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**THE CURIOUS INSTITUTION OF
MOBILE HOME RENT CONTROL:
AN ANALYSIS OF MOBILE
HOME PARKS IN CALIFORNIA**

By

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**The Curious Institution of Mobile Home Rent Control:
An Analysis of Mobile Home Parks in California***

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Abstract

This paper analyzes the implications of rent control as applied to dwellings located in mobile home parks. This form of regulation differs from apartment rent control in that: it is applied selectively to a small portion of the housing stock, and; it regulates the site rents paid to the park owner, not the selling prices of mobile homes. We present a detailed case study of the effects of this institution in three mobile home parks in different cities and regions in California, documenting the capitalization of regulatory rules into the selling prices of housing, and raising questions about the legality as well as the efficacy of the institution.

Key words: capitalization
JEL codes: L51, K2, L85

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I. Introduction

Although economists disagree on many things, there seems to be a clear consensus within the dismal science on the effects of rent control: these regulations lead to reductions in the quality and quantity of housing available to consumers (Alston, Kearn, and Vaughn, AKV, 1992). Recent scholarly work (e.g., Turner and Malpezzi, 2003) only reinforces the survey of opinions reported by AKV a decade earlier. Arbitrarily fixing rents below their market-clearing levels throughout a housing market induces three kinds of economic effects:

First, those tenants who manage to locate and occupy rent-controlled dwelling units clearly benefit. However, these benefits are typically not distributed to those whom policy makers intend to help. “Lucky” consumers, disproportionately long-term residents and those with connections within the local real estate market, benefit at the expense of new households and immigrants from other regions. (Basu and Emerson, 2000.) The capricious distribution of benefits means that dwellings are not allocated to those who value them the most.¹

Second, housing suppliers see the economic value of their properties decline, and they react by reducing maintenance expenditures. Other potential suppliers of housing invest their capital elsewhere; the incentive to invest capital to produce new housing is inexorably reduced. Reduced supply makes housing more difficult to obtain, and it makes alternative housing more costly. These costs are borne diffusely by consumers at large. When supply is reduced, the individuals who would have resided locally choose

¹ Glaeser and Luttmer, 1997, 2003, emphasize that these social costs are quite large.

other towns or regions. And those who do live locally face higher costs because housing is scarce.

Third, artificially low rents lead to excess demand for housing, to the hoarding of rent controlled units, and to reduced household mobility. The popular literature is replete with anecdotes describing how rent control leads to housing which is hoarded by the “wrong” people.²

We analyze the economics of rent control when these regulations are applied to mobile homes or manufactured housing located in mobile home parks. These price controls are common in several states, notably California (where approximately ninety cities impose them and where, with few exceptions, it is the only form of local rent regulation not prohibited by state law). These regulations mandate a base rent which is often permitted to increase over time according to some formula (typically based on variations in the consumer price index). Upon vacancy, the park owner may be allowed to reset the rent to a new base to reflect current market conditions (“vacancy decontrol”), or the current rent may be continued for the incoming resident (“vacancy control”).

In section II below we outline the salient characteristics of these regulations in comparison with rent control imposed on apartment buildings. The principal issue noted in section II is the potential for the capitalization of any rent reductions mandated by the legislation. Section III provides a detailed case study evaluating rent control regulations

² See Glaeser (1996). For example, the journalist Ken Auletta (1979) describes the “Tobacconist to the World” Nat Sherman who rented a six room apartment on Central Park West at the controlled rent of \$335 a month. Sherman said of the apartment, “it happens to be used so little that I think [the rent] is fair.” This choice dwelling was allocated to someone who valued it *so little* that it was worth no more to him than its low regulated cost.

in three mobile home parks in three different cities and regions in California. Section IV is a brief conclusion.

II. Apartment Rent Control and Mobile Home Rent Control

There are two important differences in the institution of rent control when it is selectively applied to manufactured housing in mobile home parks rather than apartments.

First, the rent control regulations are imposed on only a small portion of the local housing market, namely those dwellings in mobile home parks. Prices in the larger housing market are set by supply and demand, not by regulation, and units in mobile home parks compete with apartments, condominiums, and owner-occupied dwellings whose prices are unregulated. This distinction is crucial in evaluating the economic consequences of the regulations.

Second, the form of the price control differs between apartment regulation and mobile home regulation, reflecting the divided ownership of mobile home living space. The owner of the dwelling, manufactured housing or a mobile home typically owns only the housing unit, while she rents a site in a mobile home park on which the coach is situated. This separation of ownership ensures that the cost of residing in a mobile home depends, not only upon the economic value of the structure, but also upon the site rent charged by the owner of the mobile home park. When rent control is applied to a mobile home park, the regulated price applies only to the site on which the manufactured home is placed. Under “vacancy control,” the right to rent the site at this regulated price is transferred to the incoming resident when the mobile home is sold.

These two factors, the divided ownership of land and structure and the imposition of rent regulation on only a small fraction of the local housing market, have important implications for the economic consequences of rent regulation as applied to manufactured homes in mobile home parks.

The fact that mobile homes are usually a small portion of the local housing market means that rent control rules have little or no impact on the level of regional housing prices. As price takers, the owner occupants of mobile homes sell their units at market-determined prices -- prices that reflect the operation of supply and demand across a large number of substitutable dwellings. If there is an increase in demand for housing in a local market, there will be upward pressure: on mobile home prices as well as the prices of condominiums; on the prices of owner-occupied housing as well as apartments. The fact of divided ownership also implies that the right to occupy a mobile home site at a regulated rent in a mobile home park may have intrinsic economic value. A dwelling owned by a resident is affixed to land rented under well-defined terms from another entity, the mobile home park owner. If the site is rented under a “vacancy control” regulatory environment and if prices that potential new renters would willingly pay are above the regulated rent, then the right to occupy the site will certainly be valuable. Analogous variations in the intrinsic value of rental contracts arise quite routinely in the commercial real estate market when assignable leases for fixed terms at below-market rents are transferred among tenants in return for economic considerations.³

³ Within the housing market, the capitalization of contractual terms is not uncommon either. For example, it has been found that the favorable terms of assumable mortgages at below market interest rates are capitalized into the selling prices of single family houses. (See, for example, Durning and Quigley, 1985.)

In the mobile home market, transfer of the lease for site rental is accomplished only when the dwelling is sold by one resident to another. The tied sale of the coach together with the right to occupy a site is analytically equivalent to the transfer of rental rights together with a payment of “key money” in apartment rent control.⁴ In the case of mobile home rent control, the price paid by a prospective resident when she purchases a coach may include “key money” (i.e., the capitalized value of the rent control contact). These tied transactions are invariably illegal under rent control ordinances adopted for apartments, but tied transactions are *inevitable* under mobile home rent control ordinances.

This perspective on mobile home rent control is very difficult to reconcile with the stated objectives of the rent control ordinances adopted by many local jurisdictions. Indeed, capitalization makes it logically impossible for these regulations to increase “affordability of housing” at the time of enactment any time or in the future.

Other related objectives are sometimes invoked by local jurisdictions enacting mobile home rent control.⁵ Consider for example, the broadly related objective of “increasing the supply of housing that is affordable” to middle income households. With capitalization, the tied sale of a regulated rent contract and a physical structure completely frustrates the attempt to achieve this objective through rent control on mobile homes. In a competitive market, these individuals selling manufactured homes are price takers, charging the market price for the structure and the rental contract they offer in a tied sale. The small number of mobile home sellers in the large market for housing

⁴ In apartment rent control, “key money” is typically paid to the landlord or her agent, while in mobile home rent control the value of the regulated site rent is paid to the vacating tenant. Analytically this makes no difference.

services will thus obtain the full benefit of any reduced rents mandated by the regulation. The cost of housing to subsequent consumers is completely unaffected by the rent regulation, and housing is no more “affordable” afterwards than it was before the ordinance was adopted. In the limit, *all the benefits* are enjoyed by the lucky people who were mobile home owners at the time the ordinance was enacted.

