Owner-Occupied Housing: An Input for Experimental Poverty Thresholds

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Introduction

The National Research Council Panel on Poverty and Family Assistance (Citro and Michael, 1995) recommended poverty thresholds be calculated for a reference family (two related adults with two children) by specifying " . . . a percentage of median annual expenditures for such families on the sum of three basic goods and services-food, clothing, and shelter (including utilities)-and apply a specified multiplier to the corresponding dollar level so as to add a small amount for other needs" (Citro and Michael 1995, p. 6).

Following this recommendation, the Panel's treatment of housing (as opposed to shelter that includes utilities) is the same for owners and renters. Although the Panel only used out-of-pocket expenditures to define the thresholds, they also referred to consumption and needs in their discussion of the basic needs threshold and adjustments for different family types (e.g., see Citro and Michael, 1995, p. 102) *If* the purpose of the poverty threshold is to provide a level of expenditure that represents the consumption costs for food, clothing, housing, and utilities, then we suggest that the valuation or cost of housing consumption be re-examined before a final decision is made concerning the production of the threshold.[1]

It is likely there is general agreement that expenditures for food, clothing, and utilities are good approximations of the consumption costs associated with these commodities. However the same cannot be said for the expenditure and consumption cost of housing. It is unlikely that the out-of-pocket expenditures for homeowners with low or no mortgages represent their consumption of housing. The Panel's approach treats the consumption of these owners in the same way as they treat the consumption of owners with mortgages and renters (see Citro and Michael, 1995, p. 148). While, homeowners with low or no mortgages have relatively low out-of-pocket housing expenses, their consumption costs are expected to be more like those of other homeowners and renters. For such low mortgage households, part of the costs of their housing consumption is being met through the implicit cost of the equity investment in their owned housing unit. If reference families are primarily composed of homeowners with low or no mortgages, the out-of-pocket housing expenditures used in the production of the thresholds would be relatively low compared to

[1] Here we distinguish between cost and expenditure. Cost is used here to represent the value of goods, actual services, and service flows from owner occupied housing. Expenditure represents the amount "paid" (or, for some items, the amount obligated to be paid if a type of credit is used for the purchase) for goods and services.

their expected consumption costs. Following the out-of-pocket approach would result in an underestimate of these owners' housing consumption costs because it ignores the implicit cost of their equity ownership of the housing unit. If reference families were primarily composed of homeowners with newer mortgages, their out-of-pocket housing expenditures would be relatively high compared to the expenditures of other owners and renters. If this were the case, an overestimate of the cost of housing consumption could result. Using the out-of-pocket expenditures for owners with mortgages could also result in an overestimate of housing costs because owners with mortgages are allowed to take a tax deduction for mortgage interest paid, thus reducing their "true" costs for housing. Using out-of-pocket housing expenditures also ignores the implicit benefit of house price appreciation, which is one of the primary advantages of homeownership. Furthermore, thresholds based on owner out-of-pocket expenditures are likely to be more sensitive to fluctuations in interest rates and decisions to refinance.

With regard to poverty thresholds, basing owner housing costs on the actual outlays when the estimated housing costs are lower could mean, theoretically, that some owners could quite easily be considered poorer than renters only because these families own their homes and their out-of-pocket housing expenditures are higher. Such could be the case if different thresholds were produced for owners with higher mortgages, for owners with low or no housing costs, and for renters. Producing thresholds by housing status (e.g., own with mortgage, own without mortgage, renter) was an alternative mentioned by the Panel (Citro and Michael 1995, p. 245). We think it is counterintuitive that owners would be more likely to be poor than would renters, given the same amount of housing and other expenses. When out-of-pocket expenditures are higher for owners than for renters living in similar types of dwellings and in the same areas, and only one threshold is produced (using all reference families' expenditures as is recommended by the Panel) rather than different ones based on housing status, renters would implicitly be "allocated" the higher expenditure amount for their housing consumption. This means that conceivably renters could spend more on other goods and services represented by the threshold.

