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HOW WELL DO SECTION 8 FMRs MATCH THE
COST OF RENTAL HOUSING?
DATA FROM 39 LARGE CITIES

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SUMMARY

The FMR (Fair Market Rent) idea was built into the Section 8 lower
income rental assistance program to provide a means to reflect varia-
tions in the rental cost of comparable housing in _different_ market
areas and also rental cost differences _within_ a market area due to size
and quality variations in housing units. Does the FMR schedule for the
Section 8 Existing Housing Program parallel the actual differences in
rents? The purpose of this paper is to provide an answer to this
question by comparing the FMR schedule with an index of rental housing
costs developed at the Urban Institute (UI) for 39 different SMSAs
(Standard Metropolitan Statistical Areas).

The comparisons are of two basic types. _Intermetropolitan compa-_
risons examine the relationship between the FMRs and the UI rent index
for a modest two bedroom walk-up apartment in the 39 SMSAs. This
comparison addresses the question of whether the schedule accurately
reflects variations in the rental cost of comparable housing in dif-
ferent housing markets. _Intrametropolitan comparisons_ examine the
accuracy of the adjustments currently made in the FMR schedule for
number of bedrooms and the presence of elevators. Possible future
adjustments are also examined.

The UI index upon which the comparisons are based has been
developed using data from the first two waves of the Annual Housing
Survey for Selected Metropolitan Areas. The index thus provides

information about the rental costs of housing in thirty-nine large

SMSAs. The index is constructed using a multivariate regression

procedure often referred to as the method of hedonic indexes. The UI

index is an appropriate candidate with which to assess the FMR schedule.

It is an improvement over the best existing housing price index, that

published by the Bureau of Labor Statistics (BLS). The BLS index

measures the average rent of a very broadly defined housing unit,

while the UI index measures the average rent of a much more precisely

defined unit.

The results of the analysis suggest a mixed response to the question

this paper set out to answer--does the FMR schedule accurately reflect

variations in the rental cost of housing? Simply put, the FMR schedule

fulfills some of the criteria for an efficient and equitable Section 8

Existing Housing Program but not all.

- The UI index shows much greater variation in the rental cost of comparable housing than does the FMR schedule. This means that those SMSAs which are relatively expensive according to the UI index have FMRs which are too low, while those SMSAs which are relatively inexpensive according to the UI index have FMRs which are too high. This suggests that participants in Section 8 programs in the expensive SMSAs receive less assistance in real terms than the participants in the inexpensive SMSAs.

- The changes made in the FMR schedule in early 1976 continued this pattern. That is, SMSAs which experienced relatively large inflation rates received FMR adjustments which were too small, while SMSAs which experienced small inflation rates received FMR adjustments which were too high.

- On the positive side, the average FMR in the thirty-nine SMSAs studied is about equal to the average rent predicted by the UI index. This suggests that the average subsidy payment made in the Section 8 program is about right.

- Currently, the FMR for a one bedroom unit is fifteen percent less than the FMR for a two bedroom unit, while the FMR for a three bedroom unit is fifteen percent more than that of the two bedroom unit. The UI index indicates such adjustments are very accurate in half of the SMSAs studied. For the other half, the adjustments are only about three percent (or about $5 per month) too large.

- The FMR schedule provides for a ten percent premium for units with elevators. The UI index indicates that this is too high. Elevators simply do not command such premiums in the housing markets we examined. In fact, a wide range of premiums and discounts are observed.

We also examined three potential changes from current practice:

- The FMR schedule does not currently contain differentials for central city vs. suburban units. The UI index indicates that such a practice is inaccurate in forty percent of the SMSAs studied. In most cases, the central city units command a premium. The major exceptions are Detroit, Newark, Philadelphia and Paterson, where units located in central cities rent for less than comparable suburban units.

- The UI Index indicates that long-time tenants receive substantial discounts which average about one percent per year of residence. This suggests that consideration might be given to an FMR schedule which reflects the length of stay of the tenant. Otherwise, the program could produce some unnecessary rent inflation.

- The FMR schedule does not currently attach premiums to single family detached units. The UI index indicates that such a practice is accurate since single family detached units do not, as a rule, command a premium.

The paper concludes with two suggestions which, if implemented, may improve the process by which FMRs are established. The two suggestions are: (1) use the Annual Housing Survey data; and (2) implement the method of hedonic indexes.

I. INTRODUCTION

Efficient and equitable operation of the Section 8 Existing

Housing Program requires an FMR schedule which accurately reflects the

cost of comparable rental housing in different housing markets. The

schedule must also reflect rent variations within a market area due to

variations in the characteristics of rental housing, e.g., number of

bedrooms. Does the FMR schedule for the Section 8 Existing Housing

Program fulfill these criteria? The purpose of this paper is to

provide an answer to this question by comparing the FMR schedule to an

index of rental housing costs developed at The Urban Institute (UI).[1]

Thirty-nine large SMSAs from the first two waves of the SMSA

version of the Annual Housing Survey are used in the analysis.[2] The

comparison is of two basic types: intermetropolitan and intrametropo-

litan. The intermetropolitan comparison examines the relationship

between the UI rent index and the FMR schedule for a basic two bedroom

walk-up apartment in the thirty-nine SMSAs. This comparison addresses

the question of whether variations in the FMR schedule accurately

reflect differences in the cost of comparable rental housing. The

intrametropolitan comparison addresses five questions:

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1. This index is described in James R. Follain, Jr., "Cross-Sectional Indexes of the Price of Housing," forthcoming as an Urban Institute paper, November 1978.