Consider the objective of remedying a “shortage of manufactured home park space” relative to its demand. Sometimes this objective is characterized as remedying a condition of “low vacancy rates” in mobile home parks. The regulation of rents which can be charged by park owners can hardly further these objectives. Housing suppliers compete in the market for housing services, but also in the market for capital. Price regulation discourages the investment of capital in supplying mobile home parks. Indeed, it is hard to imagine that the imposition of price controls would have *any* impact on mobile home park space, except to *reduce* the amount of available space. When price goes down, demand goes up, and supply decreases.

Consider the broader objectives of protecting tenants because of the “difficulty and expense of relocating” their manufactured homes or of “facilitating fair bargaining between landlords and tenants” in mobile home parks. If the owners of mobile home parks were able to exert market power to extract higher prices from tenants, then the protection of consumers from monopoly power would justify a variety of regulations.

But mobile home park owners compete broadly in the market for housing services, not narrowly in a market defined as the renting-of-mobile-home-spaces-to-consumers-who-already-own-mobile-homes. Consumers freely choose among types and

⁵ The related objectives discussed below are noted in the preamble to rent control ordinances adopted in a number of cities in California.

quantities of housing, and no consumer is compelled to reside in one form of housing or another.

Nevertheless, in choosing housing accommodations, transactions and moving costs are certainly relevant, and these costs are unquestionably higher for those consumers who *already own* mobile homes. It may seem that a mobile home park owner could behave as a monopolist when bargaining with a tenant once that tenant's manufactured home has been placed in the owner's park. It may seem that the park owner could increase rents subsequently to extract any equity the coach owner had developed – for example, by owner investments in landscaping, in carports, and accessories. As a monopolist, the park owner could increase rents above the market level, up to the considerable cost of moving the dwelling to another site.

But consider the implications of this behavior for the economic health of the park owner. The consequences of engaging in this activity could be observed quite easily -- by other owners of mobile homes in the park, but also by other housing consumers in the region. The overwhelming majority of these other consumers are not currently owners of manufactured housing. If these consumers observed this form of rent gouging by the park owner, they would be far less likely to choose a mobile home as a form of housing. Those who did choose this form of shelter would be far less likely to locate in the park owned by the rent gouger. Together, these reactions would increase the vacancy rates in the park, and the forces of competition between owners of the mobile home parks and other suppliers of housing services would make this form of rent gouging behavior unprofitable. If fears of rent gauging were wide-spread, we should expect that the dominant type of mobile home contract would be the long-term lease. Although long-

term leases are written in the mobile home market, they are not the usual form of contract.

III. Empirical Analysis of Mobile Home Rent Control

A. Preliminaries

There is only limited empirical evidence on the economics of mobile home rent control, but the fragmentary evidence is consistent with the reasoning described above. For example, there is weak evidence that, *ceteris paribus*, the average selling prices of mobile homes are higher in jurisdictions which have imposed mobile home rent control (Hirsch, 1988). There is also evidence that the supply of mobile homes declines with the imposition of mobile home rent control. This evidence is based upon variations in shipments of new mobile homes to California during 1977-1992 as the mobile home regulatory environment varied (See Hirsch and Rufolo, 1999).

In this paper, we present new evidence based on a detailed case study analyzing the economic consequences of mobile home rent control in three mobile home parks in three different cities and regions in California. The locations chosen, Marin County, Santa Barbara County, and San Diego County, contain both breathtakingly high priced housing and more modest accommodations. Site rentals in these mobile home parks are regulated under a system of “vacancy control” rules imposed by the cities. These rules fixed rents on a given date, and they permit regular increases from the base rent equal to a

fixed percent of any increase recorded in the local cost of living index.⁶ No other direct forms of housing price controls are in effect; mobile home dwellings are bought and sold by housing consumers at unregulated prices, but imbedded in each sale of a mobile home is the right to occupy the land to which it is affixed in return for payment of the regulated rent.

We consider the consequences of mobile home rent control on the consumers of mobile homes in these three cities. Table 1 reports the number of dwellings in these cities and in the counties in which they are located. In the larger county housing markets, mobile homes represent very small fractions of the available housing stock: 0.5 percent in Marin County; 5.4 percent in Santa Barbara County; 4.3 percent in San Diego County. Within the three cities which impose rent control, mobile homes represent 1.8 percent, 7.7 percent, and 13.1 percent of the housing stock respectively.

B. Indirect evidence from Price Trends

The right to a rent controlled parcel of land may have economic value if the regulated rent is significantly lower than the market rent set by competition among the other dwellings in the each city and county housing market. We explore two bits of indirect evidence on this point: (1) a comparison of mobile home rents over time in one of the three regulated mobile home parks with the selling prices of condominium units in a complex immediately adjacent; and (2) a comparison of the regulated mobile home site

⁶ In the city in Marin County, for example rents are permitted to increase at three quarters of the increase recorded in the previous year in the Consumer Price Index for all Urban Consumers (CPI-U) for the San Francisco CMSA. In the city located in Santa Barbara County, rents are permitted to increase at three quarters of the increase in the CPI-U for Los Angeles-Long Beach-Anaheim.

rents in another of these mobile home parks with price trends of single family homes in the surrounding area.

A complex of town homes lies immediately adjacent to the entry to the mobile home park in Marin County. In fact, the entrance to the mobile home park bisects the townhouse complex. Figure 1 presents a scatter diagram indicating all sales recorded from April 1998 through June 2002 for these townhouses. All townhouse sales are dwellings with two bedrooms and one bathroom, and all recorded sales involved one of three designs. Figure 1 also reports the course of regulated site rents at the mobile home park directly adjacent. Both data series are normalized to a value of 100 in April 1998. As the figure indicates, the rate of appreciation in the private market has been substantial. The increase in prices for townhouses was more than 70 percent through December of 2001. In contrast, the increase in site rents in the mobile home park, as permitted by the rent

