

Narwold, Andrew

Conference Paper

Ownership of Residential Rental Property in Regional Housing Markets

44th Congress of the European Regional Science Association: "Regions and Fiscal Federalism", 25th - 29th August 2004, Porto, Portugal

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Narwold, Andrew (2004) : Ownership of Residential Rental Property in Regional Housing Markets, 44th Congress of the European Regional Science Association: "Regions and Fiscal Federalism", 25th - 29th August 2004, Porto, Portugal, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/117178>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Ownership of Residential Rental Property in Regional Housing Markets

Andrew Narwold
Professor of Economics
School of Business Administration
University of San Diego
5998 Alcala Park
San Diego, CA 92110
619 260-4875 fax 619 260-4891
drew@acusd.edu

Abstract

Previous studies have demonstrated the role that income tax incentives to landlords play in the determination of market rental rates. Landlords typically receive benefits from accelerated depreciation on real assets that are usually appreciating. The value of this tax benefit depends both on the depreciation schedule as well as the landlord's marginal tax rate. Changes in income tax law in the 1980's dramatically affected both of these factors. In 1980, the top federal marginal tax rate was 70%, and rental housing could be depreciated on a double-declining balance over 20 years. The Economic Recovery Tax Act of 1980 reduced the top marginal tax rate significantly. Changes were made in 1984 that altered the depreciation schedule so that rental property could be depreciated more rapidly. The Tax Reform Act of 1986 reformed the depreciation schedule so that rental property had to be depreciated over 27 years: a significant change for landlords. In addition, the top federal marginal tax rate was reduced to 33 percent.

The main direction of the changes in the federal tax code in the 1980's was to decrease the tax advantages associated with rental property. Decreases in the top marginal tax rate reduced the value of tax write-offs, while increases in the length of time required for depreciation reduced the amount of depreciation taken each year. This paper examines the impact that these changes had on the rental housing market by looking at the changes in the relative cost of renting over the years 1986-1990.

The Model

This paper employs a simplified version of the tax arbitrage model developed in Narwold (1992). The after-tax cash flow to a landlord for a unit of rental housing may be represented by the equation 1:

$$(1 - \tau)(r - tP) + \tau\delta P \quad (1)$$

where τ is the landlord's marginal tax rate, r is the market rental rate, t is the property tax rate, δ is the value of the depreciation allowance, and P is the price per unit of housing. The opportunity cost of investing in a unit of housing is just equal to the after-tax risk-adjusted interest rate, as illustrated in equation 2:

$$(1 - \tau) i P \quad (2)$$

where i is the relevant interest rate. The net profits accruing to a landlord would then be equal to the difference between equations 1 and 2 or

$$(1 - \tau)(r - tP) + \tau\delta P - (1 - \tau) i P \quad (3)$$

The benefits of owning rental property are greatest to those with the highest marginal tax rates. Through competition in the market for rental property, the rental rate is reduced until the landlords with the highest marginal tax rate are just making a normal rate of return, or zero economic profit. This result suggests that equation 3 is equal to zero for landlords in the top tax

bracket. Setting equation 3 equal to zero and solving for the market rental rate results in the following

$$r = tP + iP - (\tau/(1 - \tau)) \delta P \quad (4)$$

or

$$r/P = t + i - (\tau/(1 - \tau)) \delta \quad (5)$$

The relative cost of renting, as expressed by the ratio of the market rental rate per unit of housing to the price per unit of rental housing, is a function of the marginal tax rate of the landlord, the property tax rate, the interest rate, and the depreciation rate. Increases in either the property tax rate or the interest rate get passed on to the renters in the form of higher relative rent. Similarly, either a decrease in the landlords' marginal income tax rate or a decrease in the appreciation allowance results in an increase in the relative cost of renting. Equation 5 provides the basis for the examination of the response of the relative cost of renting over the years 1987-1991. The dramatic changes in the depreciation schedule in the Tax Reform Act of 1986, coupled with the decreases in the top marginal tax rate, should have lead to a significantly higher relative cost of renting over the subsequent years.

Data and Methodology

The model developed above suggests the type of data and methodology required for this study. In order to capture the effect that a decrease in the depreciation allowance has had over time on the relative rental rate, both the cost of housing and the market rental rate need to be identified for individual housing markets. The American Housing Survey, conducted by the United States Department of Commerce, Bureau of the Census, identifies such information.

The American Housing Survey (AHS) provides information on housing units in 11 selected Metropolitan Statistical Areas (MSAs) each year. A total of 44 MSAs are included in the survey, so that any particular MSA is surveyed once every four years. The AHS is somewhat unique in that it identifies particular housing units within an MSA, and tracks them over time. This study utilizes the American Housing Surveys from 1987 and 1991. For the purposes of this study, the eleven cities chosen were Atlanta, Baltimore, Chicago, Columbus (Ohio), Hartford, Houston, New York City/Nassau and Suffolk Counties, Northern New Jersey, San Diego, Seattle, and St. Louis.

For each housing unit within these cities, the ownership status was determined. Any housing units that changed status from a rental unit to an owner-occupied unit, or vice versa, was eliminated from the sample. It is also necessary to try to separate the changes in housing values due to renovation from changes in value due to general housing market appreciation. For this reason, housing units having a change in square footage between 1987 and 1991 were removed from the sample. Finally, those housing units that contained renters who indicated that they were either paying no rent, or a non-cash rent, were removed, as these values do not represent "market" rent.

