teachers may be overburdened by dealing with the multiple problems some students face and the quality of education may be diminished for all students. Chronic health problems are often related to behavior problems that may diminish quality of life for many others beyond the victim, in addition to the costs they impose on a health insurance system that is already under strain. While this discussion does not explicitly estimate the incidence of these problems in Iowa, the first report issued on this study (Meeting Housing Challenges, 2005) provides perspective on how many households and families may be affected. Chart B.2 shows the estimated numbers of families in Iowa with one or more severe housing problems. It is reasonable to assume that many of the children in these families may face one or more of the problems identified above.

The Iowa Department of Education provided data on the number of times elementary school-age children in Iowa moved schools from Fall 2004 to Fall 2006. Map B.1 shows the proportion of children who moved three or more times over that period. In a few counties, frequent moves are likely to affect a significant proportion of children. We have no information on the socio-economic status of those children or the reasons for these moves, but to the extent that more stable housing could avoid some share of these moves, the experiences of children (and teachers) could be improved.

Map B.1: Percent of Elementary School Children with Frequent School Moves, Fall 2004 to Fall 2006



REFERENCES

Breysse, Patrick, Nick Farr, Warren Galke, Bruce Lanphear, Rebecca Morley and Linda Bergofsky. 2004. The relationship between housing and health: children at risk. *Environmental Health Perspectives*, vol. 112, no. 15 (November): 1583-1588.

Briggs, Xavier de, Joe T. Darden and Angela Aidala. 1999. In the wake of desegregation: early impacts of scattered-site public housing on neighborhoods in Yonkers, New York. *Journal of the American Planning Association*, vol. 65, no. 1: 27-49.

Center for Housing Policy. 2007. *Increasing the availability of affordable homes: a handbook for state and local governments*. Available at: http://www.nhc.org/index/chp-research-publications.

Center for Housing Policy. 2006. *Paycheck to paycheck: wages and the cost of housing in America*. Interactive database available at: http://www.nhc.org/chp/p2p/.

Collins, J. Michael and Doug Dylla. 2001. *Mind the Gap: issues in overcoming the information, income, wealth, and supply gaps facing potential buyers of affordable homes*. Neighborhood Reinvestment Corporation.

Cummings, Paul M. and John D. Landis. 1993. Relationships between affordable housing development and neighboring property values. Working Paper no. 599, University of California at Berkeley, Institute of Urban and Regional Development.

Engec, Necati. 2006. Relationship between mobility and student performance and behavior. *The Journal of Educational Research*, vol. 99, no. 3 (January/February): 167-178.

Evans, Gary W., Nancy M. Wells and Annie Moch. 2003. Housing and mental health: a review of the evidence and a methodological and conceptual critique. *Journal of Social Issues*, vol. 59, no. 3: 475-500.

Freeman, Lance and Hilary Botein. 2002. Subsidized housing and neighborhood impacts: a theoretical discussion and review of the evidence. *Journal of Planning Literature*, vol. 16, no. 3: 359-378.

Galster, George, Peter Tatian and Robin Smith. 1999. The impact of neighbors who use Section 8 certificates on property values. *Housing Policy Debate*, vol. 10, no. 4: 879-917.

General Accounting Office (GAO). 1994. *Elementary school children: many change schools frequently, harming their education*. Report to the Hon. Marcy Kaptur, House of Representatives, GAO/HEHS-94-45.

Genz, Richard. 2001. Why advocates need to rethink manufactured housing *Housing Policy Debate,* vol. 12, no. 2: 393-414.

Hartman, Chester. 2006. Students on the move. *Educational Leadership* (February): 20-24.

Heinlein, Lisa Melman and Marybeth Shinn. 2000. School mobility and student achievement in an urban setting. *Psychology in the Schools,* vol. 37, no. 4: 349-357.

Iowa Policy Project. 2006. *2005 Iowa Statewide Homeless Study*.

Iowa Workforce Development. 2006. *Iowa Two-Year Strategic Plan for Wagner-Peyser and Workforce Investment Act Programs,* July 1, 2005 through June 30, 2007.

Iowa Workforce Development. 2003. Iowa Statewide Occupational Projections: 2002-2012, by Occupational Groups.

Iowa Works Campaign. 2006. *Meeting Iowa's Workforce Challenge: a call to action for Iowa's new governor and general assembly*. (Summer)

MacDonald, Heather. 2003. *Housing and community development in Iowa 2000: meeting the challenges of the next decade*.

Krieger, James and Donna L. Higgins. 2002. Housing and health: time again for public health action. *American Journal of Public Health,* vol. 92, no. 5 (May): 758-768.

Kushel, Margot B., Reena Gupta, Lauren Gee and Jennifer S. Haas. 2006. Housing instablity and food insecurity as barriers to health care among low-income Americans. *Journal of General Internal Medicine,* vol. 21: 71-77.

Meyers, Alan, Diana Cutts, Deborah A. Frank, Suzette Levenson, Anne Skalicky, Timothy Heeren, John Cook, Carol Berkowitz, Maureen Black, Patrick Casey, Nieves Zaldivar. 2005. Subsidized housing and children's nutritional status: data from a multisite surveillance study. *Archives of Pediatric and Adolescent Medicine*, vol. 159 (June): 551-556.

Nguyen, Mai Thi. 2005. Does affordable housing detrimentally affect property values? A review of the literature. *Journal of Planning Literature,* vol. 20, no. 1: 15-26.

O'Keefe, Suzanne. 2004. Job creation in California's enterprise zones: a comparison using a propensity score matching model. *Journal of Urban Economics,* vol. 55: 131-150.

Rumberger, Russell W. 2002. Student mobility and academic achievement. *ERIC Digest* (June), EDO-PS-02-1.

Salley, Valerie. 2004. Moving on: student mobility and affordable housing. Metropolitan Housing Coalition, Louisville. (February).

Santiago, Anna M., George C. Galster and Peter Tatian. 2001. Assessing the property value impacts of the dispersed housing subsidy program in Denver. *Journal of Policy Analysis and Management,* vol. 20, no. 1: 65-88.

Schafft, Kai A. 2006. Poverty, residential mobility and student transiency within a rural New York school district. *Rural Sociology* vol. 71, no. 2: 212-231.

Sullivan, Tim. 2004. Putting the force in workforce housing. *Planning* (November).