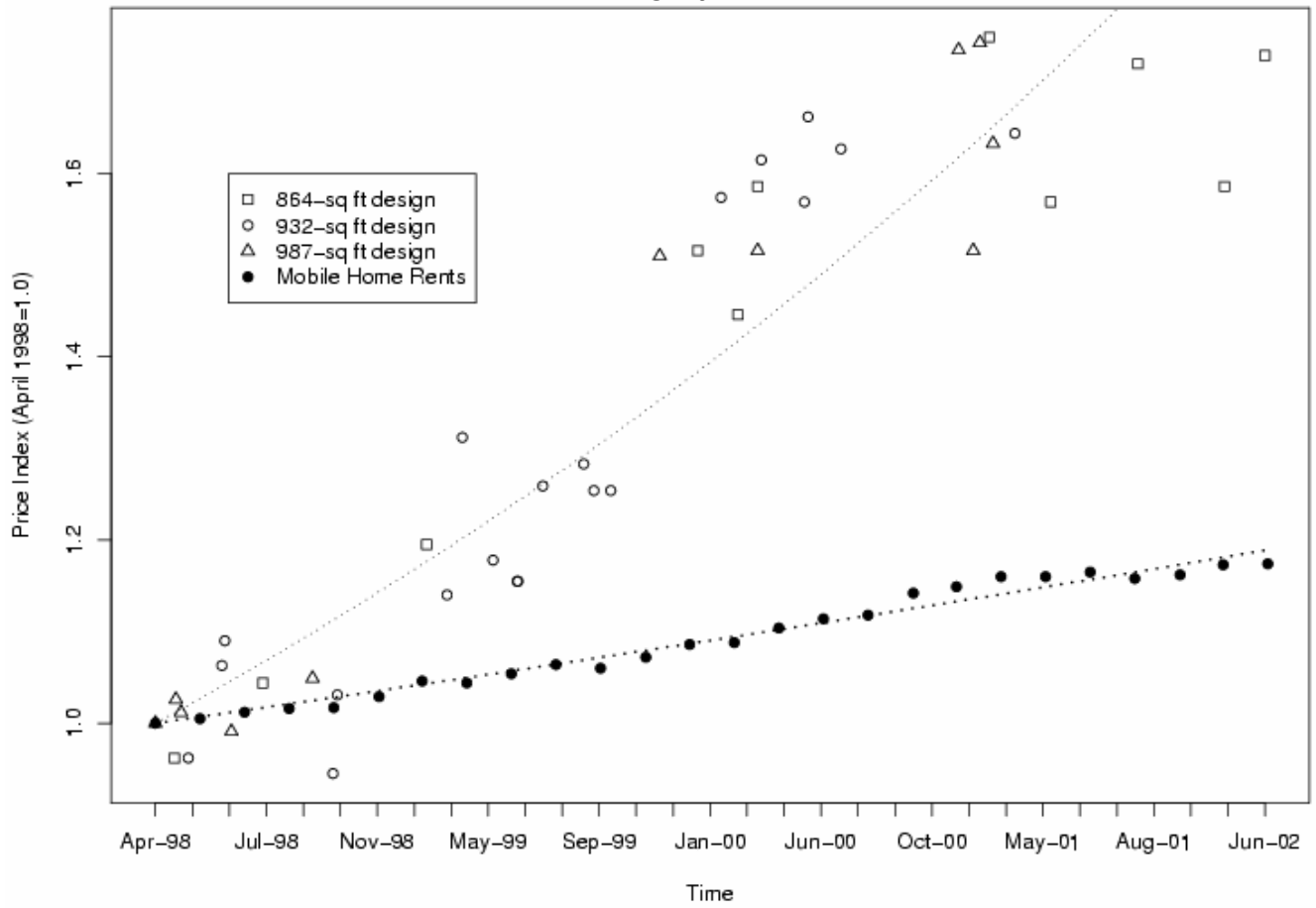
Table 1

Number of Dwellings in Three Cities Imposing Rent Control and in their Surrounding Housing Markets

Dwellings	Marin		Santa Barbara		San Diego	
	County	City	County	City	County	City
Total units	104,990	22,960	142,901	20,442	1,040,149	18,833
Single detached	63,666	10,490	79,751	12,125	530,430	10,609
Single attached	8,452	1,992	9,300	1,740	98,101	1,619
Mobile homes	542	413	7,774	1,578	44,234	2,474
Owner-occupied	5,519	9,795	76,579	13,778	552,461	13,120
Renter-occupied	36,221	10,348	60,043	6,082	443,126	5,350
Unspecified	13,650	2,817	6,279	488	45,472	363

Source: U.S. Census Bureau, *Census 2000*, Summary file 3.

Figure 1
Townhouse Sale Prices and Regulated Mobile Home Site Rents
in Marin County: April 1998 – June 2002



control regulation, was considerably more modest. Through December of 2001, regulated increases amounted to about 16 percent, or less than one-fifth of the price increases in the unregulated housing market.⁷

The figure also presents semi log regression estimates of the course of town house sales and mobile home rents. For the unregulated townhouses, the estimated price gradient is almost four times the gradient for mobile home rents.⁸ Using these regression models, the estimated price increase in town homes was 94 percent during the April 1998-2004 period. The increase was 19 percent for mobile home rents.

Using methods reported in detail in Appendix B (a standard Box-Cox hedonic price model), we estimated a price index for sales of single family census tracts surrounding the mobile home park in San Diego County. Figure 2 presents

⁷ The course of regulated rents increased by 17.4 percent from April 1998 through June 2002 while the national consumer price index increased by 10.7 percent during the same period.

⁸ The lines presented in Figure 1 are based upon regressions of condominium sales prices (P) and regulated rents (R)

$$\text{Log P} = -0.009 + 4.538T - 0.025S + 0.010L$$

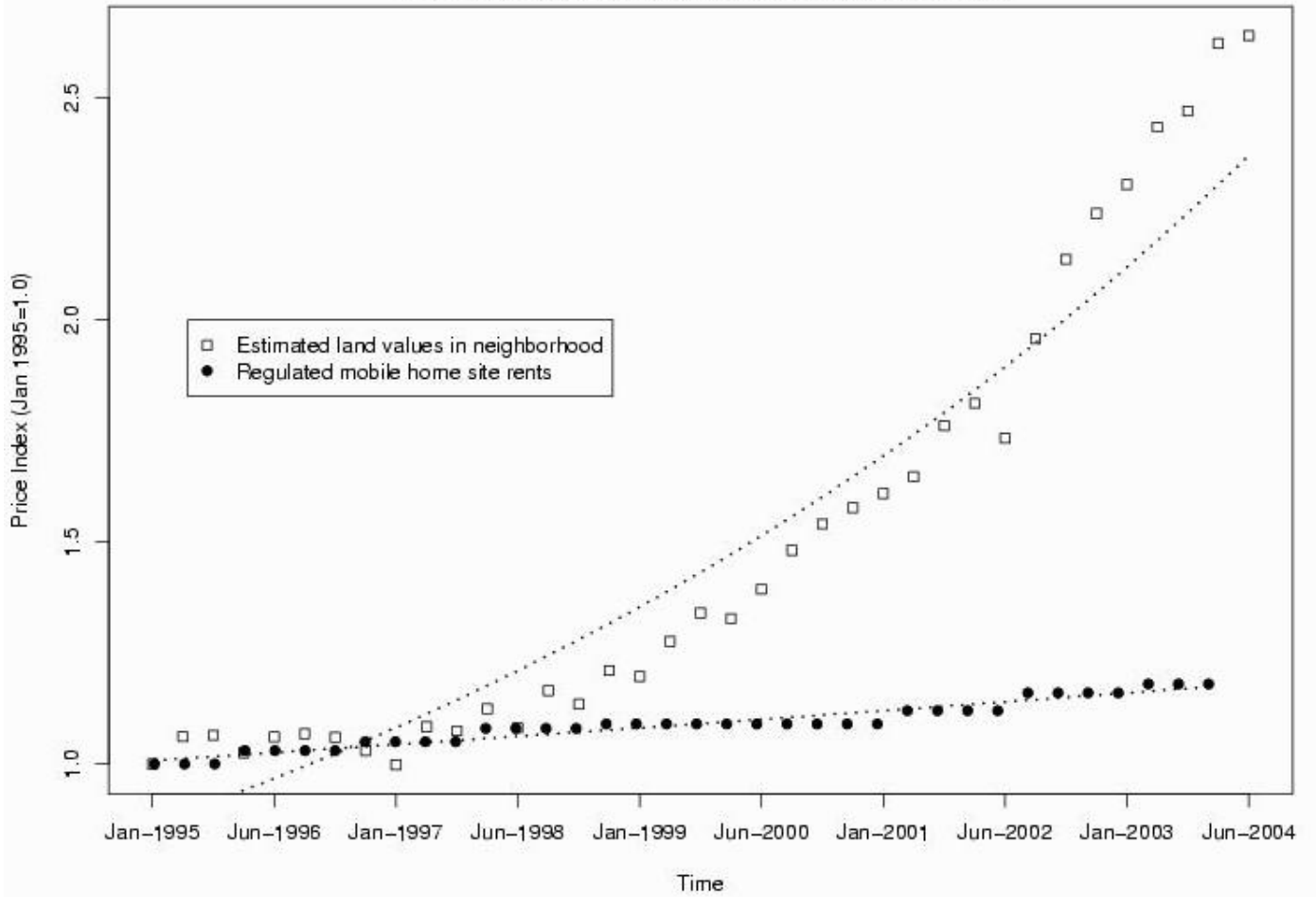
(0.37) (15.76) (0.81) (0.36)