2. For a good description of the survey, consult any of the printed reports based upon the survey (for example, U.S. Department of Commerce, U.S. Bureau of Census, Current Housing Reports, Series H-170-74-7, Los Angeles-Long Beach California SMSA, Annual Housing Survey, Housing Characteristics for Selected Metropolitan Areas, U.S. Government Printing Office, Washington, D.C., 1976).

(1) is the current adjustment for number of bedrooms accurate?

(2) is the current adjustment for units with elevators accurate?

(3) do long time tenants pay less rent for comparable housing than new tenants?

(4) is there a premium or discount associated with central city vs. suburban housing units?

(5) is there a premium for single family detached units?

The current procedure used to compute the FMR schedule is actually quite simple in principle. The FMR for a modest two bedroom walk-up apartment unit in, say, Miami, is set to equal the average rent a new tenant would pay for such a unit. The data upon which the averages are computed come from three sources: the 1970 Census, the shelter component of the Consumer Price Index for selected metropolitan areas[3] and information collected and supplied by local housing authorities and regional HUD personnel. The 1970 Census data were used to establish an initial set of rents for a large number of SMSAs. The Consumer Price Index data are used to update the 1970 rents in those places in which the index is available. Finally, locally obtained information is used to modify the FMRs obtained using the above data when the FMRs are believed by local authorities to be inaccurate.

A key aspect of this procedure is that it does not produce a constant quality price index. That is, little attempt is made to control for the many features which influence rent other than the total number of bedrooms and the presence of an elevator. While it is true that substandard housing units are excluded from the calculation of average rents, and units with and without elevators are distinguished, no attempt is

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3. Some unpublished data on housing prices from the CPI Survey are provided to HUD in addition to the published data to help adjust FMRs for those areas not covered in the published data.

made to control for such things as the total number of rooms, the number of bathrooms, the heating system or the air conditioning system. What this means is that a difference between the FMRs for two cities does not necessarily reflect simply the cost of housing in the two cities. If, on average, two bedroom apartments in one city are of a superior quality and larger size than those in another city, all else equal, the FMR in the city with better housing quality will exceed the FMR in the other city. The FMRs will differ even if a particular type of two bedroom unit could be rented for the same amount in each city. The consequence of this feature of the FMR schedule is that participants in the Section 8 Existing program in the city with better average housing quality would be receiving a larger subsidy and be able to enjoy a higher quality of housing than participants in the other city.

The UI index is, in principle, quite different. It measures the amount for which a very specific type of apartment unit would rent in 39 different SMSAs. The UI rent index for a particular SMSA represents an average rent, but it is the average rent a new tenant would pay for a very precisely defined two bedroom walk-up apartment unit. Not only does the index control for the number of bedrooms; it also controls for the total number of rooms, the type of heating system, the type of air conditioning system, the quality of the walls and ceilings, the age of the dwelling, the number of bathrooms and many other features. The index is not perfect, but since it attempts to control for many more apartment features than the method currently used by HUD to compute FMRs, it is likely to be a better constant quality rent index than the FMR schedule.

The statistical method used to construct the UI rent index is the method of hedonic indexes.[4] The technique is based upon two key assumptions. The first is that a particular housing unit is a bundle comprised of many dwelling characteristics, e.g, number of rooms, type of heating system, etc. Second, the prices of these characteristics, although not directly observable, can be estimated via multivariate regression techniques. The estimated coefficients of the characteristics are the prices of the characteristics. For example, the results might indicate that an additional bathroom adds fifteen percent to monthly rent.

Equipped with a set of these hedonic prices for each of the 39 SMSAs in the sample, construction of indexes of housing rents can proceed in a relatively straightforward way. A particular bundle of housing characteristics is specified, and then it is priced in each of the 39 SMSAs.

In the next section of this paper, we use the index to analyze the intermetropolitan differences between the FMR schedule and the UI rent index. Section III analyzes intrametropolitan differences. Suggestions for changes in the process by which FMRs are set are made in the final section.

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4. The hedonics upon which this paper is based are contained in James R. Follain, Jr., Stephen Malpezzi and Larry Ozanne, "Dissecting Housing Value: Estimating Hedonic Indexes for 39 SMSAs Using the Annual Housing Survey," forthcoming as an Urban Institute paper, November 1978. That paper also contains a discussion of the basis for the approach and some past applications of it to housing.

II. HOW WELL DO FMRs MATCH COSTS IN 39 SMSAs?

Comparison of Levels

The first issue addressed is how the level of the FMR compares to the level of rents predicted by the Urban Institute rent index in 39 SMSAs. Some specific questions include: (a) are the two in agreement as to the cost of a modest two bedroom walk-up apartment? and (b) does the variation in FMRs from city to city correspond to variation in the price of rental housing (e.g, are SMSAs with relatively high FMRs those SMSAs with relatively high housing prices)? Answers to these questions provide information about the efficiency and equity aspects of the FMR schedule. The answers below suggest that serious problems may exist.

