Institute of Business and Economic Research

University of California at Berkeley

CENTER FOR REAL ESTATE AND URBAN ECONOMICS

WORKING PAPER SERIES

WORKING PAPER NO. 90-178

THE IMPACT OF RENT CONTROLS ON PROPERTY VALUE

By

MICHAEL ST. JOHN

WALTER A. HAAS SCHOOL OF BUSINESS

CENTER FOR REAL ESTATE AND URBAN ECONOMICS
UNIVERSITY OF CALIFORNIA AT BERKELEY
Kenneth Rosen, Chair

The Center was established in 1950 to examine in depth a series of major changes and issues involving urban land and real estate markets. The Center is supported by both private contributions from industry sources and by appropriations allocated from the Real Estate Education and Research Fund of the State of California.

INSTITUTE OF BUSINESS AND ECONOMIC RESEARCH
Richard Sutch, Director

The Institute of Business and Economic Research is an organized research unit of the University of California at Berkeley. It exists to promote research in business and economics by University faculty. These working papers are issued to disseminate research results to other scholars. The authors welcome comments; inquiries may be directed to the author in care of the Center.

THE IMPACT OF RENT CONTROLS ON PROPERTY VALUE

A paper presented at the conference of the
Western Economic Association
San Diego, California

July 2, 1990

by

Michael St. John

St. John & Associates
2107 West Street
Berkeley, California
94702

(415) 845-8928

ABSTRACT

This paper describes a study which tested empirically the effects of rent control programs of varying restrictiveness on the market value of residential income property. The main sample consisted of 2,630 apartment building sales between 1970 and 1988 in western Alameda County, California. This portion of the county contains three major cities with rent control programs - Berkeley, Hayward, and Oakland - and nine major and minor cities which do not have rent control programs. The three control programs range from the most to the least restrictive among "second generation" rent control programs in California.

The results show that, after ten years of restrictive controls, the value of residential income property in Berkeley is nearly 50% less than the value that would be expected to prevail in the absence of rent control. The results imply an average loss in value due to rent control of $32,690 per apartment unit in Berkeley. The loss in value sums to six hundred five million dollars ($605,000,000) citywide as of 1988, and is growing yearly. Property values in Hayward and Oakland, on the other hand, have not been significantly affected by rent control.

It is concluded that a major distinction must be drawn between "moderate" and "restrictive" rent control programs. Moderate programs do not appear to affect property values significantly, whereas restrictive programs affect values in a major way. Moderate programs appear not to be binding and would therefore not be expected to occasion the development of the negative side effects usually associated with restrictive controls. Restrictive programs can be distinguished as those which do not allow rents to increase at the inflation rate each year and do not allow rents to return to market levels on vacancy.

I. INTRODUCTION. While the short run (income-redistributing) effects of rent control programs are easily discoverable, it is not obvious what long run effects rent control programs may have on the "adequacy, availability, and affordability" of rental housing.[1] Economists have argued from theory that rent control programs will generate, in the medium and long run, various adverse side effects including diminution of service levels, physical deterioration of the housing stock, inhibitions on the construction of new housing, loss of units from the rental housing stock, and the development of chronic housing shortages.[2] But there now exist in New Jersey and California and elsewhere in the United States and Canada "second generation" rent control programs which were created in the 1970's and 1980's with specific attention to the shortcomings of more restrictive programs previously enacted in New York City and in many other cities worldwide. It has been claimed by their advocates that these more modern programs, which "stabilize" rents instead of freezing them, will not occasion the negative side effects associated with "old-style" controls. There has been insufficient testing of this hypothesis, but it does appear that the second generation programs have not demonstrated adverse side effects as consistently, as dramatically, or as precisely as

---

[1] See Lowry, et al (1983).

[2] See, for example, Block and Olsen (1981), Friedman and Stigler (1946), Salins (1980).

economists expected.[3] Now that a full decade has passed since the enactment of several second generation programs in California, it is appropriate that empirical research be undertaken to discover their long run effects.

Evaluating the long run effects of rent control programs is not simple. Even second generation rent control laws vary considerably in form and content. Controlled experiments are not feasible. It is difficult to separate the effects of rent control programs from macroeconomic trends, from the effects of rapidly evolving landlord-tenant law, from effects of recent changes in the income tax law, and from effects resulting from changes in the rest of the local regulatory environment (growth controls, zoning restrictions, code enforcement, inclusionary requirements, and so forth). Side effects will not emerge in the same ways in all jurisdictions. The loss of units to condominium conversion, for example, will not show up in a rent controlled community which prohibits condominium conversion. Deterioration of the housing stock will be difficult to detect (and may not occur) in a rent controlled community which has an assertive code enforcement program. The inhibition of new construction will not be obvious in a community which, through growth controls, already prohibits the construction of new apartments.

---

[3] Important challenges to the classical economic view have been reported in Gilderbloom (1981) and Gilderbloom and Applebaum (1988). These challenges are also implicit in Baar (1983).

The research described in this paper evaluates the effects of rent control programs of varying restrictiveness on the capital value of the housing stock.[4] This focus was chosen because, arguably, the value of residential property incorporates all market influences, including the entire regulatory environment, in a particularly precise way. That this might be so is suggested theoretically by the capitalization hypothesis, which proposes that property value will at all times equal the time-discounted sum of expected net income.[5] If rent control affects present and future net income (as it surely will if controls are binding), the hypothesis suggests that the value of rental property will be affected accordingly.

The study described herein was designed to test empirically the capitalization hypothesis in the rental housing context and to discover, at the same time, what long run effects rent control programs of varying restrictiveness can be expected to have on the value of residential income property. If we know with precision what effects rent control programs have on the capital value of the housing stock, we will be in a better position to

---

[4] The research described here, a major part of work on a dissertation for the Department of Economics, University of California at Berkeley, is treated in more detail in St. John (1989).

[5] $\text{Value} = \Sigma_t \left[(\text{Rents}_t - \text{Expenses}_t) \,/\, (1 + \text{discount rate})^t \right]$

assess its other probable effects. A study of the market value of residential income property in controlled and uncontrolled communities therefore has the potential to shed light on the long run effects of rent control programs.

The literature on this topic is thin. There are far more theoretical than empirical studies of rent control. Among empirical research papers, most have centered on the side effects of rent control rather than on its effect on property value. One excellent study is that by Smith and Tomlinson (1983) on the effects of rent control in Toronto. The authors found that during the five years following the imposition of rent control the real values of multiple unit properties fell by 39%, while the real values of homes and condominium apartments (which are exempt from rent control in Toronto) rose during the same period by 30%. The authors explained that the controls froze net cash flows at the pre-control level, causing constant diminishment of real net cash flows, which in turn caused a reduction in capital values.

An article about the effect of rent control on property values in Santa Monica, California appeared in 1981, but the time period examined was too short, the data were inadequate to the task, and the study was inconclusive.[6] Harold Davidson (1978) concluded

---

[6] Shulman (1981). Rent control was enacted in Santa Monica in 1979. Shulman's data were collected in 1980. The capital market in that year was in crisis and sales were severely distorted by the shortage of capital and by the effects of "creative financing". Shulman's conclusions (that property values did not

from a variety of secondary sources that there had been "extremely large decreases in sales value of apartments after rent control" in several east coast cities, but the link between data and conclusion is weak. Finally, Sternlieb and Hughes' 1979 study of the effects of rent control on local property tax collections touched indirectly on the question of property value, but direct evidence of the decline in value was not presented. The literature leaves largely unanswered the question being asked here: What effect, if any, do modern ("second generation") rent control programs of varying restrictiveness have on the value of residential income property?

II. THE STUDY. Rent control in California now has a ten-year history over which its effects may be studied.[7] Alameda County in Northern California provides a useful test location. Western Alameda County is made up of thirteen cities along the eastern shore of San Francisco Bay. Three of these cities (Oakland, Berkeley, and Hayward) have some form of rent control, while the

---

decline in real terms and therefore that rent control had no significant effect on the value of property) are therefore suspect. Now that ten years have passed, a follow-up study on the effects of rent control in Santa Monica is indicated.

[7] Rent control programs in California (those covering apartments, not mobile home parks) were first introduced in the period 1977 to 1984, with the majority (9 out of 14) starting in 1978 and 1979. Rent control programs are now in effect in Berkeley, Beverly Hills, Cotati, East Palo Alto, Hayward, Los Angeles, Los Gatos, Oakland, Palm Springs, San Francisco, San Jose, Santa Monica, Thousand Oaks, and West Hollywood.

remainder (Alameda, Albany, Emeryville, Fremont, Newark, Piedmont, San Leandro, San Lorenzo, Union City, and unincorporated areas) do not. The programs have been in effect since 1978 (Berkeley), 1979 (Oakland), and 1981 (Hayward), so that a meaningful comparison is now possible between a free market period and a controlled period. Sixty-one percent of the housing in the study area is rent controlled (to one degree of restrictiveness or another), while thirty-nine percent is not, so that meaningful comparisons can be made between controlled and non-controlled areas.

The three rent control programs in the study area vary considerably in content. Oakland's rent control program is "soft", allowing inflation rate rent increases and having no controls on vacancy. Hayward's program can be said to be "moderate" because of a gradual phase-out provision, although in other respects it is restrictive. Berkeley's program is "restrictive", in the sense that rents are controlled through vacancies and because allowed rent increases, on average, have been far below the inflation rate.[8] The study area therefore covers municipalities

---

[8] These categories, which are discussed in more detail in St. John (1989) and in St. John (forthcoming) can be understood as follows. "Soft" programs, by allowing decontrol on vacancy and inflation-rate rent increases each year, don't affect average rents at all, or may actually increase average rents. "Moderate" programs, restricting annual rent increases to sitting tenants below inflation but allowing decontrolled rents on vacancy, affect average rents to a moderate degree such that the rent discount does not increase over time. "Restrictive" programs, limiting rent increases below inflation and allowing no decontrol on vacancy, affect average rents such that the rent discount (the

with no controls and municipalities with differing levels of control restrictiveness. The cities of western Alameda County lie adjacent to each other and are linked by convenient (if overcrowded) transportation systems. Controlled cities are surrounded by non-controlled cities. Tenants can (and do) live in one city within the study area and work in another. The area can therefore be said to make up a common rental housing market.

Data was collected on sales of multiple unit residential properties in the study area from 1970 through 1988.[9] The primary data source was sales data collected by the California Market Data Cooperative (CMDC), the data-collection agency of and for professional appraisers in California. CMDC has been publishing sales data in a consistent format since the 1960's. Altogether, 1474 usable observations were found over the 19 year time period. Of these, 27% were in non-controlled municipalities. CMDC data, thin for some cities and some years, was supplemented by data collected from the database of DAMAR Corporation, a firm specializing in the collection and (electronic) distribution of real estate sales information. The final dataset contained data on 2630 sales over 19 years, with 26% in non-controlled areas and 74% in controlled municipalities. To the best of the author's

---

difference between controlled and market rents) becomes larger over time.