$$\text{Log R} = -0.003 + 1.170T$$

(1.05) (33.87)

where T is time (in days X 10⁴) from April 1, 1998 and S and L are dummy variables for small and large condominium designs, respectively. t-ratios are reported in parentheses.

Figure 2
Regulated Mobile Home Site Rents and Unregulated Land Values
In San Diego County: January 1995 – December 2003



these estimated prices together with the course of regulated mobile home rents during the period 1995-2003. As the figure indicates, the rate of price appreciation for properties in the surrounding area has been substantial. Prices increased to more than 220 percent of the initial level through March 2003, while regulated site rents had been permitted to rise by only about 20 percent.⁹

C. The Capitalization of Contractual Terms

The wide divergence between the price gradient for regulated site rents of mobile homes and the price gradient for the adjoining housing units creates some presumption that the favorable terms enjoyed by current mobile home owners will be capitalized, in some part, into the selling prices of mobile homes. The comparison of sale prices for single family homes not subject to rent control reinforces this presumption.

To analyze the capitalization of contractual terms, we only need note the link between the flow of the benefits of occupancy and the value of the stock. Recall that the value, V , of property yielding an annual return, R , in perpetuity is

$$(1) \quad V = \frac{R}{(1+i)} + \frac{R}{(1+i)^2} + \dots + \frac{R}{(1+i)^\infty} = (1/i)R ,$$

where i is the interest rate.

⁹ The lines presented in Figure 2 are based upon regressions of the index of single family sales prices (S) and regulated rents (R)

$$\text{Log } S = -0.131 + 2.859T$$

(4.71) (18.83)

$$\text{Log } R = -0.007 + 0.488T$$

(1.91) (24.68)

Where T is time (in days $\times 10^4$) from January 1, 1995. t -ratios are reported in parentheses.

Suppose that rents are expected to remain constant; then from (1), the annual rent on property value at V is:

$$(2) \quad R = iV .$$

This formulation emphasizes i as the “user cost of capital,” the annual cost of using one dollar’s worth of real property.

The sale of a single family home at the price of V^s , implies the transfer of a structure with a value of S^s and the right to use, and to dispose of, a plot land with market value of L .

$$(3) \quad V^s = S^s + L .$$

From equation (2) the annual cost of occupancy of a property valued at V^s , the implicit rent, R^s , consists of two parts,

$$(4) \quad R^s = iV^s = iS^s + iL ,$$

the user cost of the structure, iS^s , and the market rental rate of the lot on which the structure is built, iL . In contrast, when we observe the sale of a mobile home under rent control at a price of V^m , it consists of the transfer of a coach with the value of S^m and the right to use a plot under specified conditions. Under vacancy control price regulation, the purchaser receives the right to rent the site upon which the mobile home is placed in return for some regulated annual rent of Q . The purchaser also enjoys the opportunity to transfer that right by selling the mobile home to a subsequent purchaser. In general, the annual benefit of holding this right is the difference between the market rent for the lot (iL) and the regulated rent, Q , paid to the park owner,

$$(5) \quad rZ = iL - Q .$$

Equation (5) relates the annual benefit of controlled rent to the annual cost, rZ , of that right. In equation (5), r represents the interest rate at which the mobile home buyer can finance her purchase, and Z represents the cost of acquiring the right to occupy the mobile home site at the regulated rent. The left side of equation (5) is thus the “user cost” of the right to the consumer, and the right hand side is the annual benefit to the consumer of enjoying this right, $iL-Q$. If the rent is regulated in perpetuity at the level of Q and if market land rents are constant, then from equation (1), the market value of the benefit, Z , is

$$(6) \quad Z = (1/r)[iL - Q].$$

If interest rates for land rent and mobile home finance are equal, $r=i$, then

$$(7) \quad Z = (1/i)[iL - Q].$$

If the currently regulated rent is assumed to remain in force forever and if $r=i$, then the annual benefit from the rent regulation will be “fully capitalized” into the market value of the right of Z .

More generally, if there is some uncertainty about the duration of regulation, or if interest rates for mobile home finance r and land rent i are not identical, the annual benefit may be capitalized at some fraction k

$$(8) \quad Z = k(i/r)(1/i)[iL - Q] = k(i/r)[L - Q/i].$$

Note that if $i=r$ and $k=1$, the expression is again identical to equation (1).

In any event, when we observe the sale of a mobile home at a price of V^m , the transaction includes the transfer of a coach whose value is S^m , and also the transfer of the right to use the site, which has a market value of Z ,

$$(9) \quad V^m = S^m + Z.$$

If Z and L were observed, then we could infer the rate of capitalization, k , directly from equation (8).

D. Data Assembly

As indicated in equation (8), the capitalization of rent control benefits depends upon:

- $V^m - S^m$ the difference between the selling price of the mobile home and the value of the coach, which is equal to Z ;
- Q the rent to the park owner stipulated in the rent control regulation;
- L the market value of the land on which the mobile home is sited;

as well as the interest rates r and i .

Of the four variables, two are available directly from a sample of mobile sales -- the transaction price, V^m , and the regulated rent at the time of sale, Q . It may be surprising to note that an estimate of the value of the coach, S^m , is also routinely available for mobile home sales.

The year, make, and model of a manufactured home are sufficient to identify an estimate of its value in the *National Automobile Dealers' Association Mobile/Manufactured Housing Appraisal Guide* or from the *Kelley Blue Book*. These estimates are analogous to the "blue book" values reported for used cars.¹⁰ For mobile homes, the guides report an average valuation for the structure in average condition with no specific reference to the location or siting of that structure. The estimate of value for any specific coach is thus subject to error. But it should also be noted that the *Kelley Blue*

¹⁰ Indeed, *NADA* as well as *Kelley's Blue Book* produce regular valuation guides for automobiles, trucks, and limousines, as well as mobile homes.

Book and the *NADA Appraisal Guide* are widely used by public officials in assessing manufactured housing for property taxes.¹¹ Indeed the California Revenue and Tax Code (Section 5803) directs assessors to consider the *NADA Appraisal Guide* and/or the *Kelley Blue Book* valuations when assessing mobile homes for local property taxes.

The methodology underlying these appraisal guides is, understandably, proprietary. Thus there is no published evidence on the properties of either guide as an estimator of the market prices for mobile homes. In Appendix A we present independent evidence that the *NADA* prices are unbiased. We gathered data on all sales of mobile homes in three parks subject to vacancy control rent regulations, one in a city located in each county during time intervals spanning 1999-2004. Sale prices of these mobile homes, together with *Appraisal Guide* and *Blue Book* estimates of the value of coaches, permit us to estimate the economic value of rent regulations.