Before answering the questions, it is necessary to describe briefly the sets of numbers being compared. The FMRs used are the January 1, 1975 rents for a two bedroom walk-up apartment. The hedonic-based rents refer to March of 1975 and are those of a two bedroom unit with five rooms and of good quality.[5] Both sets of rents and the absolute differences between them are set forth in Table 1.

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5. More precisely, the walk-up unit has five rooms, including two bedrooms and one bath; it is five years old, rated good quality by the occupant, on a good street, has a central heating system, does not have problems with rats or fuse breaks, or any breakdowns in the basic systems (i.e., heat, water, toilet or plumbing). There are no large cracks or holes in the walls or ceilings. The household pays extra for one utility, is not black and is comprised of three persons. The unit could be located anywhere in the SMSA. (Indexes have been constructed for black households, but these changes do not alter the fundamental findings of this paper.)

TABLE 1

Monthly Rental for a Two Bedroom Walk-Up Apartment,
According to Two Pricing Systems for 39 SMSAs, 1975

SMSA*	SECTION 8 FMR	URBAN INSTITUTE RENT INDEX	FMR-HEDONIC
Anaheim	$ 202	$ 300	$ -98
Newark	191	275	-84
Paterson	206	254	-48
Orlando	154	239	-85
Hartford	195	223	-28
Albany	169	221	-52
Boston	204	220	-16
Washington, D.C.	203	214	-11
Minneapolis	194	214	-20
Pittsburgh	149	201	-52
San Francisco	210	199	11
Spokane	131	191	-60
Los Angeles	187	179	8
Springfield	180	176	4
Phoenix	194	175	19
Tacoma	161	174	-13
San Bernardino	156	172	-16
Chicago	182	171	11
Milwaukee	179	170	9
Newport News	149	169	-20
San Diego	185	168	17
Madison	193	167	26
Rochester	191	161	30
Atlanta	178	161	17
Colorado Springs	146	161	-15
Salt Lake City	145	160	-15
Detroit	179	160	19
Memphis	147	153	- 6
Miami	216	153	63
Philadelphia	180	152	28
Dallas	165	151	14
Portland	169	144	25
New Orleans	140	139	1
Cincinnatti	156	123	33
Columbus	151	123	28
Wichita	138	122	16
Fort Worth	165	119	46
Kansas City	166	105	61
San Antonio	123	80	43
Average (Mean)	$ 173	$ 175	$ -2.8
Standard Deviation	$ 24	$ 45	$ 33.8

* The SMSAs are listed from most expensive to least expensive according to the UI rent index.

The first and most important aspect of the rents in Table 1 is that the FMRs are systematically lower for the most expensive SMSAs and systematically higher for the least expensive SMSAs. The six most expensive SMSAs according to the UI index are: Anaheim, Newark, Paterson, Orlando, Hartford, and Albany. The FMRs for these SMSAs are all less than the rent predicted by the hedonic, and the differences range from $28 to $98. Just the opposite is true for the five least expensive SMSAs: San Antonio, Kansas City, Fort Worth, Wichita, Columbus, and Cincinnati. For these SMSAs, the FMRs are consistently higher than the hedonic indexes, with differences ranging from $61 to $16. Looking further down the list, the same pattern holds. Eleven of the twelve most expensive SMSAs have FMRs which are less than the hedonic rent, while the eleven least expensive SMSAs have FMRs which exceed the hedonic rent.

The differences imply that recipients in the expensive SMSAs are being penalized in comparison to recipients in the inexpensive ones. Participants in the most expensive SMSAs are not being permitted to reside in the same quality housing as the participants in the least expensive SMSAs. Participants in the expensive SMSAs are receiving smaller benefits from the Section 8 housing program than are their counterparts in the least expensive SMSAs.

A second important point to note in Table 1 is that the average rents of both schedules are approximately equal.[6] The average FMR is $173,

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6. A technical note is needed here. The Annual Housing Survey data were collected in two separate 12-month periods. Wave I was collected from April 1974 to March 1975 and Wave II from April 1975 to March 1976. Inflation rates were estimated for each SMSA. These were then used to adjust the rents predicted by the hedonics so that they all refer to the same period—March 1975.

while the average of the hedonic schedule is $175. The directions of

the differences are quite evenly distributed around the average;

twenty-one FMRs are greater than the hedonic rent, and eighteen are

less. An implication of this similarity is that the program is efficient

in a cost sense for this set of metropolitan areas. In other words,

the relatively high subsidy payments which are made in the inexpensive

SMSAs with relatively high FMRs are offset by relatively low subsidy

payments which are made in the expensive SMSAs with relatively low

FMRs.[7]

Another positive point observable in Table 1 is that there is

much similarity between the two schedules as to which SMSAs are the

most expensive and which are the least expensive. There are some

isolated discrepancies regarding ranks, i.e., Miami, Pittsburgh,

Orlando and Spokane; but, by and large, there is agreement between the

schedules about the rankings of the SMSAs. The simple correlation

between the two schedules is .55, which further suggests that signifi-

cant agreement exists between the two schedules.