[9] "Multiple-unit residential property" as used in this study means a property containing five or more distinct living units.

knowledge, the dataset included all publicly reported sales events during the study period.[10]

The data collected for each observation included value (sales price), date of sale (by year), area of the property, number of units, average rents, number of stories in the structure, and age of the structure. From this information the price per square foot, gross rent multiplier, price per unit, and average unit size was computed for each observation.

It would be a relatively simple matter to compute the average price per square foot or the average price per unit by community over time and then compare the figures for controlled and non-controlled municipalities. But it is sales that are observable, not values per se. Sales prices reliably identify the values of the properties sold, but do not necessarily predict the value of properties not sold. It is conceivable that some inherent bias in the sales data would skew the results. It might be the case, for example, for reasons related or unrelated to rent control, that properties sold in recent years in one community or another tended to be lower priced (less attractive, higher density, poor

---

[10] Since the advent of Proposition 13, assessments accurately track value upon sale. But the Alameda County Assessor has not authorized the release to the public of "data enhancements" (physical characteristic information about each property). For this reason the Assessor's records, potentially the most complete and most accurate source of data for research of this kind, could not be used in this study.

physical condition, smaller units) than properties sold in the 1970s. More attractive (higher value) properties might be held for longer periods in recent years than previously. Raw averages would in this event appear to show that values were declining, while in fact values might be increasing while the mix of properties sold was changing.

To deal with this possibility, data was collected to make possible the estimation of a hedonic regression equation which would eliminate the effects of possible changes in the property mix. The hedonic was of the form

$$V = \alpha + \Sigma \beta_i X_i + \epsilon \qquad (1)$$

where
- V = Value
- α = constant term
- X_i = the hedonic and dummy variables
- β_i = the coefficients, measuring the contributions of the explanatory variables to value
- ϵ = a stochastic term representing unmeasured factors that may affect value

Hedonic characteristics chosen were those available in the datasets: AGE (the age of the structure at time of sale), UNITS (the size of the property as measured by number of units), SIZE (the average size of the units), and STOR (the number of stories in the structure). Dummy variables were added for CITY and YEAR. The CITY variable thus incorporated the rent control variable, there being three cities with rent control programs and several with no controls. Data on cities with no controls were combined

into one grouping, called ALACO. Regressions were estimated with price per unit (PPU), price per square foot (PPSF), and gross rent multiplier (GRM) as the dependent variables.[11]

The underlying hypothesis of the study was that rent control would cause a decline in the value of residential income property. But it is also possible that a decline in the quality of life in a rent controlled community would account for a decline in the value of property.[12] If such was the case, one would expect the value of single family and four-plex properties to decline along with the decline in value of multiple-unit properties. Data was therefore gathered on single family home sales and four-unit property sales to control for this possibility. That single family homes would be useful for this purpose is obvious, but that four-unit properties would be useful for this purpose depends on understanding of a phenomenon now emerging in some rent controlled cities - the sale of ownership shares in two, three, and four-unit properties to unrelated owner-occupants to whom the controls on rents are largely irrelevant. Shares of

---

[11] The capitalization hypothesis points to the cap rate, not the gross rent multiplier. But cap rates could not be computed because reliable expense data was not available. The gross rent multiplier is a reasonable proxy for the cap rate if expense ratios are constant over time.

[12] For example, it is conceivable that other factors, such as a crack cocaine epidemic, unusually high property taxes, a dramatic increase in homelessness, social unrest, a high crime rate, or a left-leaning city government might make one or another community unattractive to residents and investors.

these smaller properties are now being sold in some rent-controlled cities to owner-occupants at prices which appear to more closely reflect the prices of smaller single family homes than the prices of residential income property.

III. RESULTS. With some variation among estimations, the hedonic regressions had expected results: values of residential income properties (measured either by price per unit or by price per square foot) decline with AGE of the structure,[13] increase with SIZE of the units,[14] increase with the number of STORIES in the structure,[15] and decrease as the number of UNITS increases. The YEAR variables were strongly positive, reflecting an overall

---

[13] Except in Berkeley, where the coefficient on AGE is weakly positive. This finding may indicate that older buildings of fine architecture (of which there are numerous examples surrounding the University of California campus in Berkeley) are more highly valued by residents (and therefore by investors) than similar older properties would be in other communities. It is also noteworthy that growth control in Berkeley has foreclosed construction of multiple-unit properties for two decades. AGE in Berkeley is therefore comparing buildings built around the turn of the century to buildings built in the 1950's and 1960's. Seen in this light, it is not surprising that AGE would have a positive coefficient in Berkeley.

[14] The sign of SIZE is negative when the dependent variable is PPSF, probably indicating economies of scale in construction and a marginal rental value which decreases with size of the unit.

[15] The STOR variable was significant only in Oakland. Oakland is the only city in the sample having significant numbers of apartment buildings over three stories.

upward price trend over the period studied.[16]

Results for the CITY variable, however, were not entirely as predicted. To see the city (and therefore the rent control) effects, average values for the hedonic variables were multiplied by city-specific hedonic coefficients, summed, and then adjusted by the YEAR coefficients to derive estimated values by city and by year.[17] These results are given in Tables 1 (for Price Per Unit) and 2 (for Price per Square Foot), and are depicted graphically in Figures 1 and 2 (see pages 21 and 22 below).[18]

It is evident that something extraordinary occurred after 1979 in Berkeley. Beginning the study period with the highest price per unit and price per square foot values among Alameda County communities, and maintaining value on a par with other communities during the 1970s, Berkeley values then fell steadily from

---

[16] Except for Berkeley during the rent control era, when there was no strong trend either way.

[17] The regression technique chosen allowed the hedonic coefficients to take city-specific values, but forced these coefficients to remain the same for each city over the study period. By this manipulation any changes in the mix of properties sold (to the extent reflected in the hedonic variables) would be eliminated from the results, while pure time (and pure rent control) effects would remain.

[18] Figures 1 and 2 are the result of several manipulations of the results. First, results for the two datasets were combined by computing weighted average results, where the weights were the number of observations in each sample. Estimated values were then deflated by the Oakland/San Francisco CPI. Three-year moving averages were then computed to smooth the curves. Finally, all values were indexed to 1970 = 100.

TABLE 1 - REGRESSION RESULTS AND ESTIMATED VALUES - PRICE PER UNIT - ALACO

1	2	3	4	5	6	7	8	9	10
			EST	ADJ		REAL	#	MOVING	INDEXED
	COEF	T	VALUE	VALUE	CPI	PPU	CASES	AVG	VALUE
AGE	-74.92	-3.88	20.68						
SIZE	19.86	10.61	809.41						
STOR	66.63	0.12	2.15						
UNITS	-34.75	-2.76	18.19						
70	-2006	-0.70	12031	12031	115.8	10389	9	11113	100.0
71	-472	-0.21	13565	13565	120.1	11294	36	11151	100.3
72	-52	-0.02	13985	13985	124.3	11251	17	11308	101.7
73	945	0.39	14982	14982	131.5	11393	17	10833	97.5
74	406	0.15	14443	14443	144.4	10002	20	10411	93.7
75	2025	0.85	16062	16062	159.1	10095	27	10361	93.2
76	3778	1.69	17815	17815	168.0	10604	59	11174	100.5
77	8058	3.54	22095	22095	180.8	12221	60	11831	106.5
78	11675	5.07	25712	25712	197.8	12999	42	12849	115.6
79	18351	7.06	32388	32388	214.6	15092	14	13713	123.4
80	25154	7.10	39191	39191	247.3	15847	5	15008	135.0
81	25333	7.82	39370	39370	279.0	14111	6	13703	123.3
82	26038	6.83	40075	38068	300.0	12689	13	14641	131.7
83	33249	11.78	47286	46904	302.5	15505	33	14875	133.8
84	37812	15.62	51849	47988	319.8	15006	58	16057	144.5
85	41288	16.31	55325	55513	333.1	16666	130	16516	148.6
86	47181	16.70	61218	60455	343.5	17598	63	17185	154.6
87	52908	18.17	66945	65422	354.7	18442	33	18001	162.0
88	56872	17.55	70909	67734	370.4	18286	38	18359	165.2
R-SQUARED:		0.89		TOTAL OBSERVATIONS:			680		

NOTES:

COEF: The regression coefficient for each explanatory variable.
T: The value of the T-statistic for each variable.
EST VALUE: In the case of the four hedonic variables, the average value. In the case of the years, the calculated value (the sum of the products of each hedonic variable and its average value plus the year coefficient).
ADJ VALUE: Estimated values adjusted by the addition of observations from the DAMAR dataset for the years 1980 - 1988.
CPI: The value of the San Francisco/Oakland SMSA CPI (1967 = 100).
REAL PPU: The inflation-adjusted estimated value.
CASES: The number of observations for each year.
MOVING AVG: A three-year weighted moving average of real, estimated values. (Weights are numbers of observations.)
INDEXED VALUE: Real values indexed to 1970 = 100.

TABLE 1 - REGRESSION RESULTS AND ESTIMATED VALUES - PRICE PER UNIT - BERKELEY

1	2	3	4	5	6	7	8	9	10
			EST	ADJ		REAL	#	MOVING	INDEXED
	COEF	T	VALUE	VALUE	CPI	PPU	CASES	AVG	VALUE
AGE	12.41	0.67	33.99						
SIZE	22.5	10.3	718.59						
STOR	286.28	0.45	2.39						
UNITS	-14.31	-0.31	10.08						
70	-4346	-0.06	12784	12784	115.8	11040	5	11263	100.0
71	-3492	-1.31	13638	13638	120.1	11356	12	10470	93.0
72	-5100	-2.1	12030	12030	124.3	9678	17	10165	90.3
73	-4895	-1.6	12235	12235	131.5	9304	7	9282	82.4
74	-4631	-1.65	12499	12499	144.4	8656	11	9222	81.9
75	-1896	-0.83	15234	15234	159.1	9575	16	9057	80.4
76	-2062	-0.93	15068	15068	168.0	8969	44	9779	86.8
77	1957	0.92	19087	19087	180.8	10557	50	10104	89.7
78	5105	2.36	22235	22235	197.8	11241	24	11011	97.8
79	9337	3.94	26467	26467	214.6	12333	13	11636	103.3
80	12650	2.23	29780		247.3		1	12312	109.3
81	21919	3.83	39049		279.0		1	10227	90.8
82	12992	2.31	30122	28867	300.0	9622	2	11736	104.2
83	22193	7.54	39323	36213	302.5	11971	27	10569	93.8
84	12343	4.14	29473	30187	319.8	9439	31	10666	94.7
85	22896	7.59	40026	35792	333.1	10745	35	9958	88.4
86	17700	6.07	34830	32806	343.5	9550	28	9935	88.2
87	18285	6.69	35415	34070	354.7	9604	53	9540	84.7
88	23223	3.87	40353	35044	370.4	9461	47	9537	84.7
R-SQUARED:		0.76		TOTAL OBSERVATIONS:			424		

NOTES:

COEF: The regression coefficient for each explanatory variable.

T: The value of the T-statistic for each variable.