Table 2 reports the economic value of the right to rent control based upon 245 sales of mobile homes in these three parks during the period of 1999-2004. Given the high housing and land costs in California, it is not surprising that the benefits of rent control are quite large, averaging almost \$24,000 in each sale in the park located in a modest neighborhood in San Diego County, up to \$105,000 in each sale in the park located in exclusive Santa Barbara County. On average, this right represents between 48 and 88 percent of the value exchanged in the transactions on manufactured housing in these parks. The implied value of this right, per square foot of land included in each transaction, varies between \$6.50 and \$41.00 on average. The markups over the

¹¹ See <http://www.saccounty.net/assessor> for but one example of the use of the *NADA Guide* for assessment.

Table 2
 Estimated Value of the Right to Occupy Mobile Home Sites at
 Regulated Rents at Three Mobile Home Parks in Different California Counties
 1999-2004

Estimated Value of Contractual Right (Z)	Marin	Santa Barbara	San Diego
At the time of sale			
Mean	\$60,677	\$105,054	\$24,014
Median	55,295	100,363	23,605
Standard Deviation	28,112	35,411	14,722
As Percent of Selling Price			
Mean	67%	88%	48%
Median	73%	88%	57%
Standard Deviation	12%	4%	47%
Estimated Value per Square Foot (Z/sqft)			
Mean	\$14.06	\$40.90	\$6.52
Median	14.10	38.96	6.19
Standard Deviation	6.09	15.64	4.08
As Percent of Coach Value (Vm/Sm)			
Mean	340%	919%	256%
Median	366%	842%	231%
Standard Deviation	107%	352%	135%

Notes: For the mobile home park located in Marin County, the estimates are based upon 40 sales of mobile homes during the period 1992-2002. The value of the coach was estimated using the *NADA Guide* for the time of sale.

For the mobile home park located in Santa Barbara County, the estimates are based upon 64 sales of mobile homes during the period 1999-2004. The value of the coach was estimated using the *Kelley Blue Book* estimate for the time of sale.

For the mobile home park located in San Diego County, the estimates are based on 141 sales of mobile homes during the period 2000-2004. The value of the coach was estimated using the *NADA Guide* for the time of the sale.

appraisal guide values of the coaches in these transactions average between 250 and 900 percent.

These averages conceal a wide dispersion of individual estimates. As the table indicates, the estimated value of the premium paid to enjoy the right to regulated rents has a large variance. Of course, many factors other than the value of the structures and the right to regulated rents affect the sale price of individual dwellings.

In equation (8), the benefits enjoyed under rent control depend upon the difference between the market value of the land associated with the mobile home and the controlled rent which is actually paid each year. Unfortunately, direct evidence on the value of land is difficult to obtain in heavily developed areas. Data on sales of unencumbered land or building lots in the built-up neighborhoods surrounding the mobile home parks were unavailable.

Of course, residential land in the local area is traded daily – but as a component of the transactions in single family housing. We investigated the value of land in the housing market surrounding these mobile home parks using hedonic methods applied to all sales of single family housing in the area surrounding the mobile home park. This analysis, using Box-Cox hedonic models to estimate local land values, is reported in Appendix B.

Table 3 summarizes the estimates of the land values obtained from the hedonic regressions reported in Appendix B. It summarizes estimates of the land values associated with the parcels containing the mobile homes in each of the three parks for which we have observed transactions. The table presents the mean value per parcel and per square foot. Also presented are the standard deviations and the range of the

Table 3

Estimated Value of Land per Parcel and per Square Foot at the Time of Sale in
 Three Regulated Mobile Home Parks in Different California Counties
 1999-2004

Land Value	Marin	Santa Barbara	San Diego
All Properties			
Mean	\$212,569	\$211,605	\$145,101
Median	206,366	204,059	141,570
Standard Deviation	39,102	74,731	26,403
All Properties per Square Foot			
Mean	\$49.17	\$77.97	\$39.34
Median	48.94	73.15	37.34
Standard Deviation	6.64	18.20	6.46
Mean Value by Year			
1999	\$171,085	\$161,055	NA
2000	226,058	165,111	\$113,719
2001	223,803	209,997	129,527
2002	218,312	212,879	152,864
2003	NA	282,392	178,117
2004	NA	288,377	NA
Standard Deviation by Year			
1999	\$17,728.6	\$42,881.0	NA
2000	39,150	47,555	\$9,888.7
2001	30,663	56,554	9,971
2002	52,297	72,403	16,044
2003	NA	68,746	14,723
2004	NA	68,787	NA

estimates. The table also summarizes the estimates of the land values of mobile homes sold at different time periods.

As estimated by the hedonic model, the average market value of mobile home land parcels in the neighborhoods surrounding the mobile home parks was quite large -- \$145,000 in the park located in San Diego County, and more than \$200,000 in Santa Barbara and Marin Counties.

The land values reported in Table 3 allow us to estimate the annual value of the reduction in land rents arising from the rent control regulation. This is merely the market rental value of a land parcel minus the regulated rent paid to the park owner. These regulated rents are public records. Table 4 summarizes estimates of this reduction in land rents at the date of each sale. Using the Freddie Mac mortgage interest rate for the month of the sale, the rent reduction averaged about \$2,300 in San Diego County, up to \$11,000 in Santa Barbara County. The reduction in land rents averages \$0.60 per square foot in San Diego County and \$4.00 per square foot in Santa Barbara County.

D. Mobile Homes Finances and Capitalization: Results

The link between the annual benefits from lower land rents and the annual costs for mobile home occupancy also depends upon the relationship between mobile home finance interest rates and market interest rates. The large consumer investments in mobile homes are often amortized by long-term loans originated by banks or other

Table 4
 Estimates of Reduction in Annual Site Rents Arising from
 Rent Control at Three Regulated Mobile Home Parks in
 Different California Counties
 1999-2004

Rent Reduction	Marin	Santa Barbara	San Diego
(iL -Q)			
Mean	\$8,144	\$11,128	\$2,253
Median	7,437	11,668	2,079
Standard Deviation	3,337	3,972	908
(iL -Q)/ per sqft			
Mean	\$1.81	\$4.03	\$0.60
Median	1.94	4.15	0.57
Standard Deviation	0.47	0.68	0.18

financial institutions. These loans differ from conventional home mortgages.¹² In general, loans for mobile homes are more similar to other personal property loans (e. g., automobile and boat loans) than to loans for real property (e. g., mortgages for single family housing).

Thus, mobile home loans are made at higher interest rates and for shorter terms than are housing loans, and they are often made with higher down-payment requirements. As a result of these features, there is no central source of data describing new mobile home loans. Table 5 reports a sample of rates and terms advertised in August 2002 (when home mortgage interest rates reported by Freddie Mac were 6.75 percent for 360 months for 80 percent loan-to-value, LTV, mortgages), and in March 2004 (when home mortgage rates were 5.50 percent for the same terms). In 2002, mobile homes loans were advertised at 48 months to 120 months, with interest rates quoted at 9 to 17.5 percent, and LTV ratios varying between 70 and 85 percent. The advertised rates averaged 1.81 times the mortgage interest rates at the time.