In summary, the UI index and the FMR schedule are in rough agreement

as to which cities are expensive and which are inexpensive. They are

also in agreement as to the average amount for which a modest two bedroom

unit would rent for the 39 SMSAs we studied. What differences exist are

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7. One other qualification should be made at this point. The
hedonic equation used to predict rent has 39 variables. This means that
there are many ways in which a two bedroom walk-up unit could be speci-
fied. One has been used here which is reasonable, but others could have
also been used. Under different definitions of a two bedroom walk-up unit,
the conclusion that the average FMR is appropriate might be changed.
Several other definitions were also used to ensure that the results
reported in this paper are not unique. The conclusion that the FMR
schedule is biased against expensive SMSAs and toward inexpensive ones
is not changed by changes in the specification of the housing bundle.

related to the extent of the price variation. The UI index shows much more than the FMR schedule.

Which schedule is correct? Unfortunately, a definitive answer is not available. Although strong theoretical arguments can be made on behalf of the hedonic approach embodied in the UI index, a blanket endorsement of its precision relative to the FMR schedule cannot be given because there is a built in tendency for the hedonic approach to overstate the extent of price variation.[8] In fact, work is underway to better assess the precision of the hedonic approach relative to an index constructed in a manner similar to the way in which the FMR schedule was constructed. Even when this analysis is complete, however, a final and definitive assessment of the precision of the hedonic compared to the FMR schedule will not be available. What will be available is information to either strengthen or weaken our basic judgement that the UI index is one worth serious consideration.

Comparison of Changes Over Time

Each year FMR schedules are adjusted upward to reflect increases in the level of rental housing prices. Table 2 contains the actual changes in the FMR schedule for 1975-76 for twenty-one SMSAs where data could be obtained from Wave II of the AHS to permit a comparison over time. It also contains estimates of the rental price inflation rates in the UI index for the same period. The numbers are helpful in analyzing how well the FMR schedule adjusts to actual changes in rental housing prices.

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8. This is a property of any Laspeyres type index which essentially assumes that a household makes no adjustments to the type of bundle consumed when the relative prices of the goods he consumes change. This is a property of all the major price indexes, including the CPI (Consumer Price Index).

TABLE 2

Changes in FMRs Relative to
Inflation of Rents

SMSA	Percentage Change in FMR 1975-76	Inflation Rate in Urban Institute Index Over the 14-Month Period from January 1975-February 1976	FMR Change - Hedonic Change
Philadelphia	9.4%	14.5%	-5.1%
Portland	9.5	13.2	-3.7
San Antonio	38.2	12.0	26.2
San Diego	9.2	11.4	-2.2
San Francisco	8.6	11.0	-2.4
Springfield	9.4	10.0	-0.6
San Bernadino	9.6	9.8	-0.2
Paterson	9.7	9.6	0.1
New Orleans	9.3	9.2	0.1
Columbus	9.3	9.0	0.3
Atlanta	6.2	8.6	-2.4
Chicago	28.6	8.4	20.2
Milwaukee	9.5	7.2	2.3
Madison	9.8	6.9	2.9
Miami	8.8	6.5	2.3
Kansas City	6.0	6.3	-0.3
Colorado Springs	9.6	6.1	3.5
Hartford	9.7	4.5	5.2
Rochester	9.9	2.8	7.1
Cincinnati	9.0	1.1	7.9
Newport News	19.5	1.0	18.5
Average (Mean)	11.85%	8.05%	3.80%
Standard Deviation	7.74%	3.64%	8.25%

There are several general observations to be made about the numbers in Table 2. First, there is less variation among the SMSAs in the rates of increase in the FMR schedule compared to the variation shown in the inflation rates measured by the UI approach. On average, however, the FMR schedule and the hedonic inflation rates are similar. The FMR schedule exceeds the Institute inflation rates eleven times and falls short in ten cases. Second, the distribution of the differences is rather tightly clustered between plus and minus three percentage points. This suggests that, in general, the short-run consequences of the differences between changes in the two indexes are not great. However, there are differences larger than eighteen percent in three SMSAs—San Antonio, Chicago and Newport News.

Although few major discrepancies are found, it is reasonable to explore whether the differences which do exist are corrections for past imbalances between the hedonic and FMR schedule. That is, did the most expensive SMSAs—those we identified in Table 1 as having relatively low FMRs—get relatively larger increases in the 1975-76 period? Alternatively, did the SMSAs which were receiving relatively high FMRs—the relatively inexpensive SMSAs—get relatively small increases in their FMRs? The answer is quite clearly no. Paterson, Hartford, San Francisco, Springfield and San Bernardino are the five most expensive SMSAs of this group, but only one of them, Hartford, received an increase in excess of inflation. Among the five least expensive SMSAs in this group, only one SMSA received an increase less than its own inflation rate. That one is Kansas City, and the difference is a paltry .3 percent. As a matter of fact, two of the inexpensive SMSAs—San Antonio and Cincinnati—received two of the largest relative increases.