Table 1
Descriptive Statistics of the 11 SMA's

City	# of Rental Units	1987 Mean Rent	1991 Mean Rent	# of Owner- Occupied	1987 Value	1991 Value
Atlanta	585	386	429	928	\$88,678	93,007
Baltimore	704	342	415	1061	84,419	104,491
Chicago	756	373	466	1067	86,844	108,529
Columbus	766	290	353	1020	70,750	81,285
Hartford	798	388	507	958	132,072	141,546
Houston	622	308	371	696	65,692	68,616
New York	1084	413	526	706	135,307	141,383
Northern New Jersey	840	440	544	888	139,644	136,992
San Diego	840	507	584	678	106,202	146,464
Seattle	771	360	458	868	84,392	125,092
St. Louis	667	289	335	1090	69,353	75,392

Table 1 presents the descriptive statistics for the eleven SMA's. Not surprisingly, Columbus, Ohio, St. Louis, and Houston were the most affordable housing markets among these cities during this period. San Diego was least affordable market, followed closely by New York, Northern New Jersey, and Hartford, Connecticut.

The methodology for determining the increases in market value and rental rate consists of simply calculating the difference in the natural logs of rental rates and home values for each housing unit over this four-year period: for rental units the change in rental rate is simply

computed as the $\log(\text{rental rate 1991}) - \log(\text{rental rate 1987})$. For owner-occupied units the change is similarly computed: $\text{value} = \log(\text{value 1991}) - \log(\text{value 1987})$.

These numbers were then averaged over all rental units (and owner-occupied units) within the SMA to determine the cities' rental rate and housing value appreciation rates. A simple hypothesis test may be employed to determine whether the mean increases in these rates are equal. The tax arbitrage model of the housing market suggests that over this period, the tax changes should have caused a significantly higher increase in rental rates than housing values due to lost tax advantages to landlords. Table 2 presents the mean increases in rental rates and housing values, as well as the results of this simple hypothesis test.

At first glance, the results may appear to be somewhat mixed. There was a positive and significant difference between the growth rate in rental rates and housing values in 7 of the 11 SMA's. On closer examination, the lack of a positive results in the remaining four SMA's may be explained by virtue of the short-term fluctuations in the housing market in those cities. In the two cities where there was no significant difference in the growth rates (Baltimore and Chicago), the housing market was very hot, with housing prices rising by over twenty percent over the years 1987-1991. In the two cities (San Diego and Seattle) where the growth rate in housing prices was significantly higher than increases in rental rates, the housing market was very strong, with housing prices increasing by over 30% during this four year period. These results tend to support the thesis that housing prices may be quicker to adjust to short-term demand fluctuations than rental rates. Rental rates typically require either tenant turn over or the passage of a fair amount of time in order to adjust to demand fluctuations

Table 2
Mean Increases in Rental Rates and Housing Values by SMA

City	Rental Rate Increase	Housing Value Increase	Difference	Standard Error of Difference	Z value
Atlanta	%13.0	%5.8	%7.2	2.57	2.79
Baltimore	22.5	23.2	-0.7	2.24	-0.32
Chicago	23.5	20.5	3.0	2.51	1.19
Columbus	27.3	13.8	13.5	3.35	4.03
Hartford	31.6	10.2	21.4	2.50	8.57
Houston	18.5	0.5	18.0	3.31	5.40
New York	23.5	8.7	14.8	2.88	5.16
Northern New Jersey	24.9	0.1	24.8	3.08	8.03
San Diego	16.4	31.5	-15.1	1.71	-8.83
Seattle	25.8	37.1	11.3	2.14	-5.28
St. Louis	22.7	5.5	17.2	3.16	5.45

Conclusion

The tax arbitrage theory of homeownership suggests that the tax benefits that accrue to landlords are passed on to renters due to competition in the rental market. The changes in the Federal Tax laws starting in 1980 and continuing through 1986 had significant implications for the tax treatment of housing. Decreases in the top marginal tax rate and the lengthening of the depreciation schedules made rental housing a much less attractive investment and should have caused an increase in market rental rates. This paper examines the changes in market rental rates

and housing values over the period 1987-1991 in eleven major SMA's throughout the United States.

The evidence is presented that suggests that in seven cities, the rental rate increased over this period by an average of 23% as opposed to an increase in housing prices of only 6.4%. In two cities, rental rates and housing prices both increased by a little over twenty percent, with no statistically significant difference. Finally, in two cities with extremely "hot" housing market, housing prices increased by over thirty percent, with rental rates trailing at around twenty percent. These results may be attributed to inherent lags in the ability of market rental rates to adjust to fluctuations in the demand for housing. The results presented suggest that the tax changes instituted during the 1980's, although directed at reducing the tax benefits accruing to high income bracket landlords, had the effect of increasing the burden of rental payments made by typically lower income renters.

References

R. Gordon, J. Hines, and L. Summers, *Notes on the Tax Treatment of Structures*, in "The Effects of Taxation on Capital Accumulation" (M. Feldstein, Ed.), Univ. of Chicago Press, Chicago, IL (1987).

J. Follain and D. Ling, *Another Look at Tenure Choice, Inflation, and Taxes*, ARUEA Journal 16, 207-229 (1988).

A. Narwold, *The Distribution of the Benefits of Tax Arbitrage in the Housing Market*, Journal of Urban Economics 32, 367-376 (1992).

W. C. Randolph, *Estimation of Housing Depreciation: Short-term Quality Change and Long-term Vintage Effects*, Journal of Urban Economics 23, 162-178 (1988).

S. Titman, *The Effects of Anticipated Inflation on Housing Market Equilibrium*, The Journal of Finance 37, 827-842 (1982).