EST VALUE: In the case of the four hedonic variables, the average value. In the case of the years, the calculated value (the sum of the products of each hedonic variable and its average value plus the year coefficient).

ADJ VALUE: Estimated values adjusted by the addition of observations from the DAMAR dataset for the years 1980 - 1988.

CPI: The value of the San Francisco/Oakland SMSA CPI (1967 = 100).

REAL PPU: The inflation-adjusted estimated value.

CASES: The number of observations for each year.

MOVING AVG: A three-year weighted moving average of real, estimated values. (Weights are numbers of observations.)

INDEXED VALUE: Real values indexed to 1970 = 100.

TABLE 1 - REGRESSION RESULTS AND ESTIMATED VALUES - PRICE PER UNIT - HAYWARD

1	2	3	4	5	6	7	8	9	10
	COEF	T	EST VALUE	ADJ VALUE	CPI	REAL PPU	# CASES	MOVING AVG	INDEXED VALUE
AGE	-162.52	-2.86	17.98						
SIZE	30.74	9.5	722.20						
STOR	290.31	0.26	2.00						
UNITS	-15.7	-0.56	15.19						
70							0	8349	100.0
71	-9594	-2.72	10027	10027	120.1	8349	8	7444	89.2
72	-12166	-3.2	7455	7455	124.3	5997	5	7315	87.6
73	-10738	-2.58	8883	8883	131.5	6755	3	6776	81.2
74	-7934	-1.72	11687	11687	144.4	8093	3	7148	85.6
75	-8489	-2.33	11132	11132	159.1	6997	11	7700	92.2
76	-5684	-1.62	13937	13937	168.0	8296	11	8485	101.6
77	-2891	-0.88	16730	16730	180.8	9253	24	9454	113.2
78	2239	0.64	21860	21860	197.8	11051	11	10123	121.3
79	6684	1.8	26305	26305	214.6	12258	5	11428	136.9
80					247.3		1	12258	146.8
81					279.0		0	10376	124.3
82	7379	1.25	27000	31129	300.0	10376	5	12391	148.4
83	15487	4.22	35108	38807	302.5	12829	23	12555	150.4
84	18755	5.58	38376	40570	319.8	12686	35	13286	159.1
85	27385	6.7	47006	47092	333.1	14137	37	14182	169.9
86	33374	8.9	52995	54906	343.5	15983	30	15242	182.6
87	36428	9.84	56049	55764	354.7	15719	39	15710	188.2
88	31982	7.78	51603	56753	370.4	15322	22	15576	186.6
R-SQUARED:		0.93		TOTAL OBSERVATIONS:			273		

NOTES:

COEF: The regression coefficient for each explanatory variable.
T: The value of the T-statistic for each variable.
EST VALUE: In the case of the four hedonic variables, the average value. In the case of the years, the calculated value (the sum of the products of each hedonic variable and its average value plus the year coefficient).
ADJ VALUE: Estimated values adjusted by the addition of observations from the DAMAR dataset for the years 1980 - 1988.
CPI: The value of the San Francisco/Oakland SMSA CPI (1967 = 100).
REAL PPU: The inflation-adjusted estimated value.
CASES: The number of observations for each year.
MOVING AVG: A three-year weighted moving average of real, estimated values. (Weights are numbers of observations.)
INDEXED VALUE: Real values indexed to 1970 = 100.

TABLE 1 - REGRESSION RESULTS AND ESTIMATED VALUES - PRICE PER UNIT - OAKLAND

1	2	3	4	5	6	7	8	9	10
			EST	ADJ		REAL	#	MOVING	INDEXED
	COEF	T	VALUE	VALUE	CPI	PPU	CASES	AVG	VALUE
AGE	-42.28	-2.67	30.57						
SIZE	20.75	13.00	726.93						
STOR	2322.35	5.26	2.47						
UNITS	-32.68	-1.14	12.69						
70	-9148	-3.47	9965	9965	115.8	8605	9	8815	100.0
71	-8469	-4.61	10644	10644	120.1	8862	40	8880	100.7
72	-7962	-4.33	11151	11151	124.3	8971	35	8848	100.4
73	-7935	-3.4	11178	11178	131.5	8500	14	8405	95.4
74	-8580	-3.91	10533	10533	144.4	7294	19	7690	87.2
75	-7155	-3.5	11958	11958	159.1	7516	22	7365	83.5
76	-6792	-3.99	12321	12321	168.0	7334	64	7851	89.1
77	-4207	-2.66	14906	14906	180.8	8244	103	8499	96.4
78	-227	-0.14	18886	18886	197.8	9548	96	9295	105.4
79	3521	2.14	22634	22634	214.6	10547	67	10196	115.7
80	14082	5.25	33195	33195	247.3	13423	12	11059	125.5
81	13823	5.07	32936	32936	279.0	11805	8	11039	125.2
82	8290	3.04	27403	27328	300.0	9109	18	10336	117.3
83	12644	6.19	31757	31653	302.5	10464	81	10046	114.0
84	13261	6.47	32374	31610	319.8	9884	105	10853	123.1
85	22114	10.91	41227	39616	333.1	11893	128	11377	129.1
86	25176	13.97	44289	40951	343.5	11921	167	11905	135.0
87	26179	13.7	45292	42204	354.7	11897	153	12199	138.4
88	29210	13.03	48323	48195	370.4	13011	114	12373	140.4
R-SQUARED:		0.79		TOTAL OBSERVATIONS:			1255		

NOTES:

COEF: The regression coefficient for each explanatory variable.
T: The value of the T-statistic for each variable.
EST VALUE: In the case of the four hedonic variables, the average value. In the case of the years, the calculated value (the sum of the products of each hedonic variable and its average value plus the year coefficient).
ADJ VALUE: Estimated values adjusted by the addition of observations from the DAMAR dataset for the years 1980 - 1988.
CPI: The value of the San Francisco/Oakland SMSA CPI (1967 = 100).
REAL PPU: The inflation-adjusted estimated value.
CASES: The number of observations for each year.
MOVING AVG: A three-year weighted moving average of real, estimated values. (Weights are numbers of observations.)
INDEXED VALUE: Real values indexed to 1970 = 100.

TABLE 2 - REGRESSION RESULTS AND ESTIMATED VALUES - PRICE PER SQ FT - ALACO

1	2	3	4	5	6	7	8	9	10
	COEF	T	EST VALUE	ADJ VALUE	CPI	REAL PPSF	# CASES	MOVING AVG	INDEXED VALUE
AGE	-0.085	-3.46	20.68						
SIZE	-0.019	-8.08	809.41						
STOR	0.87	1.19	2.15						
UNITS	-0.045	-2.7	18.19						
70	30.71	8.45	14.63	14.63	115.8	12.63	9	13.61	100.0
71	32.73	11.37	16.65	16.65	120.1	13.86	36	13.66	100.4
72	33.23	10.70	17.15	17.15	124.3	13.79	17	13.88	101.9
73	34.49	11.21	18.41	18.41	131.5	14.00	17	13.68	100.5
74	35.33	10.81	19.25	19.25	144.4	13.33	20	13.37	98.2
75	36.79	12.21	20.71	20.71	159.1	13.01	27	13.40	98.4
76	38.93	13.66	22.85	22.85	168.0	13.60	59	14.29	105.0
77	44.18	15.23	28.10	28.10	180.8	15.54	60	15.04	110.5
78	48.41	16.48	32.33	32.33	197.8	16.34	42	16.41	120.5
79	59.68	18.01	43.60	43.60	214.6	20.31	14	17.49	128.5
80	63.74	14.10	47.66	47.66	247.3	19.27	5	19.76	145.1
81	68.73	16.64	52.65	52.65	279.0	18.87	6	17.07	125.4
82	65.60	13.51	49.52	46.16	300.0	15.39	13	18.57	136.4
83	74.53	20.70	58.45	59.79	302.5	19.77	33	19.51	143.3
84	82.46	26.70	66.38	64.91	319.8	20.30	58	22.37	164.3
85	85.96	26.62	69.88	79.78	333.1	23.95	130	23.33	171.4
86	98.45	27.31	82.37	85.47	343.5	24.88	61	24.35	178.9
87	100.34	27.02	84.26	88.49	354.7	24.95	33	24.85	182.5
88	109.07	26.39	92.99	91.57	370.4	24.72	38	24.83	182.4
R-SQUARED:		0.89		TOTAL OBSERVATIONS:			678		

NOTES:

COEF: The regression coefficient for each explanatory variable.

T: The value of the T-statistic for each variable.

EST VALUE: In the case of the four hedonic variables, the average value. In the case of the years, the calculated value (the sum of the products of each hedonic variable and its average value plus the year coefficient).

ADJ VALUE: Estimated values adjusted by the addition of observations from the DAMAR dataset for the years 1980 - 1988.

CPI: The value of the San Francisco/Oakland SMSA CPI (1967 = 100).

REAL PPSF: The inflation-adjusted estimated value.

CASES: The number of observations for each year.

MOVING AVG: A three-year weighted moving average of real, estimated values. (Weights are numbers of observations.)

INDEXED VALUE: Real values indexed to 1970 = 100.

TABLE 2 - REGRESSION RESULTS AND ESTIMATED VALUES - PRICE PER SQ FT - BERKELEY

1	2	3	4	5	6	7	8	9	10
	COEF	T	EST VALUE	ADJ VALUE	CPI	REAL PPSF	# CASES	MOVING AVG	INDEXED VALUE
AGE	0.0126	0.52	33.99						
SIZE	-0.01	-3.41	718.59						
STOR	1.145	1.36	2.39						
UNITS	-0.03	-0.48	10.08						
70	20.44	4.15	16.12	16.12	115.8	13.92	5	14.82	100.0
71	22.58	6.43	18.26	18.26	120.1	15.20	12	13.94	94.0
72	20.55	6.40	16.23	16.23	124.3	13.05	17	13.93	94.0
73	22.58	5.55	18.26	18.26	131.5	13.88	7	13.23	89.2
74	23.20	6.27	18.88	18.88	144.4	13.07	11	13.22	89.2
75	25.06	8.32	20.74	20.74	159.1	13.03	16	12.93	87.2
76	25.93	8.81	21.61	21.61	168.0	12.86	44	13.77	92.9
77	31.08	11.07	26.76	26.76	180.8	14.80	50	14.39	97.1
78	36.65	12.84	32.33	32.33	197.8	16.34	24	15.75	106.3
79	43.63	13.92	39.31	39.31	214.6	18.32	13	17.05	115.0
80	47.62	6.35	43.30		247.3		1	18.76	126.6
81	68.73	9.43	52.65		279.0		1	17.94	121.0
82	52.38	7.06	48.06	42.68	300.0	14.23	2	17.50	118.1
83	61.43	15.80	57.11	52.74	302.5	17.44	27	15.39	103.8
84	44.68	11.35	40.36	43.74	319.8	13.68	31	15.32	103.3
85	58.48	14.67	54.16	50.43	333.1	15.14	35	14.28	96.3
86	51.97	13.48	47.65	47.65	343.5	13.87	28	14.22	96.0
87	52.80	14.62	48.48	48.98	354.7	13.81	53	13.70	92.4
88	56.66	7.14	52.34	49.94	370.4	13.48	47	13.66	92.1
R-SQUARED:		0.75		TOTAL OBSERVATIONS:			424		

NOTES:

COEF: The regression coefficient for each explanatory variable.