The final question to be asked is whether the pattern identified earlier is continuing. That is, do changes in the FMR schedule tend to be inadequate for SMSAs with the largest inflation rates and more than adequate for those with the smallest inflation rates? The numbers in Table 2 suggest the affirmative. Six of the seven SMSAs with the most rapid inflation rates received increases in their FMRs less than their inflation rates. Nine of the ten SMSAs with relatively low inflation rates received FMR changes greater than inflation.

Policy Implications

The policy implication of this analysis is clear. Since it is found that the FMRs are too high in the relatively inexpensive SMSAs and too low in the relatively expensive ones, the FMR schedule should be adjusted. More specifically, FMRs should be raised for those SMSAs with the highest FMRs and lowered for those with the lowest FMRs. Roughly speaking, FMRs should be raised by about twenty percent for those SMSAs with FMRs in the upper quartile. FMRs should be reduced by about twenty percent for those SMSAs with FMRs in the lowest quartile. Such adjustments would transform the current FMR schedule into one which more accurately reflects the amount of rental cost variation the UI index indicates is appropriate. The net change in subsidy payments associated with these adjustments should be negligible because the analysis indicates the average FMR in these 39 SMSAs is about right.

III. INTRAMETROPOLITAN FMR ADJUSTMENTS:
DO THEY MAKE SENSE?

Apartment rents vary not only across SMSAs but also among units
within SMSAs. The most obvious variation is due to size and quality
differentials, (e.g., three bedroom apartments are almost always more
expensive than studio apartments). Rents also vary due to the location
of a dwelling within an SMSA. In many places, units closer to the hub
of urban activity rent for more than those further out.

The FMR schedule reflects only two types of intrametropolitan dif-
ferences. One adjustment is a ten percent higher FMR for apartments with
elevators. A second adjustment is that FMRs also vary by the number of
bedrooms.[9]

The accuracy of the adjustments currently made in the FMR schedule
for number of bedrooms and presence of elevator is examined in this
section. Also, three factors not currently used for adjustments but
sometimes mentioned for future use are also considered: (1) reducing
the FMR schedule for long-time tenants; (2) central city vs. suburban
differentials; and (3) premiums for single family detached units.

Bedroom Adjustments

Currently, the FMR for a one bedroom unit is roughly fifteen
percent less than the FMR for the two bedroom unit. The FMR for a
three bedroom unit is roughly fifteen percent more than the two bedroom

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9. Occasionally, FMRs also vary by location within an SMSA, but
this is rare.

unit. The FMRs for four bedroom units are either 120 percent or
125 percent greater than the FMR for a two bedroom unit, depending upon
city size. The FMR for a studio apartment (zero bedrooms) is 70
percent of the FMR for the two bedroom unit.

The first column in Table 3 contains estimates, based upon the
Urban Institute price index, of the premiums or discounts associated
with the addition or deletion of one bedroom to a particular apartment.[10]
The results shed light on the accuracy of the differential which exists
between one, two and three bedroom units. The estimates of the
premium (discount) associated with one more (less) bedroom average
about 12 percent. The range is 9 to 16 percent. The mode--the most
frequently occurring value--is between 15 and 16 percent.[11] The
results suggest that for half of the sample the current FMR premiums
are at least 2 to 3 percent greater than the actual differentials which
exist between one, two and three bedroom units. For the other half of
the sample, the FMR premiums are quite consistent with the hedonic
results observed in the UI price index analysis.

There is another, more favorable way of viewing the existing
FMR premiums for bedrooms, however. The premium could be interpreted
as the sum of two factors: (a) the additional rent for an extra

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10. In making the estimates, we assume that the premium (or
discount) associated with the addition (deletion) of a bedroom is
invariant with respect to the number of bedrooms in the apartment.
That is, the percentage differential between a two bedroom unit and a
three bedroom unit equals the percentage differential between a four
bedroom unit and a three bedroom unit. This suggests the hedonic
results not be used to assess the appropriateness of the current FMR
schedule which assigns a declining percentage differential for more
bedrooms.

11. A typical standard error for these estimates is less than two
percentage points.

TABLE 3

Hedonic Estimate of the Premiums and Discounts for
Selected Housing Characteristics

SMSA	Bedroom Premium	Persons/Room Premium	Elevator Premium	Length of Stay Discount	Central City vs. Suburban Differential	Premium for Single Family Detached Units
Albany	9.0%	7.3%	8.7%	-1.4%	6.2%	-3.3%
Anaheim	14.0	-0.2	53.0	-1.8	-5.6	2.6
Atlanta	11.0	6.2	-7.2	-0.7	0.7	-9.8
Boston	9.3	3.7	12.6	-1.3	-7.0	-11.5
Chicago	10.7	5.2	3.6	-0.8	-6.3	-1.0
Cincinnati	13.6	3.6	-11.2	-1.0	-0.4	-1.5
Colorado Springs	12.1	1.8	14.2	-0.9	0	-1.5
Columbus	8.8	9.2	-34.3	-0.9	-5.3	4.1
Dallas	11.4	0.3	21.9	-0.4	2.6	9.2
Detroit	10.3	0.1	1.1	-1.0	-18.4	-8.9
Fort Worth	12.2	11.9	-30.8	-0.7	5.4	7.6
Hartford	10.5	2.2	1.7	-0.9	0	14.5
Kansas City	13.5	8.4	-36.5	-1.1	2.3	11.6
Los Angeles	17.5	-0.2	-5.1	-1.1	-1.1	3.5
Madison	15.5	1.0	-9.8	-0.6	0	10.8
Memphis	9.5	6.9	52.0	-0.9	0	13.0
Miami	15.2	10.3	-19.5	-0.8	-5.3	2.3
Milwaukee	11.4	1.0	-12.0	-1.3	-3.7	-4.5
Minneapolis	13.7	4.5	16.5	-0.8	3.9	-8.6
Newark	12.0	3.5	14.3	-0.9	-14.0	-4.6