The Panel acknowledged some of the problems associated with using actual out-of-pocket housing expenditures as reported in the U.S. Consumer Expenditure Interview Survey (CE), however they used these expenditures for processing convenience. They stated that "a preferable definition would include actual outlays for mortgage payments, taxes, insurance, and maintenance and repairs, together with an

imputed amount for the estimated rental value of the home net of such outlays. Such a definition would treat homeowners with low or no mortgage payments in a comparable manner with other homeowners and renters" (Citro and Michael 1995, p. 148). The Panel noted that such an approach would account for the implicit costs of housing consumption of owners with low or no mortgages more appropriately. We contend that a better approach than this would be to estimate the housing consumption costs for owners regardless of their out-of-pocket expenditures for mortgage payments, taxes, insurance, and maintenance and repairs. These latter costs would be included in the owners' reported rental equivalence or imputed housing costs. By following this approach, the housing costs of all owners and renters living in similar housing and the same areas would be treated conceptually the same.

We propose that a consumption approach for owner occupied housing be applied in the production of any new poverty threshold. Such an approach would be based on the costs of the consumption flow of housing services, rather than on out-of-pocket expenditures, for owner occupants. This approach is consistent with other major federal statistical programs including the U.S. Consumer Price Index and Personal Consumption Expenditures of the National Accounts.

In this paper we describe two approaches for estimating the costs of consumption flows of housing services which account for the occupancy of owner occupied housing. One is based on rental equivalence values reported by consumer units participating in the CE Interview. For the other we estimate a value for the flow of services from owner occupied housing using a hedonic approach and renter information. In this paper, we do not deal with the issue of accounting for the value of owner occupied housing in resources.

We compare reference family (families of two adults and two children) medians and thresholds based on out-of-pocket housing expenditure, homeowner reported rental equivalence, and imputed homeowner housing expenditures. These latter two approaches are briefly reviewed and supported in total or in part in the Panel's report. Participants at the 1998 Brookings workshop on Housing and Geographic Issues in the Measurement of Poverty support our exploration of these approaches for poverty measurement. In addition, Conveners of the Working Group on Revising the Poverty Measure sent an open letter on revising the office measure of poverty (August 2, 2000) that supports additional research on poverty measurement. Signers of the letter include individuals from the 1998 Brookings meeting, a University of Wisconsin conference held in the spring of 1999, and other interested parties. In the letter

"Determining how best to treat the flow of services form owner-occupied housing in measuring poverty" is identified as a priority area for additional research (Conveners, 2000, p. 4).

Valuing Housing for Homeowners in the Thresholds

Data from the U.S. Consumer Expenditure Interview Survey (CE) are used to value the costs of housing in the production of the experimental poverty thresholds. In this section, we first describe the data. Then we describe the three methods that we use to determine the value of housing for reference families: out-of-pocket expenditures, reported owner rental equivalence, and imputed owner-housing costs based on a hedonic regression model. The first method was used by the Panel and has been used by the Bureau of Labor Statistics (BLS) and Census team in producing thresholds for earlier studies (e.g., Short et al. 1999). The two consumption costs approaches have been previously used by a BLS/Census research team (Garner and Rozaklis 1999; Johnson, Shipp, and Garner 1997; Short et al. 1998). Refinements to the hedonic method have been introduced for this study. In addition, for each housing valuation approach, we estimate the percentages of the medians and multipliers that are used to calculate the thresholds rather than apply the ones used by the Panel. Those used by the Panel were based on 1989-91 out-of-pocket expenditure data.

Data

The Consumer Expenditure Survey (CE) is designed to collect data related to family expenditures for goods and services and to provide the market basket for the Consumer Price Index. Data from the quarterly Interview Survey are used for this study.[2] For the Interview, each occupied sample unit is interviewed once per quarter for five consecutive quarters. The first interview is used to collect demographic characteristics, as well as inventory of major durable goods. Data from this first interview are collected for bounding purposes and are not used for expenditure estimates. After the fifth interview, the sample unit is dropped and replaced by a new consumer unit. Data collected in each quarter are considered to be independent by the BLS.

For the hedonic regression, we do not assume the quarters are independent and account for this in our model. For this analysis we use data collected in each quarter beginning with quarter one 1993 and

[2] A separate Diary, with its own sample, is also used to collect CE data; these data are not used for the current study. For more information about the Consumer Expenditure Survey, consult BLS Handbook of

continuing through quarter four 1997. These quarters of data are selected since we produce poverty thresholds for 1995, 1996, and 1997 and we wanted to maximize sample size.