T: The value of the T-statistic for each variable.

EST VALUE: In the case of the four hedonic variables, the average value. In the case of the years, the calculated value (the sum of the products of each hedonic variable and its average value plus the year coefficient).

ADJ VALUE: Estimated values adjusted by the addition of observations from the DAMAR dataset for the years 1980 - 1988.

CPI: The value of the San Francisco/Oakland SMSA CPI (1967 = 100).

REAL PPSF: The inflation-adjusted estimated value.

CASES: The number of observations for each year.

MOVING AVG: A three-year weighted moving average of real, estimated values. (Weights are numbers of observations.)

INDEXED VALUE: Real values indexed to 1970 = 100.

TABLE 2 - REGRESSION RESULTS AND ESTIMATED VALUES - PRICE PER SQ FT - HAYWARD

1	2	3	4	5	6	7	8	9	10
	COEF	T	EST VALUE	ADJ VALUE	CPI	REAL PPSF	# CASES	MOVING AVG	INDEXED VALUE
AGE	0.136	1.49	17.98						
SIZE	-0.001	-0.22	722.21						
STOR	1.7	0.96	2						
UNITS	-0.0001	0	15.19						
70					115.8		0	14.46	100.0
71	12.25	2.15	17.37	17.37	120.1	14.46	8	13.65	94.3
72	10.21	1.66	15.33	15.33	124.3	12.33	5	13.49	93.3
73	11.72	1.74	16.84	16.84	131.5	12.81	3	12.72	87.9
74	14.04	1.88	19.16	19.16	144.4	13.27	3	11.76	81.3
75	12.48	2.12	17.60	17.60	159.1	11.06	11	12.01	83.1
76	16.08	2.83	21.20	21.20	168.0	12.62	11	12.95	89.5
77	20.12	3.80	25.24	25.24	180.8	13.96	24	14.17	98.0
78	26.86	4.78	31.98	31.98	197.8	16.17	11	14.91	103.1
79	30.68	5.10	35.80	35.80	214.6	16.68	5	16.33	112.9
80					247.3		1	16.68	115.3
81					279.0		0	16.55	114.4
82	30.80	3.25	35.92	40.83	300.0	13.61	5	16.32	112.8
83	40.70	6.87	45.82	51.15	302.5	16.91	23	16.72	115.6
84	49.91	9.19	55.03	54.47	319.8	17.03	35	17.61	121.7
85	54.27	8.22	59.39	61.91	333.1	18.58	37	18.77	129.7
86	62.56	10.32	67.68	72.18	343.5	21.01	30	20.09	138.9
87	67.88	11.35	73.00	73.81	354.7	20.81	39	20.65	142.8
88	61.64	9.28	66.76	73.64	370.4	19.88	22	20.47	141.5
R-SQUARED:		0.88		TOTAL OBSERVATIONS:			273		

NOTES:

COEF: The regression coefficient for each explanatory variable.

T: The value of the T-statistic for each variable.

EST VALUE: In the case of the four hedonic variables, the average value. In the case of the years, the calculated value (the sum of the products of each hedonic variable and its average value plus the year coefficient).

ADJ VALUE: Estimated values adjusted by the addition of observations from the DAMAR dataset for the years 1980 - 1988.

CPI: The value of the San Francisco/Oakland SMSA CPI (1967 = 100).

REAL PPSF: The inflation-adjusted estimated value.

CASES: The number of observations for each year.

MOVING AVG: A three-year weighted moving average of real, estimated values. (Weights are numbers of observations.)

INDEXED VALUE: Real values indexed to 1970 = 100.

TABLE 2 - REGRESSION RESULTS AND ESTIMATED VALUES - PRICE PER SQ FT - OAKLAND

1	2	3	4	5	6	7	8	9	10
	COEF	T	EST VALUE	ADJ VALUE	CPI	REAL PPSF	# CASES	MOVING AVG	INDEXED VALUE
AGE	-0.063	-2.87	30.57						
SIZE	-0.017	-7.84	726.93						
STOR	3.52	5.76	2.47						
UNITS	-0.035	-0.87	12.69						
70	20.35	5.57	14.32	14.32	115.8	12.36	9	12.83	100.0
71	21.57	8.49	15.54	15.54	120.1	12.94	40	13.08	101.9
72	22.72	8.92	16.69	16.69	124.3	13.42	35	13.20	102.9
73	23.62	7.32	17.59	17.59	131.5	13.37	14	13.08	101.9
74	23.68	7.79	17.65	17.65	144.4	12.22	19	12.28	95.7
75	24.54	8.68	18.51	18.51	159.1	11.63	22	11.34	88.4
76	24.47	10.39	18.44	18.44	168.0	10.97	64	11.28	87.9
77	26.63	12.15	20.60	20.60	180.8	11.39	103	11.99	93.4
78	32.35	14.55	26.32	26.32	197.8	13.30	96	12.94	100.9
79	37.80	16.59	31.77	31.77	214.6	14.80	67	14.22	110.8
80	51.13	13.77	45.10	45.10	247.3	18.24	12	15.46	120.5
81	52.81	13.99	46.78	46.78	279.0	16.77	8	15.34	119.6
82	45.51	12.06	39.48	38.34	300.0	12.78	18	14.45	112.6
83	50.74	17.95	44.71	44.15	302.5	14.59	81	14.05	109.5
84	51.35	18.10	45.32	44.26	319.8	13.84	105	15.31	119.4
85	63.72	22.70	57.69	56.56	333.1	16.98	128	16.35	127.4
86	70.41	28.23	64.38	59.91	343.5	17.44	167	17.10	133.3
87	69.57	26.30	63.54	59.70	354.7	16.83	153	17.34	135.1
88	73.95	23.83	67.92	66.16	370.4	17.86	114	17.27	134.6
R-SQUARED:		0.79		TOTAL OBSERVATIONS:			1255		

NOTES:

COEF: The regression coefficient for each explanatory variable.

T: The value of the T-statistic for each variable.

EST VALUE: In the case of the four hedonic variables, the average value. In the case of the years, the calculated value (the sum of the products of each hedonic variable and its average value plus the year coefficient).

ADJ VALUE: Estimated values adjusted by the addition of observations from the DAMAR dataset for the years 1980 - 1988.

CPI: The value of the San Francisco/Oakland SMSA CPI (1967 = 100).

REAL PPSF: The inflation-adjusted estimated value.

CASES: The number of observations for each year.

MOVING AVG: A three-year weighted moving average of real, estimated values. (Weights are numbers of observations.)

INDEXED VALUE: Real values indexed to 1970 = 100.

Figure 1

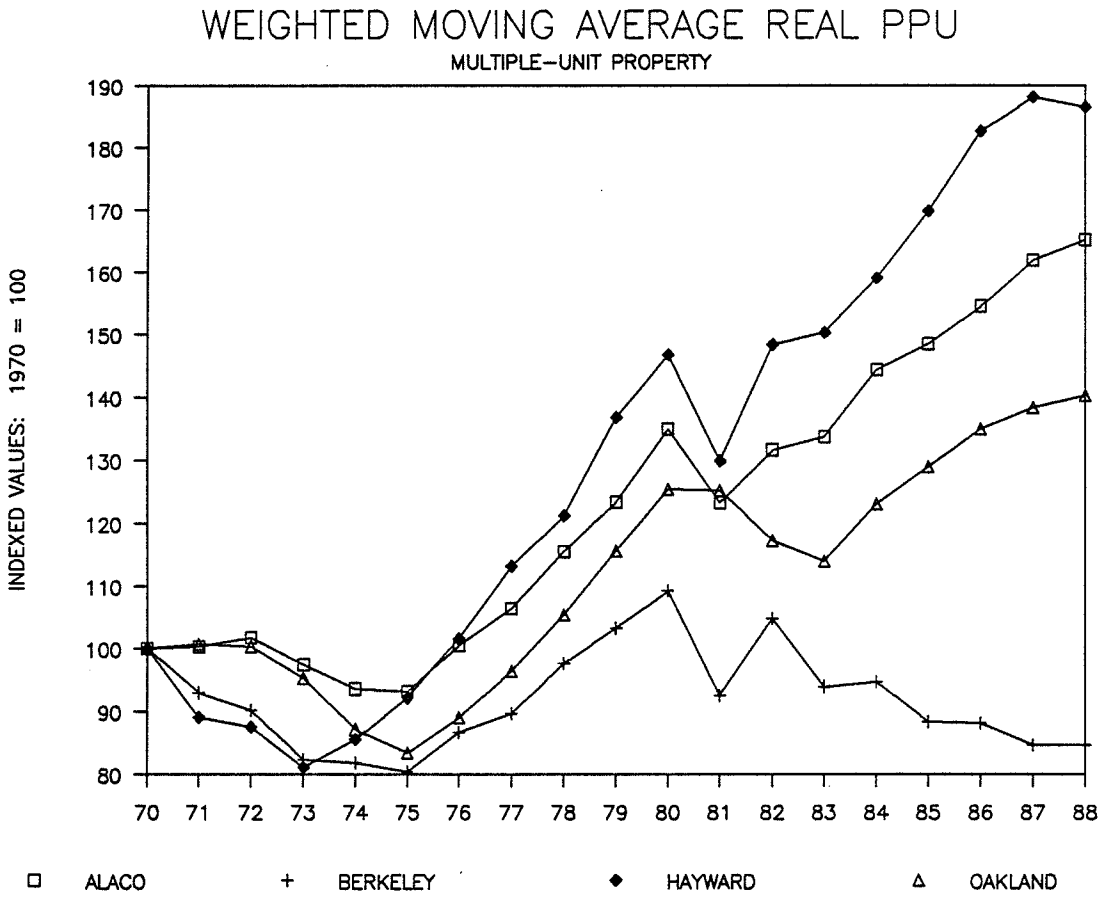
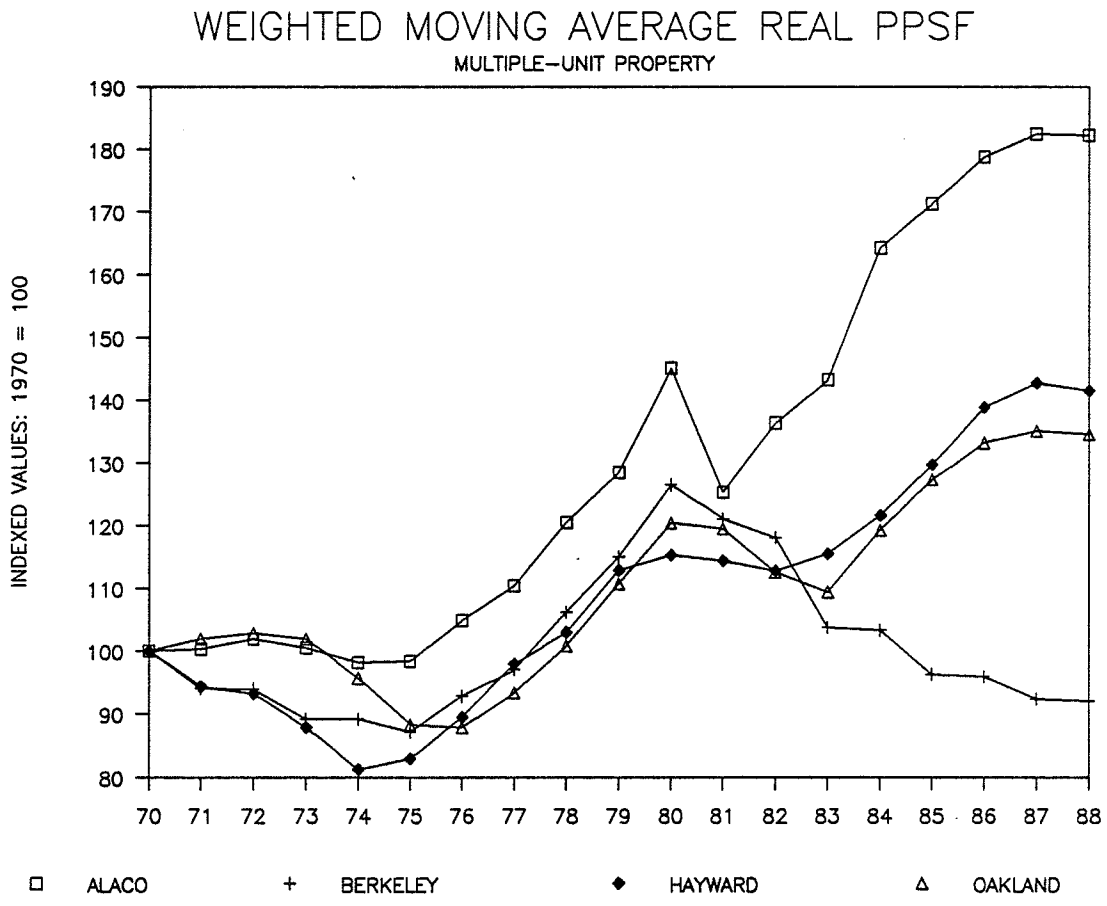