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TABLE 3 (cont'd)

Hedonic Estimate of the Intrametropolitan Premiums and Discounts for
Selected Housing Characteristics

SMSA	Bedroom Premium	Persons/Room Premium	Elevator Premium	Length of Stay Discount	Central City vs. Suburban Differential	Premium for Single Family Detached Units
New Orleans	13.4	7.7	7.6	-1.0	8.8	4.5
Newport News	7.9	10.8	N.A.	-1.0	0	-2.2
Orlando	15.3	10.2	26.9	-0.5	0	5.2
Paterson	15.3	5.6	-2.1	-1.0	-17.6	4.1
Philadelphia	7.7	17.0	0.2	-0.7	-13.6	6.9
Phoenix	10.6	6.3	-15.3	-1.9	2.4	2.3
Pittsburgh	10.5	8.5	26.2	-0.8	9.5	-4.9
Portland	15.0	6.6	-0.3	-1.1	4.0	-12.4
Rochester	9.6	3.3	-18.5	-1.2	3.4	-17.1
Salt Lake	15.8	2.4	10.7	-1.2	0	-0.4
San Antonio	14.5	-1.1	-101.7	-0.9	0	7.6
San Bernardino	13.9	3.6	23.1	-1.3	1.9	-0.5
San Diego	14.0	7.2	13.7	-1.2	2.1	-1.2
San Francisco	15.6	-1.2	-6.3	-1.1	9.6	-1.9
Spokane	10.8	4.6	18.4	-1.2	0	-9.8
Springfield	8.1	7.0	-13.9	-0.7	0	-4.1
Tacoma	10.4	14.0	2.5	-0.8	0	-3.4
Washington	15.5	-0.2	8.5	-0.7	6.9	11.6
Wichita	11.2	4.0	-8.3	-1.2	0	-4.2
Average (Mean)	12.21	5.2	0	-1.0	-1.06	-1.2
Standard Deviation	2.59	4.3	26.7	.3	7.93	5.7

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bedroom; and (b) an adjustment for family size. The hedonic results

indicate that the ratio of family size to number of rooms is positi-

vely related to rent. In other words, a family of six pays more for a

six room apartment than a family of four. On average, a 25 percent

increase in the ratio increases rent by 1.3 percent (i.e., .25 x 5.2

[column 2 of Table 3]). If the ratio of family size to number of rooms

does, in practice, increase with the number of bedrooms, then the

existing 15 percent rule is reasonably accurate, because this 1.3

percent should be added to the 12 to 13 percent premium the hedonic

regression indicates is, on average, appropriate for additional bedrooms.

Elevator Premiums

The FMR schedule is divided into two parts for each SMSA: one

for elevator units and one for units without elevators, with elevator

units receiving about a 10 percent premium over units without elevators.

Does this differential match actual price differentials in the market?

The premiums estimated in the thirty-nine SMSAs are listed in the third

column of Table 3. The numbers indicate quite clearly that the adoption

of a ten percent premium in all markets is not warranted.[12] Although the

presence of elevators does have a positive value in twenty-one SMSAs,

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12. There is one qualification to this rather strong statement.
The presence of elevators is often highly correlated with the height
of an apartment building, a variable which is also in the hedonic
regression. The high correlation suggests looking at the sum of the
coefficients for elevators and the coefficients associated with a
tall apartment building (greater than three floors). The sum of
these two coefficients can be interpreted as an adjusted estimate of
the elevator premium. The average estimate of the adjusted premium
is 5.7 percent and is much closer to the ten percent rule currently
used. However, there is significant variance in the size and
direction of this adjusted coefficient. This suggests that even when
the high correlation between the presence of elevators and number of
floors is taken into account, the results do not support the use of a
constant ten percent premium in all markets.

it is only statistically significant in ten. In seven, it is actually

negative and significant. The average premium is zero.

Recent Mover Premiums

One particularly interesting finding of the Urban Institute

price index analysis is that long-time tenants receive significant rent

discounts. That is, the longer a tenant has resided in a unit, all

else equal, the lower the rent of the unit. The average estimate

(column 4, Table 3) is that rents are one percent lower per year of

residence.[13] So, for example, a household who has lived in a unit for

ten years could expect, on average, to pay ten percent less than the

market rent.

This finding is relevant to the finding uncovered during the first

few years of Section 8 that the rents of units occupied by participants

who chose to stay in their apartments rose significantly for units in

which no repairs took place.[14] In addition, it was found that large

rent increases were most prevalent among units which previous to

Section 8 rented for an amount far below the FMR.