In an identical web survey in March 2004, it appeared that fewer institutions advertised mobile home loans, and fewer listed their terms on their website. The rates

¹² One important difference is that there is little secondary market for these loans. Freddie Mac and Fannie Mae seldom purchase these loans at all. The FHA program is quite small, and it is confined to mobile homes permanently affixed to land owned by the borrower. Some pools of mobile home loans are securitized by banks (often with a guarantee of some form). This securitization is similar to techniques sometimes used for automobiles, credit card debt, or accounts receivable.

Table 5

Web Advertised Financing Terms for Used Mobile Homes: August 2002 and March 2004

Date	Source	Term	Rate	Financing
August 2002 (mortgage interest rate 6.75%)				
	http://www.ziacu.org	48 mos.	11.00-16.00%	80% LTV
		60 mos.	12.00-17.00%	80% LTV
		120 mos.	12.50-17.50%	80% LTV
	http://www.calcoastcu.org	-	14.25%	80% LTV
	http://www.fsource.org	84 mos.	12.50%	70% LTV
	http://www.stockbridgestatebank.com	84 mos.	9.62%	80% LTV
	http://www.firstfinancial.org	78 mos.	9.00%	85% LTV
	http://www.csecu.org	60 mos.*	9.00%	80% LTV
		84 mos.*	10.25%	80% LTV
		120 mos.*	11.00%	80% LTV
March 2004 (mortgage interest rate 5.50%)				
	http://www.stockbridgestatebank.com	120 mos.	8.16%	80% LTV
	http://www.jcfin.com	-	12.24%	80% LTV
	http://www.refi.net	#	7.99-9.74%	-
	http://colonialfundinggroup.com	240 mos.#	9.50%	90% LTV
	http://allmanufacturedhomes.com	360 mos.	11.75%	-

Source: <http://www.google.com>, keywords "mobile home financing loans," August 14 2002 & March 3 2004

Notes: *Qualification includes a variety of credit union restrictions.

Terms offered for refinancing only.

advertised averaged 1.80 times the mortgage interest rate in March 2004. This evidence is hardly systematic, but it does suggest that the interest rates for used mobile home finance are at least 1.5 times the rates charged for home mortgages. Since LTVs are higher and terms are shorter for mobile home loans, this suggests that the ratio of adjusted interest rates is higher still.

The observations on sales of mobile homes, “blue book” appraised values, land values, and some assumptions about the relationship between mortgage interest rates and mobile home interest rates permits the capitalization rate to be estimated from equation (8).

Table 6 presents alternative regression estimates of the fraction of annual benefits from rent control which are capitalized into higher annual housing payments. The estimates of capitalization are, of course, sensitive to the relationship between interest rates on mobile home loans and market interest rates. The most conservative, and clearly unrealistic, assumption is that the two interest rates are identical ($r=i$). Under these assumptions, the point estimates of capitalization are 53-69 percent, in the three mobile home parks with 95 percent confidence intervals of 46-74 percent. If borrowing rates for mobile home finance are 1.5 times market interest rates (See Table 5), the capitalization rate is estimated to be 80-102 percent in the three parks with a 95 percent confidence intervals from 69 to 115 percent. The numerical results are quite similar if interest rates on mobile home loans are assumed to be 350 basis points higher than the market rates.

Although the capitalization parameter is precisely estimated, its interpretation is sensitive to the differential in interest rates. For any reasonable differential, a substantial fraction of the mandated reduction in rents is simply reflected in increased prices and

hence carrying cost for purchases of mobile homes. Although the fraction could be as low as 0.8, it may easily be as high as 1.0.

IV. Affordability

The high rates of capitalization of the benefits of vacancy control rent regulation, in this circumstance at least, means that the rent control regime has a negligible effect upon the affordability to consumers of the dwellings so regulated. Despite this, the regulations have an inhibiting effect upon the supply of housing suitable for moderate income households in the region.

Incoming tenants to the park pay the market price for housing. Through the operation of the housing market, the capitalized values of the below-market site rents mandated by the ordinance are reflected in increased prices when leases and rental rights to sites are transferred among housing consumers. Increased sale prices, in turn, lead to higher carrying costs for the purchase of mobile homes.

Table 6
 Regression Estimates of the Fraction (k) of Annual Benefits
 Capitalized into Higher Annual Housing Payments in Regulated
 Mobile Home Parks in Different California Counties

	Estimate of k	95 percent Confidence Interval		R-squared
		Lower	Upper	
Assuming: $r = 1.5 \times i$				
Marin	0.80	0.69	0.91	0.84
San Diego	0.94	0.83	1.05	0.67
Santa Barbara	0.90	0.83	0.97	0.92
Assuming: $r = 1.5 \times i$ (normalized by lotsize)				
Marin	0.86	0.74	0.97	0.86
San Diego	1.00	0.88	1.11	0.68
Santa Barbara	1.03	0.95	1.11	0.91
Assuming: $r = i + 0.035$				
Marin	0.78	0.67	0.88	0.84
San Diego	0.96	0.85	1.07	0.67
Santa Barbara	0.92	0.85	0.99	0.91
Assuming: $r = i + 0.035$ (normalized by lotsize)				
Marin	0.84	0.73	0.95	0.85
San Diego	1.02	0.90	1.14	0.68
Santa Barbara	1.05	0.97	1.13	0.91
Assuming : $r = i$				
Marin	0.53	0.46	0.60	0.84
San Diego	0.63	0.55	0.70	0.67
Santa Barbara	0.60	0.55	0.65	0.92
Assuming: $r = i$ (normalized by lotsize)				
Marin	0.57	0.50	0.65	0.86
San Diego	0.67	0.59	0.74	0.68
Santa Barbara	0.69	0.63	0.74	0.91

The net effects of the regulatory regime on the affordability of these dwellings in the local market can be estimated, at least roughly. For each observed mobile home transaction, we can estimate the household income required to make the purchase in the absence of rent control. This estimate of required household income can then be compared to the required household income at the observed sale price.

A. Housing Affordability Under Rent Control

To calculate the household income required for mobile home purchase under rent control for an eighty percent LTV mortgage, we compute the monthly mortgage payment using the interest rate at the time of sale to amortize a loan 80 percent of the observed sale price of each mobile home. We add to this payment the mandated monthly rent. According to federal guidelines, housing is considered “affordable” if monthly housing payments are less than thirty percent of monthly income. So the required household income is 3.33 times the level of housing payment.

B. Housing Affordability in the Absence of Rent Control

If rent control were not in effect, the purchase price of mobile homes would fall, reflecting elimination of the capitalized benefit of below-market site rents, while the monthly rents would rise to the market level. The monthly mortgage payment would therefore be lower, but this would be offset, at least in part, by a higher rent. Using the same assumptions as above, but with a purchase price equal to that reported in the appraisal guide as the valuation in the absence of rent control, and with a rent equal to the estimated market rent for each parcel at the time of sale, we can compute the housing cost