WEIGHTED MOVING AVERAGE REAL PPU
MULTIPLE-UNIT PROPERTY
INDEXED VALUES: 1970 = 100
190
180
170
160
150
140
130
120
110
100
90
80
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
ALACO
BERKELEY
HAYWARD
OAKLAND

Figure 2


WEIGHTED MOVING AVERAGE REAL PPSF
MULTIPLE-UNIT PROPERTY
INDEXED VALUES: 1970 = 100
190
180
170
160
150
140
130
120
110
100
90
80
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
ALACO
BERKELEY
HAYWARD
OAKLAND

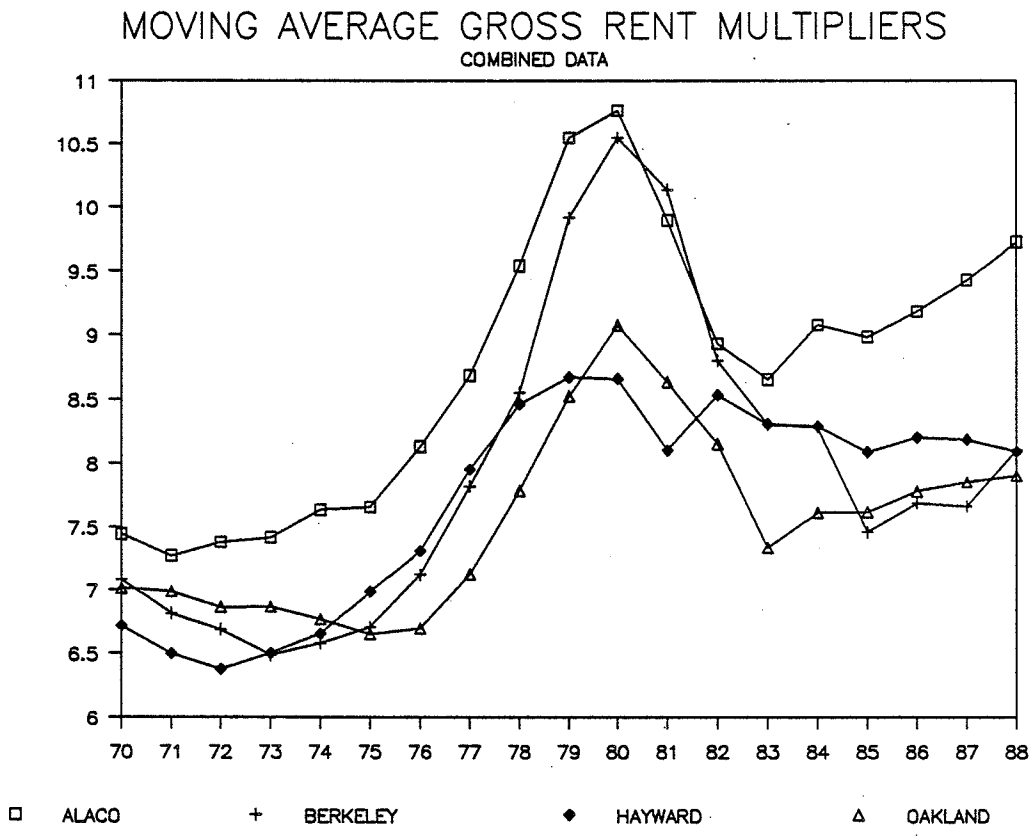
1980 to 1988, becoming by the end of the study period the lowest among Alameda County communities. The net outcome from two decades of price changes in Berkeley was a loss in real value. Properties located in other Alameda County communities (Hayward, Oakland, and Alaco), on the other hand, appear to have retained their relative positions over the period studied, and real values in these other communities have increased significantly (by 34 to 92 percent), even after the imposition of rent control programs in Hayward and Oakland. It is not immediately clear whether or not there was a demonstrable effect on value in the case of Hayward (moderate rent control) or Oakland (soft rent control) over the study period.

The results for the gross rent multiplier (GRM) estimations are shown in Figure 3.[19] It is striking that Gross Rent Multipliers vary over time in similar ways among all communities. The impression emerges that there are external (macroeconomic) effects controlling GRM, and that local regulatory policies have no effect beyond their effect on rents. The peak in 1979-1981 reflects i) an inflationary bubble which ended with the collapse of the capital market at the end of the decade, and ii) the effects of "creative financing" which caused prices to be high relative to rents because many sellers during those years agreed to concessionary interest rates on seller financing, but demanded

---

[19] Computations underlying Figure 3 can be found in St. John (1989).

Figure 3


MOVING AVERAGE GROSS RENT MULTIPLIERS
COMBINED DATA
11
10.5
10
9.5
9
8.5
8
7.5
7
6.5
6
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
ALACO
BERKELEY
HAYWARD
OAKLAND

compensating price increases.[20] It is not clear that there is any important difference between the 1970's (no rent control) and the 1980's (rent control); somewhat lower GRMs prevailed in Berkeley, Hayward, and Oakland than in Alaco during both decades. There are also no observable differences in GRMs among the rent controlled jurisdictions, suggesting that the relative restrictiveness of rent control programs has no effect on GRMs.

The results for the control sets demonstrate that the decline in value of Berkeley multiple unit properties does not carry over to single family homes or four-unit properties. Results for single family homes are shown in Figure 4.[21] Berkeley homes have experienced relatively more price appreciation over the study period than homes elsewhere in Alameda County.

Results for four-unit properties are shown in Figures 5 and 6. Values of four-unit properties in Berkeley declined sharply in the period immediately following the imposition of rent control, but values of these properties have been recovering during the last few years. Sales of duplexes, triplexes, and 4-unit properties to owner-occupants began in Berkeley in the early 1980s and

---

[20] Rosen (1982).

[21] Computations underlying Figures 4, 5, and 6 can be found in St. John (1989).

Figure 4

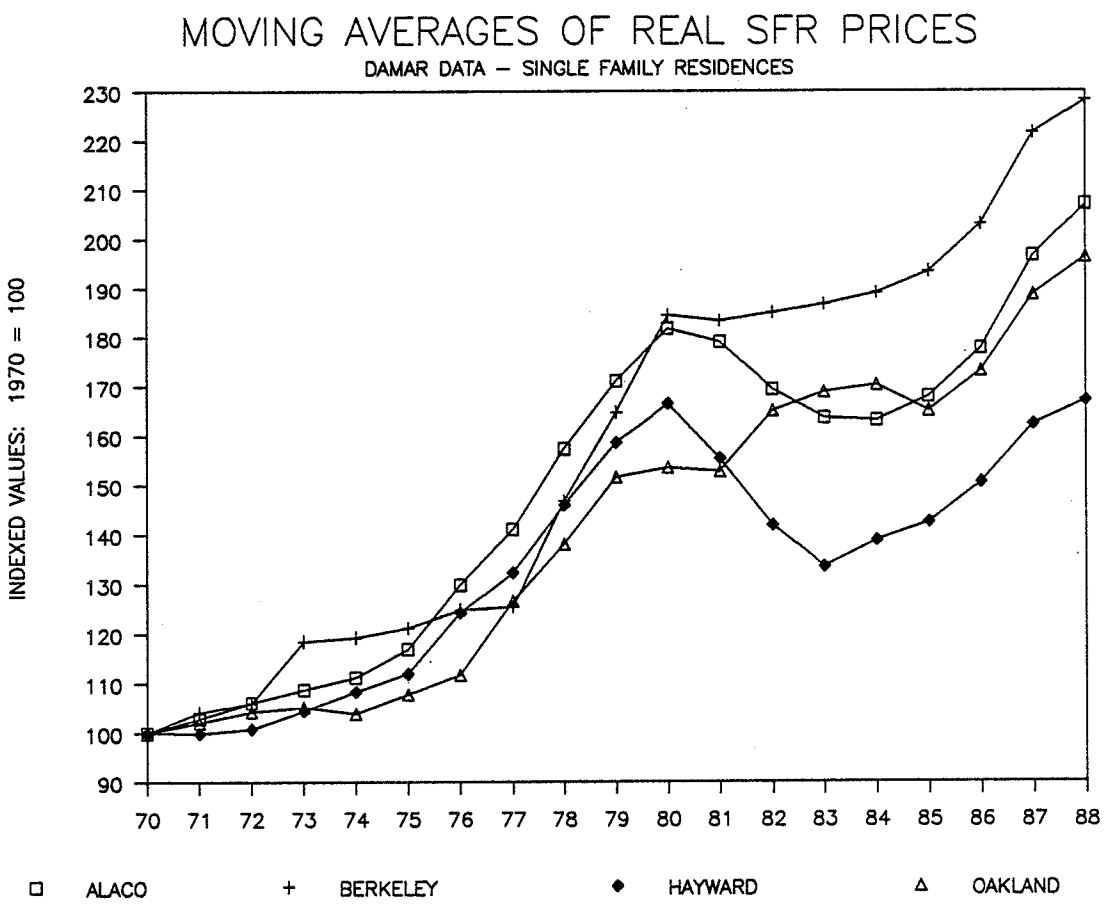

MOVING AVERAGES OF REAL SFR PRICES
DAMAR DATA – SINGLE FAMILY RESIDENCES
INDEXED VALUES: 1970 = 100
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
ALACO
BERKELEY
HAYWARD
OAKLAND