Many of the participants who chose to stay were long-time tenants.

If long-time tenants receive significant discounts, as the hedonic

analysis suggests, then the findings noted above are less surprising.

For stayers, a landlord is allowed to raise the rent to the current

market rate with the knowledge that the increase will not be borne by

his long-time tenant. Adjusting the FMR schedule by length of stay of

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13. This value ranges among the thirty-nine SMSAs from three-tenths
of one percent to 1.9 percent per year. Without exception, the estimates
of the discount are statistically significant in the 39 SMSAs studied.

14. See, Margaret Drury, Olson Lee, Michael Springer and Lorene
Yap, "Early Experience in the Section 8 Existing Housing Program,"
Urban Institute Working Paper 240-12, forthcoming. Increases observed
for units in which repairs took place were also significant.

participant could possibly eliminate some of the inflation experienced for those units which have been occupied by the same tenant for many years. Whether the administration of such a proposal is feasible and exactly how it would operate require more study.

Central City vs. Suburban Differentials

Land costs are often greater for units close to the central business district than they are for suburban units. This can result in higher rents in the central city compared to the suburbs. Negative differentials are also possible because of the frequently observed disamenities of some central city locations, e.g., crime and poor schools. The sum of the two effects can be positive, negative, or exactly offsetting. The Urban Institute index analysis provides information about the size and direction of the differentials in 27 of the 39 SMSAs studied (Table 3, column 5).[15]

Currently, the FMR schedule is insensitive to central city vs. suburban rent differentials, except for a few areas. The results, however, suggest that this practice produces some significant in-accuracies. For SMSAs with populations large enough to estimate central city vs. suburban differentials, twelve of the estimates indicate central cities are less expensive than suburbs, controlling for quality differences, while fifteen indicate the central cities are more expensive. On average, central city units rent for about 1.3 percent less than otherwise comparable suburban units. This average is, however, heavily influenced by the large discounts estimated for Detroit (-18.4 percent), Newark (-14.0 percent), Paterson (-17.6

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15. Due to disclosure regulations, the AHS data permit identification of central city housing units in only twenty-seven of the thirty-nine SMSAs.

percent) and Philadelphia (-13.6 percent)--four SMSAs which correspond to the image of the old, declining northeastern city. In fifteen of the SMSAs, the absolute value of the differential exceeds five percent.

This evidence suggests: (1) the FMR schedule should reflect central city vs. suburban differences in more areas than it currently does, and (2) the differential should not be constant, but rather it should be different for each market. The Annual Housing Survey could be used to estimate these differentials for many of the largest SMSAs in the country--the places where such differentials are most likely to be quantitatively significant.

Premiums for Single-Family Detached Units

It is reasonable to ask whether the FMR schedule should be sensitive to the type of structure occupied by a Section 8 tenant. In particular, should the FMR schedule provide premiums for single-family detached units? These units usually have yards, while most apartments do not. Because of this, one might expect that single-family detached units rent for more than otherwise comparable apartment units. This is an especially important question because the single-family detached unit is sometimes the only type available for large families who require four or five bedrooms.

The UI rent index analysis, as presented in column 6 of Table 3, suggests that a premium is not, as a rule, warranted. In only five of the thirty-nine SMSAs are estimates of a differential for single-family detached units positive and statistically significant. The average estimate is actually negative, but the range and dispersion of the estimates are large.

Policy Implications

Five specific policy actions regarding adjustments to the FMR schedule are implied by the comparative analysis of this section:

(1) <u>Leave unchanged the factors currently used to adjust the FMR schedule for the number of bedrooms</u>. While it is true that the UI index indicates the current adjustment factors are about three percent too large in half the SMSAs studied, such differences are not considered to be large. Besides, for half the SMSAs, the UI index and the FMR schedule are in complete agreement on this issue.

(2) <u>Eliminate the current ten percent premium allowed to units with elevators</u>. The UI index indicates that units with elevators do not consistently command a premium over otherwise identical units without elevators.

(3) <u>Do not change the FMR schedule to assign a premium to single family detached units</u>.

(4) <u>Give consideration to development of an FMR schedule for long-time tenants</u>. For example, the FMR for tenants residing in units for more than ten years may be ten percent below the basic FMR schedule. The extent of the consideration depends upon the extent of the department's concern about reducing the rent inflation experienced by Section 8 participants who choose to remain in their units. It also depends upon the administrative and political costs of such an adjustment factor, costs we have not explored even in a limited way. What the analysis above shows is that long-time tenants pay a rent significantly below the market rent. A two-part FMR schedule could preserve this discount and, thus, eliminate some of the inflation experienced by

participants who stay in the units they occupied before joining the Section 8 program.

(5) <u>Give consideration to an FMR schedule which reflects differences in central city vs. suburban rental costs</u>. Although central city units rent at a premium in most SMSAs studied, the UI index indicates that no simple rule or factor exists to adjust for central city vs. suburban locations. The index does, however, indicate that significant differentials (i.e., greater than 5.7 percent or $10.00 per month) are found in twelve of the twenty-seven SMSAs in which such differentials can be estimated using Annual Housing Survey data. This means the FMR schedule could be improved if these relatively large differentials are taken into account. Further research should be done to improve our ability to measure such differentials.