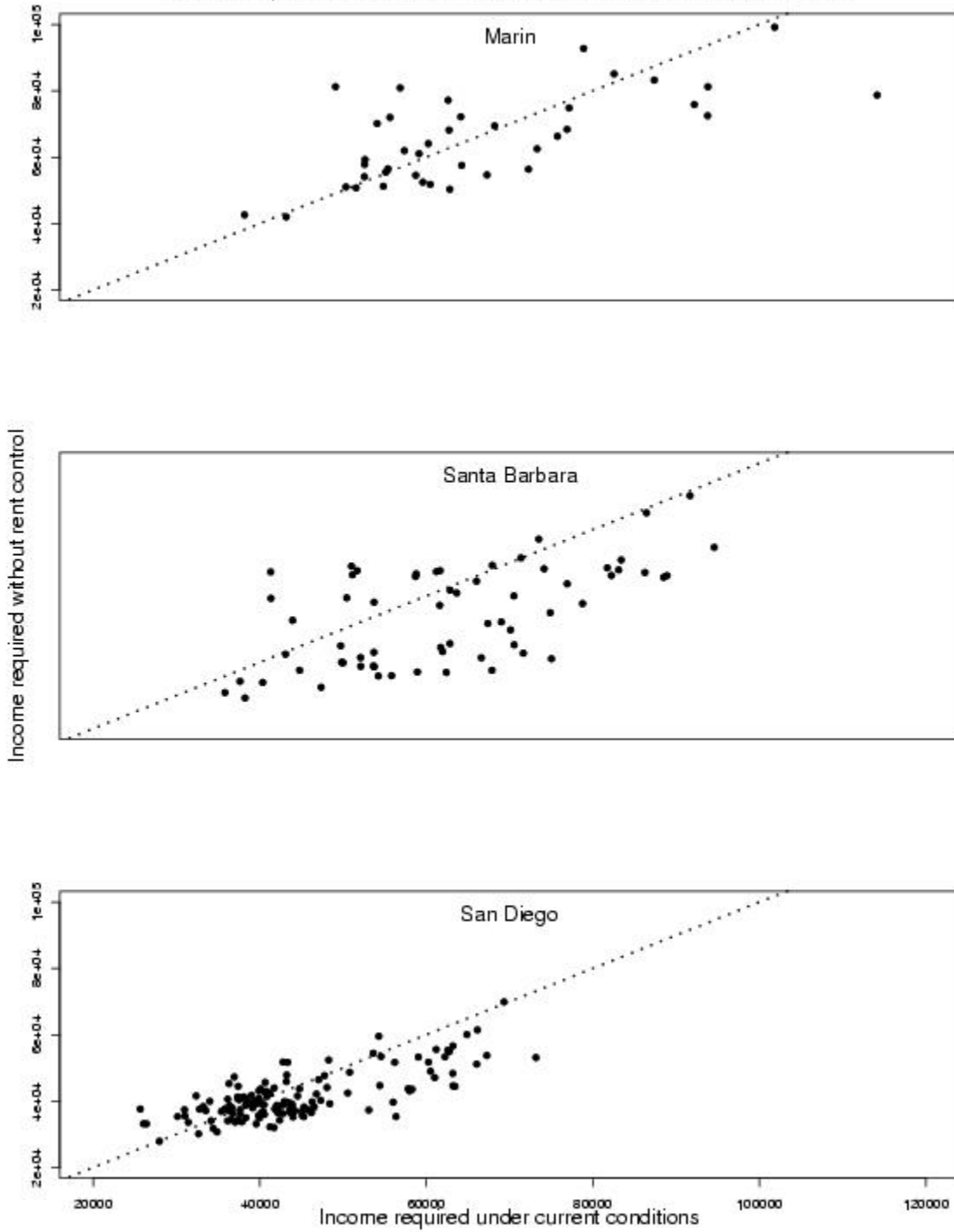
and hence the required income in the absence of rent control to purchase each mobile home.

In Figure 3, the abscissa measures the income required to purchase each mobile home in the current rent-controlled environment. The ordinate reports the corresponding estimate in the absence of rent control. The 45 degree line separates the diagram into two regions. Above the line, the income required to purchase a mobile home is higher in the absence of rent control. Below the line, the income required to purchase a mobile home is higher in a rent-controlled environment.

In constructing Figure 3, we assume that the interest rate at which buyers can finance used mobile home purchases is 1.5 times the prevailing rate at the time of sale for conventional home mortgages. We further assume that mobile home loans are for twenty year terms. These financing assumptions clearly affect the results shown in Figure 3. (But from Table 5, they are clearly conservative.) The more stringent financing terms for mobile home purchases raises the income required for purchase. Since rent control forces buyers to pay higher capital costs, rent control increases costs more with more stringent financing terms. The less favorable the financing terms, the less favorable is rent control.

Figure 3 illustrates that the income required to purchase a used mobile home is not affected very much by the presence of rent control. Most of the observations are below the 45 degree line where the income required to purchase a mobile home is greater

Figure 3
Income Required to Purchase Mobile Homes with and without Rent Control



under rent control. But there is substantial variability across the mobile homes. There is certainly no evidence that the institution of rent control, in any of these markets, has made mobile homes more affordable to consumers. Any benefits of below-market rents mandated for residents are simply undone by the capitalization of these benefits in the marketplace.

V. Conclusion

This paper presents an economic analysis of mobile home rent control and a detailed empirical assessment of vacancy decontrol rent regulation in three mobile home parks in three different housing markets in California. The analysis indicates that the benefit enjoyed by tenants from lower rents leads to increased prices when dwellings are transferred among tenants. These higher transactions prices lead to higher annual payments made by tenants to retire the debt incurred in purchasing a dwelling and in purchasing the right to a controlled rent.

Estimates of the magnitudes of these effects are obtained from observations on the arms-length sales of samples of manufactured housing home sales in three parks subject to rent control in California. Estimates of land values were obtained from the statistical analysis of single family housing sales in neighborhoods surrounding each of the mobile home parks.

The empirical analysis documents: that the average mobile home sale in all three markets includes a substantial payment of for the right to enjoy a regulated rent at quite

favorable terms; and that the market value of the land exchanged with the mobile home is very substantial.

Reasonable assumptions about the financing of mobile home purchases lead to the conclusion that virtually all of the annual economic benefits from lower regulated rents are paid out annually to finance the higher sales prices commanded by those dwellings in each of the three mobile home parks subject to rent control. The precise estimates of the fraction of benefits paid out vary, depending upon the statistical model and the economic assumptions employed. Based upon regression estimates, most or all of the benefits are capitalized.

Using reasonable financing assumptions, we find that the effect of a regime of vacancy control rent regulation in these three markets increases the variance in the costs of occupying mobile homes, but no systematic effect upon the average monthly costs of housing to consumers. Specific individual mobile homes might be more or less “affordable” as a result of the regulation, but on balance, the effect of lower mandated rents to consumers is offset by the higher purchase prices of mobile homes.