Figure 5

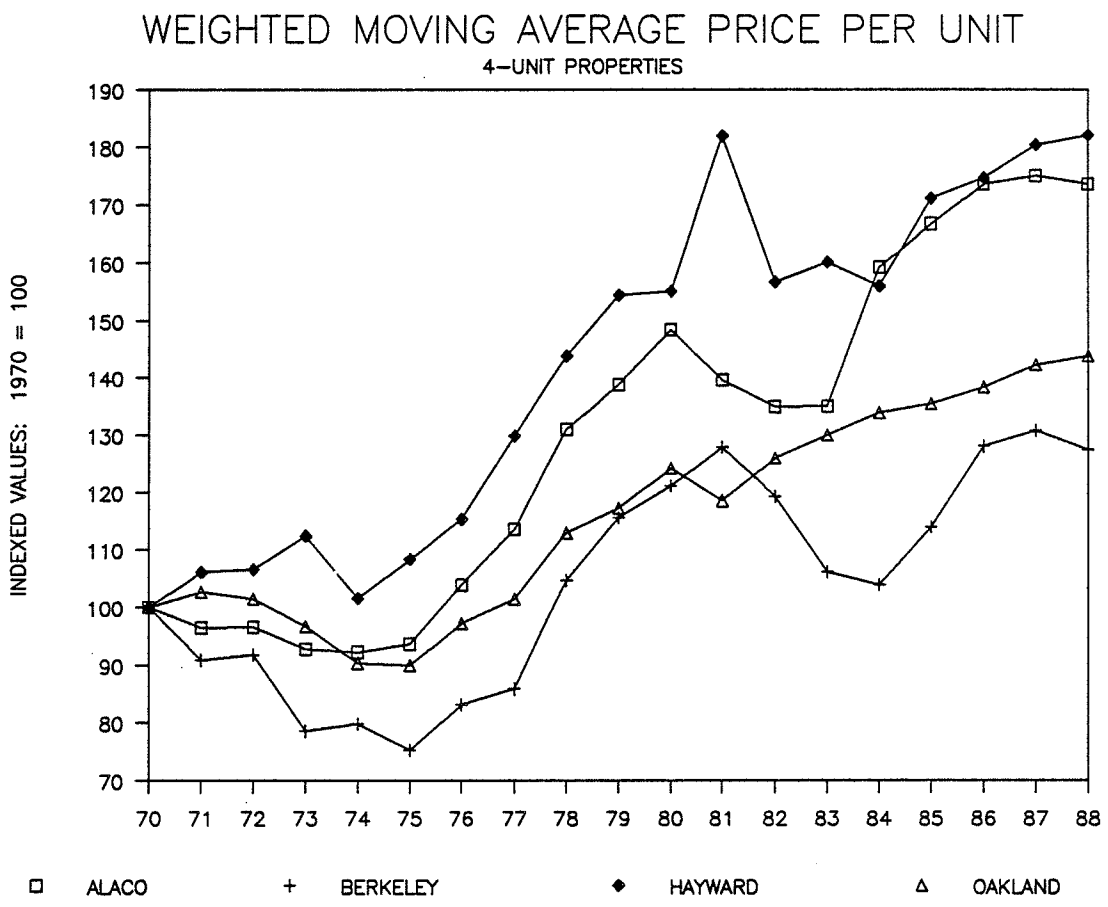
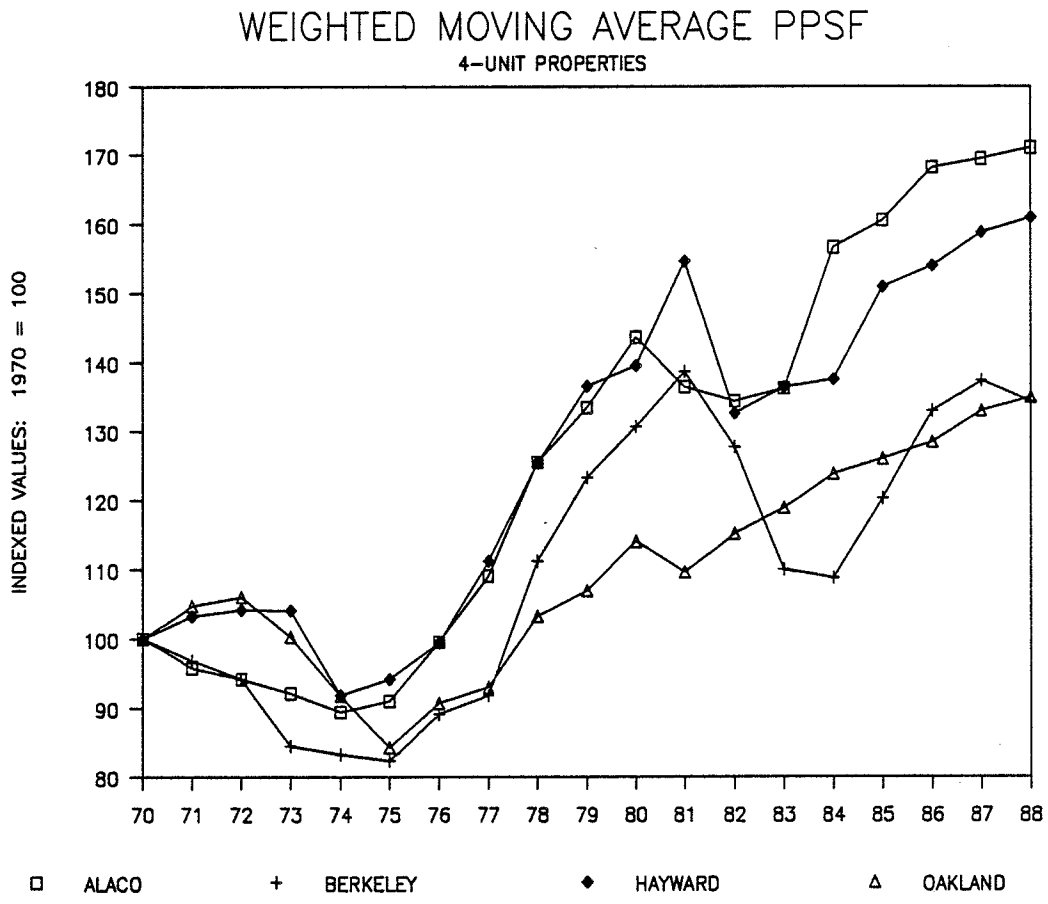

WEIGHTED MOVING AVERAGE PRICE PER UNIT
4-UNIT PROPERTIES
INDEXED VALUES: 1970 = 100
190
180
170
160
150
140
130
120
110
100
90
80
70
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
ALACO
BERKELEY
HAYWARD
OAKLAND

Figure 6


WEIGHTED MOVING AVERAGE PPSF
4-UNIT PROPERTIES
INDEXED VALUES: 1970 = 100
180
170
160
150
140
130
120
110
100
90
80
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
ALACO
BERKELEY
HAYWARD
OAKLAND

became a major trend in the late 1980s.[22] It would appear that the effects of Berkeley's rent control program are reflected in the values of four-unit properties, but that the effects are now being diminished by the development of an owner-occupant market for these properties.

Significance tests were performed to confirm the apparent results. For this purpose, CMDC data for Alaco (non-controlled areas of Alameda County) and Berkeley were combined and values were estimated in two separate regressions. In one, the constrained model, the independent variables were the hedonic variables, dummy variables for the years, and a city dummy for Berkeley. In the other, the unconstrained model, Berkeley-Year variables were added to identify city-year effects different from any consistent city effect which doesn't change over time.[23] The following test was then constructed:

---

[22] The trend become so prominent in the late 1980's that the Planning Commission, concerned about the loss of rental units, appointed a "Subcommittee on Tenants-in-Common Sales" which in early 1990 began considering methods by which these sales could be regulated or prohibited.

[23] In the constrained model, the hedonic coefficients were forced to take a single value for each city over the entire study period, rent control and pre-rent control portions alike. In the unconstrained model, the hedonic coefficients could vary by year for each city. The significance test used therefore tested the proposition that there was no more variance (the sum of squared residuals was no greater) when year effects (rent control effects) were considered than when year effects (rent control effects) were suppressed.

$$F = \frac{(SSR_c - SSR_u) / (d.f._c - d.f._u)}{SSR_u / d.f._u}$$

where F is the F-statistic

SSR_c = Sum of Squared Residuals for the Constrained Model
SSR_u = Sum of Squared Residuals for the Unconstrained Model
d.f. = degrees of freedom.

The result for the Berkeley-Alaco regressions with PPU as the dependent variable is an F-statistic of 16.6, which clearly rejects the null hypothesis that there are no significant differences between property values in Berkeley and Alaco over time. The results of significance tests of all city and dependent variable combinations are shown in Table 3. The differences between property values in Berkeley and uncontrolled portions of Alameda County are clearly significant. Differences in value between Hayward or Oakland and Alaco are barely significant. There are no significant differences for any city in the case of gross rent multipliers.

To get a clearer picture of the entire situation, the results were sorted in another way. Values for each category of housing (apartments, 4-plexes, and homes) were indexed (1970 = 100 for each category) for each city so that relative changes in value could be identified within municipalities. See Figures 7

Table 3

F - TEST RESULTS

	PPU	PPSF	GRM
BERKELEY - ALACO	16.05	15.05	0.85
HAYWARD - ALACO	3.21	3.04	0.83
OAKLAND - ALACO	4.70	3.83	1.52

(Alaco), 8 (Hayward), 9 (Oakland), and 10 (Berkeley).

In non-controlled Alameda County, homes, 4-plexes, and apartments varied over time roughly in parallel, with home values outstripping the values of 4-plexes and apartment properties during times of high real estate inflation. In Hayward, apartments and 4-unit properties gained value relative to homes, but overall the three categories rose in parallel ways. In Oakland, apartments and 4-unit properties lost value relative to homes, but overall the three categories rose in similar ways over the two decades. In Berkeley, however, the indexed values show major differences. Homes show strong value gains over the study period, while apartments show a net loss, and four-unit properties show much more modest gains. Berkeley homes gained 130% in value from 1970 to 1988, while Berkeley apartments lost 15% in value over the same period. Four-unit properties gained 25% in value. In Berkeley, the values of apartment properties are clearly distinguished from the values of other residential properties.