IV. IMPROVING THE PROCESS BY WHICH FMRs ARE ESTABLISHED

In addition to the specific findings about existing FMR schedules presented in Section II and III, we may ask what the analysis discussed here implies for the whole process by which FMRs are developed. This paper can be viewed as a demonstration of the strength of the hedonic method in conjunction with the Annual Housing Survey. The strength of the hedonic method stems from its ability to control for quality differences among a wide variety of dwelling units. The strength of the Annual Housing Survey for Selected Metropolitan Areas stems from its extensive coverage of dwelling unit characteristics needed for application of the hedonic method in a large number of SMSAs. Substitution of the hedonic method using AHS data for the current practices used to develop FMRs could result in significant improvements in the FMR schedule.

Although this paper can serve as a model of how HUD could proceed to improve the process by which FMRs are developed, there are some problems which must be solved in order to make this model completely operational. The most serious problems involve the coverage and timing of the AHS relative to the coverage of the FMR schedule and the timing of changes in the schedule. Basically, the FMR schedule covers more cities than the AHS, and the time in which the AHS is available lags behind the time in which FMRs are needed.

Operationalization could also benefit from some more developmental work. The work envisioned would be designed to improve the precision of the hedonic method upon which the UI rent index is based. Below, we expand upon our perceptions of the problems and suggest several possible ways in which the problems may be solved and how the developmental work might proceed.

Making Use of the Annual Housing Survey for Selected Metropolitan Areas

There are two obvious restrictions regarding the analysis presented in this paper. First, only 1975 and 1976 FMRs are analyzed. More recent years are not. Second, only thirty-nine SMSAs are examined. FMRs, on the other hand, exist for hundreds of cities and counties not covered by the thirty-nine SMSAs in this sample. These restrictions exist because the AHS for more recent years is not yet available and because the AHS is only intended to cover a limited number of metropolitan areas. Even after the third and final wave of the survey is available (some time next year) only sixty SMSAs will be covered.

Do these restrictions preclude the use of the AHS for Selected Metropolitan Areas as a data source with which to establish and monitor the FMR schedule? We think not, and our reasons are set out below.

Lag in the Availability of the AHS

The problem is that the AHS for a particular year, say 1978, is not available until the following year, in this example, 1979. Furthermore, data for a particular SMSA are available only every fourth year. There are two basic strategies which might be employed to counteract these restrictions so that the AHS can be used in establishing the FMR schedule.

The first involves shortening the lag which now exists. This
might mean shortening the period over which the survey is conducted.
Currently, it is conducted over a twelve-month period. Possibly this
could be shortened to a two- or three-month period as is done with the
national version of the AHS. Another possibility is that a limited
amount of information obtained from the survey and needed for the
FMR schedule could be made available for HUD personnel in advance of
the normal release date.

The second strategy involves using the AHS as a monitor or a
benchmark with which to set and adjust FMRs. That is, each time
the AHS for an SMSA becomes available, an analysis similar to the one
in this paper could be conducted. The analysis would suggest changes
in the FMR schedule for some SMSAs. This is analagous to a mid-
flight course correction of a rocket. The AHS would permit adjust-
ments to be made every fourth year rather than every tenth year if only
Census data are used.

Limited Coverage of the AHS

FMRs are needed for each city, town and country in the United
States while the AHS covers only sixty SMSAs. How serious a problem
is this, and what can be done to alleviate it? In regard to the
seriousness of the problem, we can appeal to the fact that the sixty
SMSAs covered are sixty of the largest SMSAs in the U.S. The AHS
in these SMSAs covers about seventy percent of the total SMSA household
population and over forty-five percent of the total U.S. household
population. The coverage of the population eligible for Section
8 assistance is probably even higher.

Still, coverage is not complete. One way to permit application of the information on the sixty SMSAs to other locales is to analyze and identify the relationship which exists between the UI index and an index based upon simple averages of rents in a particular market. If a stable relationship is discovered, one could then extend the UI index, or one like it, so that it covered non-AHS areas, because estimates of the simple average of rents are available for many areas not in the AHS. In fact, work is underway at the Institute to study this relationship. Upon completion of the work, a better understanding of the coverage of the AHS and an index like it will be available.

Further Developmental Work on Hedonic Indexes

There are basically two areas in which improvements could be made. They are the measurement of rent _levels_ and rent _inflation_. For the purpose of establishing an FMR schedule, the measurement of rent levels could be inproved by: (a) examining units occupied by low income households separately; (b) examining special geographical submarkets; (c) examining the possibility of non-linearities in the bedroom premium; and (d) undertaking both theoretical and empirical work to eliminate the index's tendency to overstate the extent of variation in the rental cost of housing. The measurement of rent inflation might be improved by using a procedure which makes use of the longitudinal nature of the Annual Housing Survey. The alternative attempts to decompose the rent change of a dwelling at two (or more) points in time into three components: (a) pure inflation; (b) depreciation; and, (c) quality changes.