Following the Panel's approach, we use three years of data to produce each yearly threshold. Data from quarter two 1993 through quarter one 1996 are used to produce the 1995 experimental poverty thresholds. Data from quarter two 1994 through quarter one 1997 are used to produce the 1996 thresholds, and data from quarter two 1995 through quarter four 1997 are used to produce the 1997 thresholds. We begin with calendar quarter two data for each threshold since some of these data refer to expenditures incurred as early as January. Data collected in April, the first month of the second collection quarter, refer to expenditures incurred in January, February, and March. But data collected in May would refer to expenditures incurred in February, March, and April. Quarter one data refer to expenditures made as early as the last quarter of a calendar year, for example, beginning with October. Thus due to the rotating panel design of the survey, expenditures will not entirely refer to a calendar year. When we conducted our original analysis, data for quarter one 1998 were not available, therefore the last quarter of data available to produce the 1997 threshold were for quarter four of that year.

For the thresholds, quarterly data are assumed to be independent and are multiplied by four to produce annual values. All quarterly expenditures have been converted to threshold year dollars using the U.S. Consumer Price Index for All Urban Consumers (CPI-U) U.S. City Average, All Items. This same approach was followed by the Panel and has been followed by the BLS/Census team in earlier work.

The CE sample from quarter one 1993 through quarter four 1997 consists of 104,440 observations. Full sample characteristics are available upon request.

Valuation Approaches

1. Out-of-Pocket Expenditures

For homeowners, housing expenditures include those for mortgage interest, property taxes, maintenance, repairs, and homeowner's insurance. Mortgage principal payments are not included since these are considered an investment. In contrast, renters' housing expenditures include those for rent paid, repairs and maintenance, and tenants insurance.

2. Reported Rental Equivalence

Methods (Bulletin 2490, Bureau of Labor Statistics, U.S. Department of Labor, April 1997) or refer to the

The reported rental equivalence of owner occupied housing is based on the response of each owner to a specific question asked in the CE Interview: "If someone were to rent your home today, how much do you think it would rent for monthly, unfurnished and without utilities?" These monthly values are converted to quarterly values for homeowners and then replace their reported quarterly housing out-of-pocket expenditures for the production of the thresholds.

In an earlier study (Johnson, Shipp, and Garner 1997), rental equivalence values reported in the 1995 CE and the 1995 Consumer Price Index Housing Survey were compared and were found to result in very similar responses on average. Whether owner occupants are accurate evaluators of the rental values of their housing units has not been examined based on our search of the literature.[3] We are unaware of other federally sponsored surveys in which the rental equivalence question has been asked.

3. Imputed Rental Housing Cost Based on Hedonic Regression Model

A. Model and Data

Homeowner consumption costs, defined as implicit rents and associated housing costs, are imputed by using homeowner dwelling characteristics and estimated coefficients from a hedonic regression-pricing model of renter housing out-of-pocket expenditures. Observed out-of-pocket housing expenditures for renters are regressed on explanatory variables representing the individual characteristics of the rented dwelling. The regression coefficients are estimates relating to the implicit marginal prices of the dwelling characteristics. Applying this approach results in an estimate of owners' housing costs in an average community using the characteristics and rent plus associated expenditures paid by renters with like housing, location, and interview characteristics. The imputed housing costs for owner occupants replaces the out-of-pocket housing expenditures for these families in the production of the poverty thresholds.