Figure 7

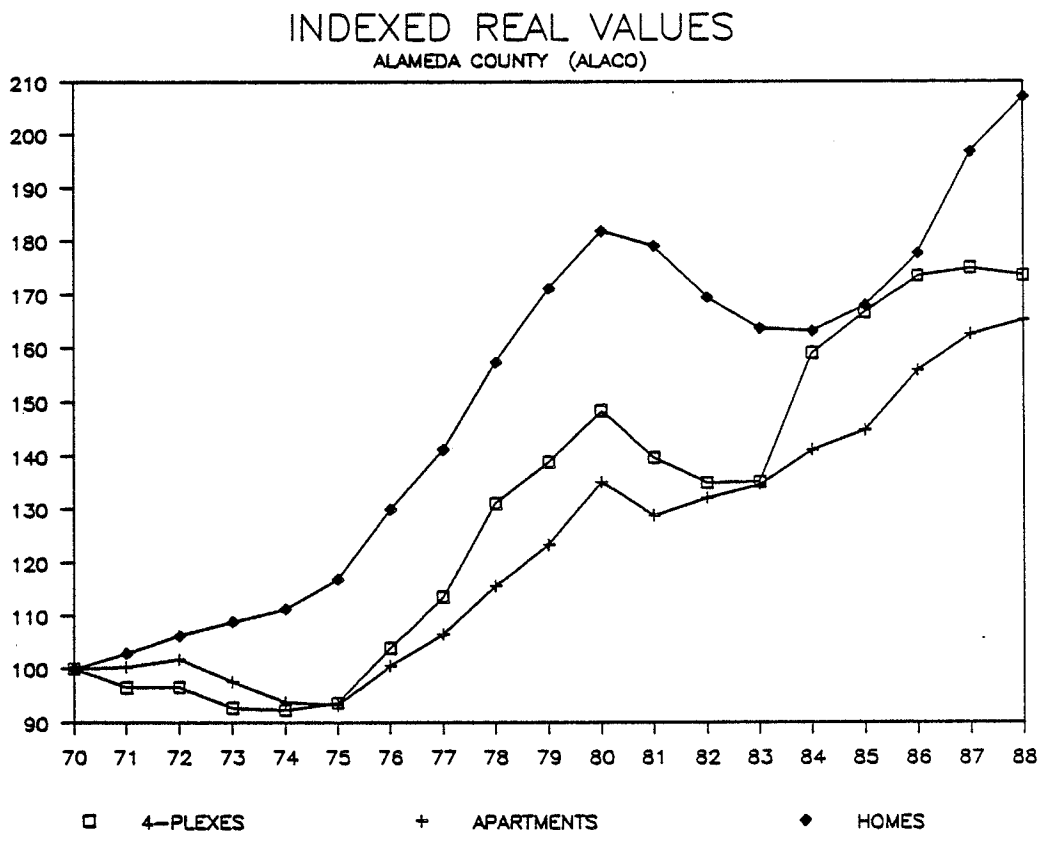

INDEXED REAL VALUES
ALAMEDA COUNTY (ALACO)
210
200
190
180
170
160
150
140
130
120
110
100
90
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
4—PLEXES
APARTMENTS
HOMES

Figure 8

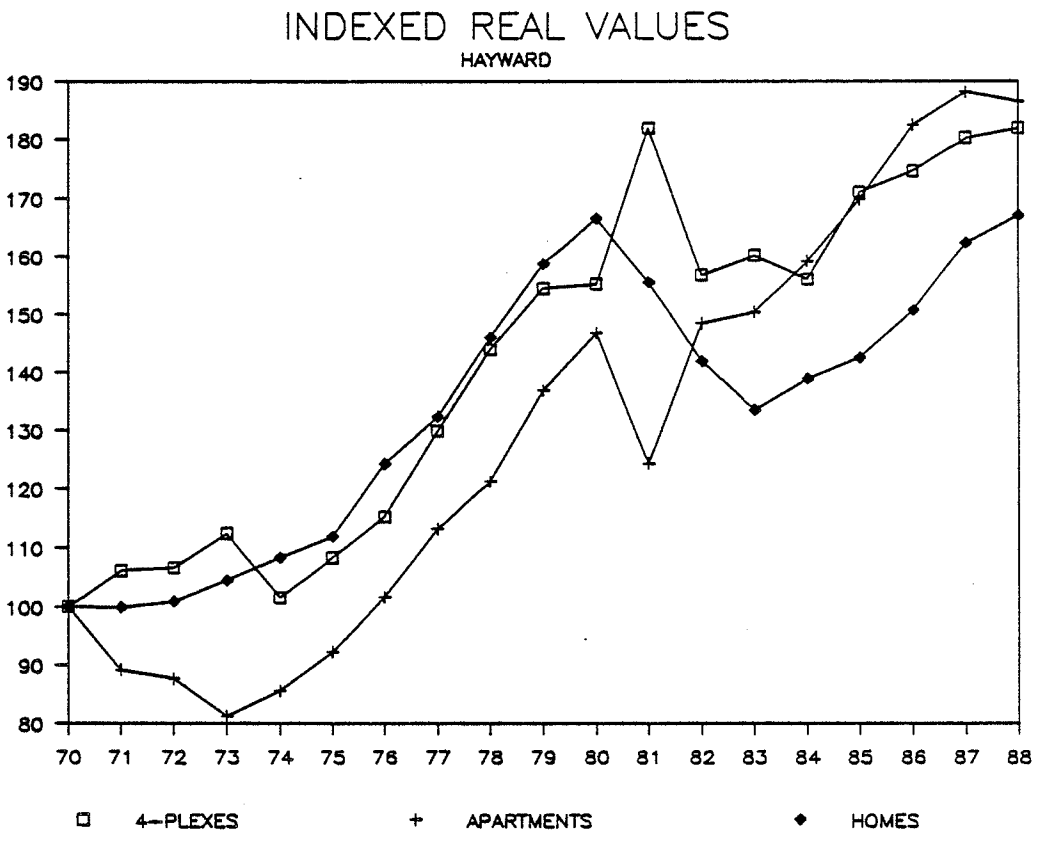

INDEXED REAL VALUES
HAYWARD
190
180
170
160
150
140
130
120
110
100
90
80
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
4-PLEXES
APARTMENTS
HOMES

Figure 9

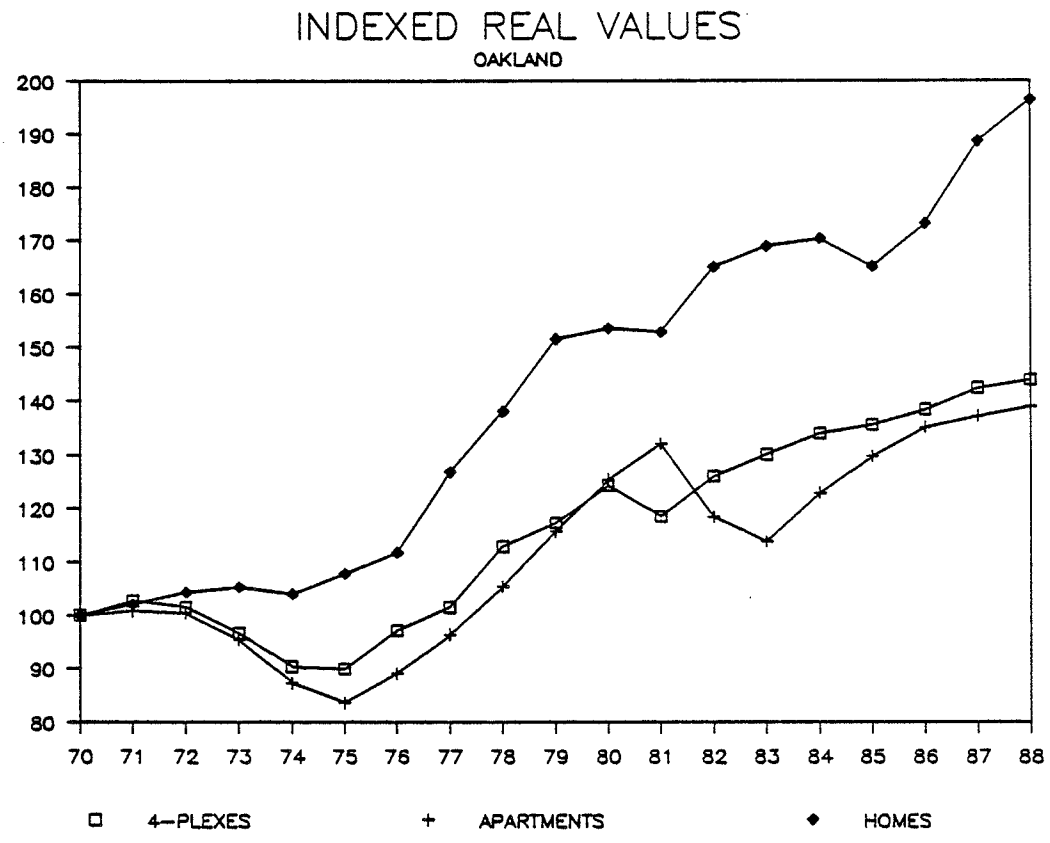
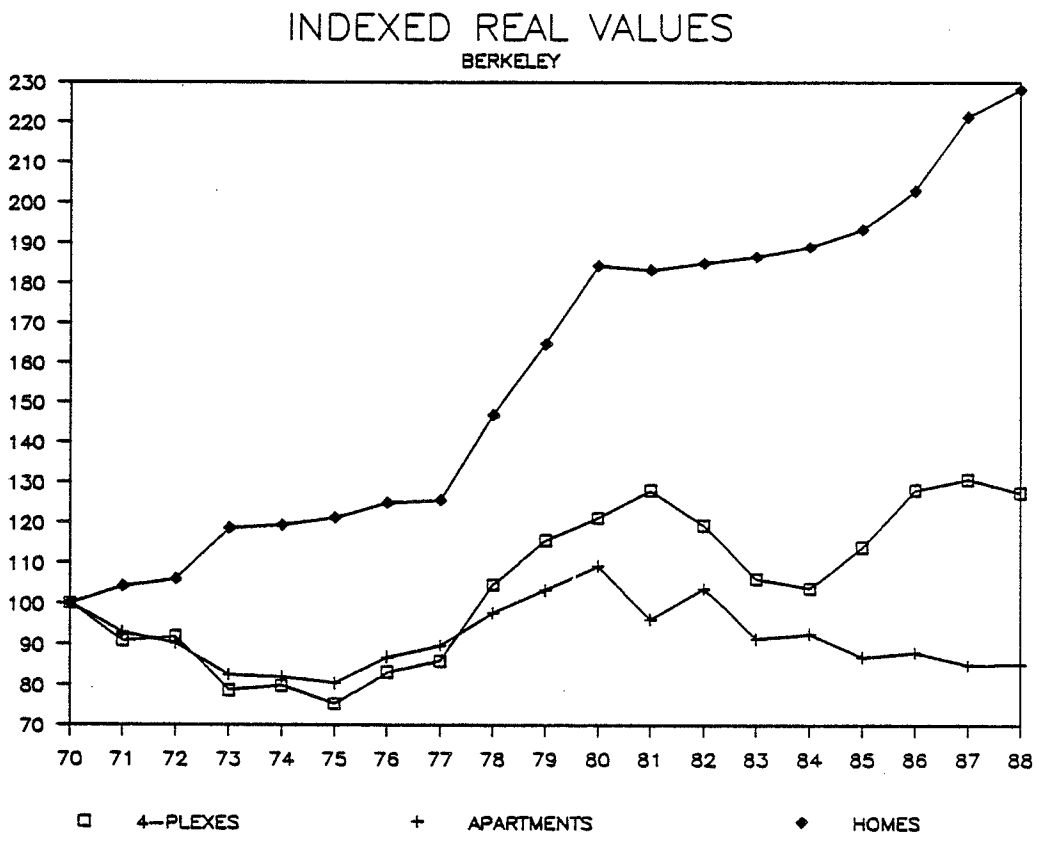

INDEXED REAL VALUES
OAKLAND
200
190
180
170
160
150
140
130
120
110
100
90
80
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
4—PLEXES
APARTMENTS
HOMES

Figure 10


INDEXED REAL VALUES
BERKELEY
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
4-PLEXES
APARTMENTS
HOMES

IV. CONCLUSIONS. The results reported above lead to the conclusion that restrictive rent controls of the type found in Berkeley will cause major decreases in the real value of residential income property. Real values of Berkeley income property have been declining ever since 1980 when rent control became permanent and restrictive, although real values of single family homes and four-plex properties in Berkeley and of multiple units properties, four-plex properties and single family homes elsewhere in Alameda County have been rising.[24] That the decrease in real value of multiple-unit properties in Berkeley is a result of rent control (as opposed to some other factor(s) unique to Berkeley) is established by the control set evidence.