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Appendix A

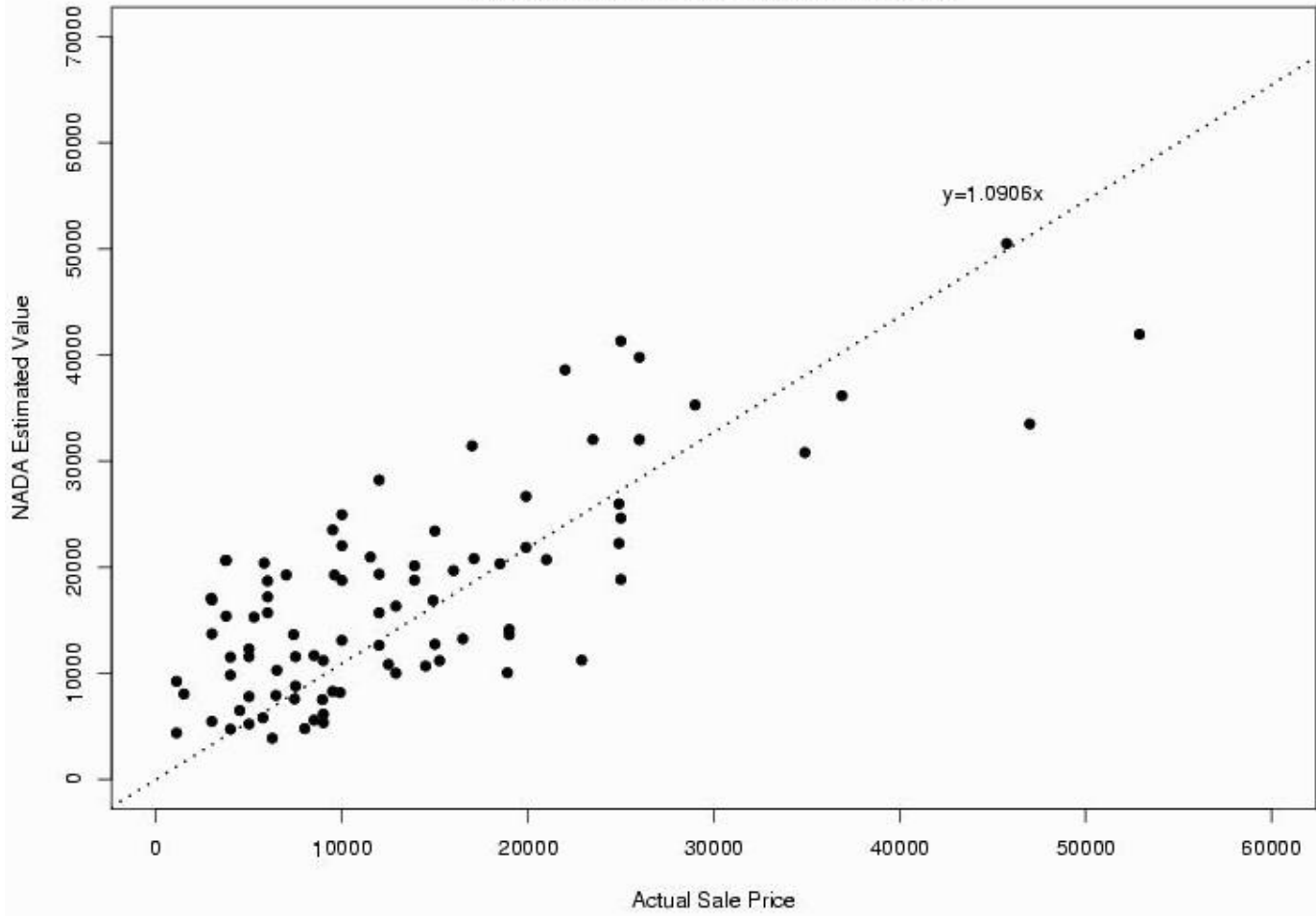
To investigate the properties of the *Appraisal Guide*, we gathered observations on mobile home sales in another state (Arizona) in which rent control is illegal. For a sample of 89 mobile home sales in Arizona in 2000-2003, we obtained the selling price, as well as the year, make and model of the coach. This information, together with the date of sale, is sufficient to identify the estimate of value reported in the appropriate edition of the *NADA Appraisal Guide*.

Figure A1 reports the relationship between the appraised values and the transaction prices of these mobile homes, sold in jurisdictions where there are no rights to reduced rents which could be transferred. A simple regression of sale price on the NADA appraisal yields a coefficient of 1.0906, insignificantly different from one ($t=0.45$), and explains 58 percent of the variance in selling prices.

The results indicate that the appraisals provide an unbiased estimate of the observed market price of used coaches. The sampling variance is high, presumably because there are a host of other important factors affecting the circumstances of any particular property sale -- the urgency of buyer and seller, their negotiating skills, etc.

However, these results indicate that data on the sales prices for a sample of mobile homes transferred under rent control, together with these published appraised values of the mobile homes, yield unbiased estimates of the market value of the right to enjoy the site at the controlled rent. These estimates can be computed for a sample of mobile home sales from the year, make, model, and the date of sale.

Figure A1
NADA Estimates Versus Actual Sale Prices for
89 Mobile Home Transactions in Arizona



Appendix B

The land values reported in Table 3 and in the text are derived from an analysis of all sales of single detached houses in the neighborhoods of the three mobile home parks. In all cases the data are drawn from the same municipal jurisdiction as the mobile home park; in two of the three data sets, the census tract of each dwelling was available and was used to control for variations in neighborhood amenities. Data on interior area, the number of bathrooms, the year of construction, the date of observed sale, and the size of the lot were available for all three cities. These data were available from multiple listing files for dwellings in Marin County and from Data Quick Information Systems for San Diego and Santa Barbara Counties.

Table B1 reports descriptive information about housing sold in the three areas. Table B2 reports regression estimates of a price function relating the selling prices of dwellings to their hedonic characteristics. The hedonic relationship is a Box-Cox (1964) transformation of the dependent variable, selling price per square foot of lot size. The hedonic measures include the characteristics of the structure, the lot size, and the neighborhood, together with a set of indicator variables corresponding to time intervals. If S represents the selling price per square foot of lot area and X is the vector of dwelling characteristics, neighborhood amenities and indicator variables defining the time of the sale, the Box-Cox power series model is:

$$S^\lambda = \alpha + \beta X$$

Where λ , α , and β are parameters, estimated by grid search.

The estimate of the price per square foot of each parcel of land is the fitted value of the hedonic regression equation at the time of sale with all of the dwelling characteristics set to zero. As Table B2 indicates, all three sets of regression coefficients have the expected signs and the standard errors are quite small.

Table B1
 Descriptive Statistics for Sales of Single Family Houses Sold in Three
 Housing Markets

	Marin	Santa Barbara	San Diego
Number of Sales	551	1340	1895
Mean Values			
Lot Size (sqft)	8,354	7,747	7,308
Interior Space (sqft)	1,682	1,498	1,366
Bathrooms	2.13	2.03	1.95
Median Values			
Selling Price	\$498,796	\$350,696	\$218,909
Year Built	1959	1964	1970
Frequency of Sales by Year			
1990	0	54	0
1991	0	83	0
1992	0	89	0
1993	0	77	0
1994	0	98	0
1995	0	78	118
1996	0	97	165
1997	0	115	174
1998	0	131	210
1999	136	123	232
2000	194	92	194
2001	156	89	232
2002	65	78	236
2003	0	93	324
2004	0	43	10

Table B2
Regression Coefficients from Box-Cox
Model

Variable	Marin			Santa Barbara			San Diego		
	estimate x 10 ³	std. error x 10 ³	t ratio	estimate	std. error	t ratio	estimate	std. error	t ratio
Intercept	11.171	0.25	43.92	39.161	2.57	15.23	22.113	0.76	28.99
Number of Bathrooms	-0.460	0.12	-3.89	2.033	0.59	3.42	0.307	0.18	1.73
Lot Size (SqFt)	0.001	0.00	46.66	-0.003	0.00	-19.07	-0.002	0.00	-37.08
Bldg Size (SqFt)	-0.001	0.00	-9.36	0.002	0.00	4.36	0.002	0.00	4.36
Newer Bldg	-0.390	0.10	-4.07	1.366	0.57	2.40	1.366	0.57	2.40
Lambda	-0.543			0.869			0.869		

Notes: For Marin County, the model also includes 12 indicator variables representing equally spaced intervals between January 1, 1999 and August 6, 2002.

For Santa Barbara County, the model also includes 58 indicator variables representing quarter years beginning in January 1990. The model also includes indicator variables for 8 nearby census tracts.

For San Diego County, the model also includes 34 indicator variables for quarter years beginning in 1995, as well as indicator variables for 8 nearby census tracts.