Defining housing costs for owner occupants this way contrasts with what the Panel's describes as a "preferable definition." As noted in the Introduction, the Panel's preferable definition of housing costs would include actual outlays for mortgage payments, taxes, insurance, and maintenance and repairs, plus an imputed amount for the estimated rental value of the home net of such outlays. The Panel states that such an approach would treat homeowners and renters comparably. For homeowners with low or no mortgage

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website: http://stats.bls.gov/csxhome.htm.

payments such an approach would result in housing costs which are more comparable in size with the out-of-pocket expenditures of homeowners with mortgages, and yes, some imputed estimated rental value of the owned home would be included so that implicit housing services would be valued. However, given differences in the economy and mortgage markets, it is conceivable that homeowners with mortgages could have out-of-pocket expenditures that are higher than their imputed housing costs. When this is the case, an inconsistency in concept across homeowners would exist. The housing costs of homeowners with low or no mortgages would be based primarily on imputed housing costs while those of homeowners with high mortgage payments and associated costs would be based on out-of-pocket expenditures. Following the Panel's definition, owners with high mortgage payments and other large expenditures would be treated differently than other homeowners and renters living in similar types of dwellings and in the same areas. In this study we model housing costs so that those of homeowners with mortgages, homeowners with low or no mortgages, and renters are comparably defined conceptually.

The housing out-of-pocket expenditures paid by renters are the basis for the dependent variable in the hedonic regression model. Housing expenditures for renters include cash rent paid, and expenditures for maintenance, repairs, and tenant's insurance. The latter expenditures are included in the model since it is assumed that homeowners would incur similar costs in their consumption of the flow of services from housing. Expenditures for home improvements cannot be distinguished from homeowner maintenance and repairs in the CE so homeowner maintenance and repair expenditures are replaced by the implicit comparable costs included in the imputed total housing costs for homeowners.

In our analysis, owner's imputed housing costs are based on a semi-log regression of renter's housing expenditures on selected housing and location characteristic variables. Malpezzi et al. (1998) and others (see Gillingham 1975; Moulton 1995; Ozanne and Malpezzi 1985; Thibodeau 1995) have found that a semi-log regression fits the hedonic price-characteristics relationship for housing fairly well. To be included in the regression sample, renters are identified as consumer units in the CE database with positive out-of-pocket housing expenditures, do not receive rent as pay, and do not live in government subsidized or public housing. Owners are identified as those owning their dwelling and having a positive value for out-

[3] On a related topic, Follain and Malpezzi (1981) examined the accuracy of owner occupants concerning the market value of their homes using hedonic methods and the Annual Housing Survey. They found that the average over-occupant downwardly biases its estimate of the market value by about 2 percent.

of-pocket housing expenditures, or a positive value for rental equivalence. The requirement of a positive rental equivalence amount is added to ensure that the owner sample is actually composed of owners.

The model is expressed as:

$$H = e^{X\beta+F\gamma+\varepsilon}$$
$$Z = \ln H = X\beta + F\gamma + \varepsilon \quad (1)$$
$$E\{H \mid X, F\} = e^{(X\beta+F\gamma)+(\sigma^2/2)}$$

where H = the vector of housing out-of-pocket expenditures for renters
X = the matrix of dwelling unit characteristics
B = the vector of unknown hedonic coefficients
F = the matrix of unique consumer units in the CE
γ = the vector of unknown random effects coefficients
ε = the vector of unknown random errors whose elements are not required to be independent and homogeneous.

The expectation of estimated rental housing costs is conditional on X and F, the dwelling unit characteristics and uniqueness of consumer units. Due to the functional form of the model and Jensen's inequality[4], we use both the estimated coefficients and the estimated model variance to produce the estimated rental housing costs.

The housing unit characteristics selected for the model are drawn from those presented in the literature (see e.g., Follain and Malpezzi 1981; Malpezzi et al. 1998; Ozanne and Malpezzi 1985; Moulton 1995; and Thibodeau 1995). The general hedonic regression specification includes variables representing: structural characteristics of the dwelling, location characteristics, contract characteristics, and year and month of the interview. In most other hedonic models of housing, housing quality and neighborhood characteristics are included. However these data are not available in the CE.[5] Among the structural characteristics are age of the dwelling, type of dwelling,[6] number of bedrooms, number of complete baths, number of rooms other than bedrooms and baths, type of heating,[7] and other amenities.[8] Squared and interaction terms for some of these variables are also included in the model. The only contract characteristic that we consider is whether utilities were included in the rent payment. Appendix Table 1 includes the

[4] The predicted value of the expectation is not equal to the expectation of the predicted value.
[5] Malpezzi et al. (1998) used race as a proxy for measuring neighborhood effects.
[6] Dummy variables for detached, row house, end unit townhouse, duplex, numplex, garden apartment, high rise apartment, flat, mobile home.
[7] Dummies for type of heating is gas, electric, oil, or other.
[8] Dummies for has swimming pool, tennis court, barn or stable, guesthouse, porch, terrace, patio, apartment, off-street parking, window air conditioning, or central air conditioning.

variables and their definitions. Location is represented by geographic sampling areas or primary sampling units (PSUs).[9] Appendix Table 2 provides details concerning PSUs.