There is no strong evidence, on the other hand, that moderate or soft rent control programs have significant effects on property value. In Hayward, the values of apartments rose and fell along with the values of four unit properties and single family homes. Overall, Hayward apartments gained relative (PPU) value from 1970 to 1988. The ratio of Oakland apartment values to Oakland single family home values fell by 1988 to .71, but the ratio had fallen to .79 before rent control began, in 1979. These changes are not

---

[24] Values in all of these locations and categories (including Berkeley multiple-unit apartment properties) decreased following the capital market collapse in 1980. In all locations and categories except Berkeley apartments, values recovered during the later half of the 1980s. Berkeley apartments shared and then extended the decline.

much different from the changes in uncontrolled portions of the county, where the ratio of average apartment value to the average value of homes fell to .67 in 1979 and then rose to .79 in 1988. From data available in this study it is not possible to establish that moderate or soft rent control has affected the value of apartment properties in Hayward or Oakland.

In contrast, the diminution in value resulting from Berkeley's restrictive rent control program (see Figures 1, 2, and 10) is major and demonstrable. The ratio of Berkeley PPU values to Alameda County PPU values was 1.01 in 1970. For the 1970s, the average ratio was 0.89. The ratio fell by 1988 to 0.52.[25] Whether measured by price per unit or by price per square foot, real (inflation-adjusted) values of Berkeley apartments are now lower than they were in 1970, whereas real values of apartments in the surrounding, non-controlled cities of Alameda County are now nearly double their 1970 values. Assuming that Berkeley income property absent rent control would have increased in value along with non-controlled portions of Alameda County, it can be said that values have been diminished by rent control on average by $32,690 per unit. There being 18,500 affected rental units in Berkeley, rent control had by 1988 diminished aggregate values

[25] The Berkeley/Alaco ratio for PPSF (see Figure 2) fell from an average during the 1970s of 0.99 to 0.55 in 1988.

citywide by $604,765,000.[26] The evidence suggests that the reduction in value is becoming more severe each year.[27]

It can therefore be concluded that a major distinction must be made among rent control programs. Restrictive programs diminish value, while moderate and soft programs do not. Of the 14 residential rent control programs in California, only five appear to have the potential to decrease property values significantly.[28] Other programs may have other effects, but results of this study suggest that moderate and soft rent control programs will not significantly affect the value of residential income property.

---

[26] There were at the time of the 1980 census 28,569 rental units in Berkeley. But there are several categories which should not be counted in this calculation: units under the HUD Section 8 program (the value of which would depend on HUD rents, not rent controlled rents), rented single family homes (the value of which is determined by the market for single family homes), rented units in owner-occupied duplex properties (which are exempt from the law), and increasing numbers of owner-occupied units in buildings containing three or more units. The 1988 figure is estimated by Sukoff (1988) at 18,500.

[27] It is estimated in Sukoff (1988) that property, transfer, and business license taxes in Berkeley have been diminished by rent control by nearly $4,000,000 per year, that this figure will grow to $10,600,000 by the year 2000, and that the total loss to the public treasury by that date will exceed $100 million.

[28] Restrictive programs are in effect in Berkeley, Cotati, East Palo Alto, Santa Monica, and West Hollywood. Moderate programs are in effect in Beverly Hills, Palm Springs, Hayward, Thousand Oaks, and San Francisco. Soft programs are in effect in Los Angeles, Oakland, San Jose, and Los Gatos.

The results for Gross Rent Multipliers are striking. As economic theory would predict, it is demonstrated that investors value apartments by their income-producing potential, whether or not the units are rent controlled. That is to say, investors in rental housing are rational. They are not chilled in their investment decisions by rent control beyond the direct effect of rent control on income, nor do they overlook the effect on income, expecting the regulation to disappear overnight.

V. PUBLIC POLICY IMPLICATIONS. The results reported above have important implications for jurisdictions considering the establishment or amendment of rent control programs. First, it is demonstrated that moderate and soft rent control programs have minor effects on the value of property, just as moderate and soft programs have no major long run effect on the average rents which may be charged.[29] This result suggests that the negative side effects associated historically with restrictive rent control will not occur indiscriminately wherever rent control is enacted. The development of negative side effects probably depends on the form of rent control adopted.

---

[29] Sukoff (1988) demonstrated theoretically that moderate programs would diminish average rents by no more than 2%. Studies of the effect of rent control in Los Angeles (Rent Stabilization Division, 1988) show that rents are barely lower, on average, than they would have been had there been no rent control.

Second, it is demonstrated that rent controls as restrictive as the controls in place in Berkeley will have major effects on property value, diminishing values to 50% of non-controlled values in surrounding communities within a decade. Since the erosion of rents and value is continuing, it can also be expected that the negative effects of restrictive programs on the value of income property will become more severe over time.

The diminution of value occasioned by restrictive controls will likely lead to the development of negative side effects. It exceeds the purpose of this study to examine those side effects empirically, but it should be noted that value on sale (along with net income) is a significant determinant of the rate of return available from investment in rental housing. If value on sale is diminished, the rate of return will be diminished. Rental housing competes for capital with other investments. In the long run, the housing industry requires new capital if it is to remain viable. The framers of public policy should therefore be aware that restrictive rent control programs may, in time, occasion capital flight and various negative side effects. Some of these effects, including the loss of units from the rental housing stock, may undermine the purposes for which controls were enacted initially.

If state or federal authorities, recognizing the counterproductive effects of restrictive controls, move to restrict local

jurisdictions' freedom to enact rent controls, the results of this study suggest that such restrictions should be structured so as to prevent or modify restrictive controls, not moderate or soft controls. There is no strong evidence that moderate or soft rent control programs cause major loss of capital value, nor that such programs will cause negative side effects or long-term damage to local rental housing markets.[30]

Finally, the results of this study suggest that moderate and restrictive rent control programs can be distinguished by two simple programmatic features: vacancy decontrol and inflation rate rent increases. Any program, however moderate in other respects, which fails to allow annual, inflation rate rent increases and which fails to allow rents to return to market levels on vacancy, will nevertheless be restrictive. Any program, however severe in other respects, which includes vacancy decontrol and annual, inflation rate rent increases, will nevertheless be moderate.

---

[30] It has been argued that the establishment of soft or moderate rent controls leads to the development of restrictive rent controls, but we now have considerable historical evidence (for example, from Los Angeles, Oakland, and San Francisco) that this is not an inevitable tendency. It is possible that the body politic can in time be educated to choose among rent control programs intelligently.

REFERENCES

Baar, Kenneth K. (1983). "Guidelines for Drafting Rent Control Laws: Lessons of a Decade": Rutgers Law Review 35,4, Summer.

Block, W. and Olsen, E. (eds) (1981). Rent Control: Myths and Realities, Vancouver: The Fraser Institute.

Davidson, Harold A. (1978). "The Impact of Rent Control on Apartment Investment": The Appraisal Journal 44, October, 570-580.

Friedman, M. and Stigler, G. J. (1946). "Roofs or Ceilings? The Current Housing Problem", in F. a. Hayek et al (eds.) (1975), Rent Control: A Popular Paradox. Vancouver: The Fraser Institute.

Gilderbloom, John I. (1981). "Moderate Rent Control: Its Impact on the Quality and Quantity of the Housing Stock". Urban Affairs Quarterly 17(2), 123-147.

Gilderbloom, John I. and Applebaum, Richard P. (1988). Rethinking Rental Housing. Philadelphia: Temple University Press.

Hazlett, Thomas (1982). "Rent Controls and the Housing Crisis", in M. B. Johnson, Resolving the Housing Crisis. Cambridge, Massachusetts: Ballinger.

Katz, Lawrence & Rosen, Kenneth T. (1987). "The Interjurisdictional Effects of Growth Controls on Housing Prices": Journal of Law and Economics 30(2), April, 149-60.

Lowry, Ira S., Hillestad, Carol E., and Sarma, Syam (1983). "California's Housing - Adequacy, Availability, and Affordability". Santa Monica: The Rand Corporation.

Rent Stabilization Division, City of Los Angeles (1988). "Rental Housing Survey".

Rosen, Kenneth T. (1982). "Creative Financing and House Prices: A Study of Capitalization Effects". Berkeley: Center for Real Estate and Urban Economics, University of California.

Rydell, C. Peter and Murray, Michael P. (1987). "Rent Control in Los Angeles". Santa Monica: The Rand Corporation.

Salins, Peter D. (1980). The Ecology of Housing Destruction: Economic Effects of Public Intervention in the Housing Market. New York: New York University Press, for the International Center for Economic Policy Studies.

Shulman, David (1981). "Real State Valuation Under Rent Control: The Case of Santa Monica": AREUEA Journal 9(1), Spring, 38-53.

Smith, Lawrence B. & Tomlinson, P. (1981). "Rent Controls in Ontario: Roofs or Ceilings?": AREUEA Journal 9, Summer.

Sternlieb, George and Hughes, James W. (1979). "Rent Control's Impacts on the Community Tax Base": The Appraisal Journal 47, July, 381-394.

St. John, Michael (1989). "The Effect of Rent Controls on Property Value: A Test of the Capitalization Hypothesis." Unpublished Dissertation, Department of Economics, University of California at Berkeley.

St. John, Michael (forthcoming). "Residential Rent Controls in California in 1990".

Sukoff, Albert (1988). "The Effect of Rent Control on Municipal Revenues". Berkeley: St. John & Associates.

impacts2