Proc Mixed in SAS was used to estimate the hedonic equation for eight regions of the country and for two time periods. Proc Mixed was used because we wanted to account for the correlation of interviews when a consumer unit was in the data file more than once and we wished to use all of the interviews. This last requirement meant that we had an unbalanced design, thus Proc Mixed was the most appropriate of the SAS procedures for us to use. As noted in the Data section, in the CE, consumer units can be in the data file from one to four times, depending upon when and how often they participate in the Interview survey. To conduct the regression analysis we used all the CE Interviews for collection quarters one 1993 through collection quarter four 1997, regardless of family type, in order to maximize our sample size.

The rent regression sample included data from 31,122 interviews. This sample was divided into 16 sub-samples. First the sample was divided into two time periods and then into eight regions of the country. The time period groupings were necessary since we wanted to use primary sampling unit as our geographic location variable. In quarter two 1996 a new sample design was fully implemented for the CE so some of the primary sampling units differed from than those in the earlier period.[10] Our two time period samples include data collected in (1) quarter one 1993 through quarter one 1996, and (2) quarter two 1996 through quarter four 1997. These two samples were then dis-aggregated by region and size of primary sampling unit in order to allow for regional and population size variations in our coefficient estimates. Each of the four Census regions, Midwest, North, South, and West, were divided into samples representing (1) large primary sampling units, and (2) other primary unit sample units.

B. Hedonic Regression Model Results

Our regression results reveal that accounting for the fact that consumer units are in the data file more than once is significant (Pr>Z is 0.0001 for all models). Also, conducting the analysis for the regional subgroups was also important based on the results that some of the significant regression coefficients are

[9] Primary sampling units (PSUs) consist of counties (or parts thereof), groups of counties, or independent cities. PSU designation is based on whether the geographic area is a metropolitan statistical area (MSA) or non-MSA area, whether the area has a farm population or not, and its population size. Population breakdowns for medium-sized MSAs and small MSAs differ by Census region.

[10] In quarter one 1996 data were collected using both the earlier primary sampling unit design and the newer sample design. However, data were not collected in January 1996 using the new design. Therefore

positive for some regional subgroups and negative for others. Regression coefficients and t-statistics are presented in Appendix Tables 3, 4, and 5.

To evaluate how well the model estimated actual housing expenditures of renters, we used the predicted housing expenditures from the regression and adjusted this amount to account for the functional form of the model.[11] The correlation between the regression renters' estimated housing costs and their out-of-pocket housing expenditures is 0.93. The correlation coefficient for reference family regression renters is 0.94. Appendix Table 6 includes log likelihood and chi-square statistics for each of the models.

Since the experimental poverty thresholds are based on the experience of reference families (families composed of two adults and two children) only, the results in Tables 1 through 6 are for these families. Presented in Table 1 are the percentage distributions of population weighted reference families by housing status. As noted earlier, for owners, whether the family has a mortgage or not greatly affects out-of-pocket housing expenditures, as does the mix of homeowners and renters among the reference families. We find that approximately 75 percent of the reference families live in owner occupied housing. This is in contrast to the full weighted sample in which approximately 70 percent of all consumer units live in owner occupied housing. About 64 percent of the reference families live in owner occupied housing and have a mortgage. Mortgage interest payments account for about 69 percent of the owners-with-mortgages' out-of-pocket housing expenditures (results not shown). Other expenditures include those for property taxes (20 percent), maintenance, repairs, and related goods and services such as homeowners' insurance (11 percent). Since mortgage interest is a substantial portion of the out-of-pocket expenditures paid by many owners, thresholds will tend to rise and fall with the movement of mortgage interest rates. In addition, larger mortgage interest payments are associated with families living in newer, larger housing units located in high amenity neighborhoods. This means that thresholds will tend to be relatively high when reference families have higher interest payments and live in such neighborhoods.

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we decided to use data collected based on the older design for quarter one 1996 in order that expenditures would refer to a full quarter.

[11] Ralph Bradley pointed out the need to make an adjustment to the predicted value when a log-linear model is used. This adjustment was made using the suggestion presented in Greene (1990) and identified for us by Anthony Yezer.

Table 1: Percentage Distribution of Reference Families by Housing Tenure: 1993-97

Housing Status	Percent Distribution
All Owners	0.75
Owners with Mortgages	0.64
Owners without Mortgages	0.10
All Renters	0.25
Unsubsidized Renters	0.24
Subsidized Renters	0.01

Assume CE Interview quarterly data are independent; weighted by families.

Presented in Table 2 are the means of quarterly (not price adjusted) housing costs for reference families for both owners and renters. Owner costs are presented separately for families with mortgages and those without mortgages; all renters have been combined into a single group. The mean imputed housing costs for renters of $1,471 quarterly, as compared to their out-of-pocket expenditures of $1,430. For renters the hedonic model, on average, appears to provide a good fit. Among housing status groups, owners with mortgages have the highest out-of-pocket housing expenditures, as well as the highest imputed housing costs and reported rental equivalence. This is likely since this group is likely to have newer mortgages with higher costs and may live in higher cost areas. Imputed housing costs are lower than out-of-pocket expenditures and rental equivalence values for owners with mortgages. This may be an indication that the hedonic model is not adequately measuring the implicit prices of owner dwelling characteristics. However, it would not be surprising if respondents answer the rental equivalence question with respect to their neighborhoods and current housing expenditures. Houses with higher mortgages are likely to be in neighborhoods with more amenities. Or it could just be that they think that their homes are worth more on the rental market than they actually are. On the other hand, the reported rental equivalence values may be capturing variations in housing and neighborhood quality. We did not account for differences among neighborhoods in our model due to data limitations in the CE.

As expected, the out-of-pocket housing expenditures for owners without mortgages are substantially lower than their imputed housing costs and their rental equivalence, $561 versus $1220. The model based mean estimates of housing costs for owners without mortgages are 73 percent of the imputed costs of owners with mortgages. The mean reported rental equivalence value of owners without mortgages is 70 percent of the mean value reported by owners with mortgages. If reference families were primarily composed of owners without mortgages, out-of-pocket housing expenditures would substantially

underestimate their costs of housing in the poverty thresholds. An examination of the dwelling characteristics of owned and rented housing could perhaps help us better understand why differences in housing costs and expenditures across the three housing status groups result.

Table 2. Mean Quarterly Housing Costs by Housing Status for Reference Families with Expenditures: 1993-97

Owner Housing Valuation Approach	Owners with Mortgage	Owners without Mortgage	Renters
Out-of-Pocket	$2120	$561	$1430
Imputed Housing Costs	$1674	$1220	$1471
Reported Rental Equivalence	$2553	$1794	----

Weighted by families. (New means will be produced in future research.)

Determining the Reference Family Thresholds

Equation (2) is used to derive the basic bundle (FCHU[12]) poverty threshold for the reference family.

$$T_{FCHU} = \frac{(M_1 * P_1 * E_m) + (M_2 * P_2 * E_m)}{2} \qquad (2)$$

where T_{FCHU} = threshold based on food, clothing, housing, and utility expenditures
M_1 = multiplier for smaller additional amount
M_2 = multiplier for larger additional amount
P_1 = lower percentage of median expenditures for basic bundle
P_2 = higher percentage of median expenditures for basic bundle
E_m = median expenditures for food, clothing, housing, and utilities (FCHU).

To produce the FCHU threshold, the Panel recommended that the percentage of median expenditures lie between 78 percent and 83 percent. These percentages correspond to the 30th and 35th percentiles of the distribution of total FCHU expenditures for a family of two adults and two children. The Panel recommended a lower and upper value for the multiplier of 1.15 and 1.25. These multipliers and multipliers were based on the out-of-pocket expenditure approach to define expenditures for FCHU using quarterly data collected in 1989 through 1991. Since we are using different concepts of housing and a different time period, we re-estimate both the percentages of the medians and the multipliers for each year for which we produce a threshold, 1995, 1996, and 1997. In the production of the percentages, multipliers,

[12] FSHU is being used here rather than FCSU to distinguish housing from shelter. The Panel used the word "shelter" to include both housing and utilities. In previous studies conducted by the BLS/Census team, we have used shelter to be the same as housing in this study.

and values of FCHU, we only change the valuation of owner occupied housing; for renters, out-of-pocket housing expenditures are used throughout.

We, as did the Panel, compute the lower percentage by taking the average of expenditures in the 27.5 to 32.5 percentile to produce an approximation to the 30th percentile. Expenditures between the 32.5 and 37.5 percentiles are averaged to produce an approximation to the 35th percentile, the upper percentage. Expenditures between the 47.5 and 52.5 percentiles are averaged to produce an approximation to the median. The re-estimated percentages of the medians are presented in Table 3.

Table 3. Re-Estimated Percentages of Median FCHU Expenditures for Reference Families with Owner Housing Costs Varying: 1995-1997

Owner Housing Valuation Approach	Year	30th Percentile of FCHU Expenditures	35th Percentile of FCHU Expenditures
		Percentages of Median FCHU Expenditures	
Out-of-pocket			
	1995	0.79	0.84
	1996	0.79	0.84
	1997	0.79	0.84
Owners' Imputed Costs			
	1995	0.83	0.87
	1996	0.83	0.87
	1997	0.83	0.88
Reported Rental Equivalence			
	1995	0.80	0.85
	1996	0.80	0.85
	1997	0.80	0.85

Assume CE Interview quarterly data are independent.

The percentages of the median vary slightly when we used the 1993 through 1997 quarterly CE data, and the different approaches to define housing costs for owner occupants. The percentage of the median FCHU expenditures that corresponds to the 30th percentile increases to 0.79 while the upper percentage increases to 0.84 for out of pocket expenditures. In contrast, when owners' imputed costs substitute for out-of-pocket owner expenditures, both the lower and higher percentages are higher, moving to 0.83 and 0.87 approximately. This means that housing costs based owners' imputed values are more concentrated in the lower end of the FCHU expenditure distribution than are out-of-pocket housing expenditures. Owners in the lower end of the distribution may more likely be owners without mortgages than those with mortgages given this result. Rental equivalence based percentages are only 0.01 percentage

point higher than those for out-of-pocket expenditures are. Again, further examination of the dwelling characteristics of the housing status samples is needed.

The re-estimated multipliers are presented in Table 4. Each multiplier for the smaller budget is estimated as the average of the multipliers at the 30th and 35th percentiles for a budget composed of expenditures for food, clothing, housing, utilities, one-half of out-of-pocket transportation expenditures, and expenditures for personal care. Each multiplier for the larger budget is estimated as the average of the multipliers at the 30th and 35th percentiles for a budget composed of expenditures for all items included in the smaller budget plus expenditures for education and reading materials. The smaller and larger budgets were defined in this same way by the Panel (Citro and Michael, 1995) and by Garner, Paulin, Short, Shipp, and Nelson (1998) in their estimations of multipliers using 1989-1991 data.

Table 4. Re-Estimated Multipliers Based on Average of 30th and 35th Percentile Values for Larger and Smaller Budgets for Reference Families with Owner Housing Costs Varying: 1995-1997

Owner Housing Valuation Approach	Year	Smaller Budget	Larger Budget
		Multipliers Applied to Median FCHU Expenditures	
Out-of-pocket			
	1995	1.20	1.22
	1996	1.20	1.23
	1997	1.20	1.23
Owners' Imputed Costs			
	1995	1.19	1.21
	1996	1.19	1.22
	1997	1.20	1.23
Reported Rental Equivalence			
	1995	1.17	1.19
	1996	1.17	1.19
	1997	1.17	1.20

Assume CE Interview quarterly data are independent.

The multipliers for all years and for each of the owner housing valuation approaches are within the 1.15 to 1.25 range that the Panel used to estimate the thresholds presented in their report. The re-estimated out-of-pocket expenditure multipliers are higher than those for the other two approaches. The lowest multipliers result when reported rental equivalence is used to value the housing costs of owner occupants. This is not surprising given that reported rental equivalence values are higher for the reference family on average; thus median FCHU expenditures would be higher and a smaller multiplier would be adequate to account for others goods and services represented by the poverty threshold.

Poverty thresholds using each of the three methods to determine owner-housing costs are presented in Table 5. Although the FCHU median expenditures for reference families are lowest when owners' imputed housing costs are used, the resulting poverty thresholds are higher than are those based on out-of-pocket expenditures. This is likely since larger percentages of the median are being applied for the owners imputed cost based thresholds. For 1997, the threshold based on out-of-pocket expenditures is $16,371. The next highest thresholds are those based on owners' imputed costs; for 1997 the threshold is $16,992. The highest thresholds are those based on the rental equivalence reported by owners; for 1997 the threshold is $18,348.

Table 5. Reference Family Annual Thresholds and Housing Shares: 1995-1997

Owner Housing Valuation Approach	Year	Median Expenditure	Threshold	Housing Share of FCHU Expenditures at average of 30th and 35th percentiles	Housing Share of FCHU Thresholds
Out-of-pocket	**Year**				
	1995	$16,039	$15,821	0.35	0.30
	1996	$16,242	$16,089	0.35	0.28
	1997	$16,526	$16,371	0.34	0.28
Owners' Imputed Costs					
	1995	$15,667	$15,983	0.38	0.32
	1996	$16,041	$16,435	0.38	0.32
	1997	$16,351	$16,992	0.37	0.31
Reported Rental Equivalence					
	1995	$17,757	$17,291	0.43	0.36
	1996	$18,228	$17,750	0.43	0.36
	1997	$18,761	$18,348	0.43	0.36

Assume CE Interview quarterly data are independent.

Housing accounts for approximately 35 percent of out-of-pocket FCHU expenditures at the average of the 30th and 35th percentiles. (We show this average since it is the one used in our estimation of the thresholds.) Housing based on owners' imputed costs is approximately 38 percent of FCHU expenditures. Reported rental equivalence accounts for the largest share of FCHU expenditures at 43 percent.

To estimate the housing share of the threshold, we convert the housing share of the FCHU expenditure at the 30th and 35th percentile average to a fraction of the total poverty threshold. This conversion can be accomplished by dividing the FCHU median expenditure share at the percentile average

by the multiplier for the threshold. For this exercise we assume the multiplier to be the average of the smaller and larger budget multipliers. This is essentially the same procedure used by the Panel to determine the portion of the threshold to adjust for inter-area housing price differences.[13] Housing out-of-pocket expenditures represent the smallest share for housing among the valuation approaches at approximately 29 percent of the FCHU threshold. Next is the share of the FCHU threshold based on owners' imputed costs (approximately 32 percent). Housing costs for owners based on reported rental equivalence is 36 percent of the FCHU threshold.

It is clear from the above results that owners without mortgages have significantly lower out-of-pocket housing expenditures than would be represented by imputed housing costs or reported rental equivalence. Thus, their consumption of housing is likely being undervalued. If the consumption costs of housing are not accounted for in the thresholds and an out-of-pocket approach is followed, the Panel suggested that the production of thresholds for different housing status groups might be an option as noted earlier. In order to see how such an approach might proceed, we present median FCHU expenditures for reference families in Table 6 by their housing status and using the three approaches for valuing the housing costs of owners. We do not produce the thresholds since implicit multipliers and percentages of the medians would need to be re-estimated for each group.

[13] For housing, the Panel examined expenditures at the approximate 35th percentile value of expenditures on food, clothing, housing, and utilities for the reference family. They determined the share of housing of that total, and converted that share to a fraction of the total poverty threshold using a multiplier of 1.15. In their example, housing plus utilities accounted for 44 percent of the total poverty threshold.

Table 6. Reference Family Annual Median Expenditures by Owner Housing Valuation and Housing Status: 1997

Owner Housing Valuation Approach	Housing Status	Median FCHU Expenditures
Out-of-pocket		
	All	$16,526
	Owners with Mortgages	$19,222
	Owners without Mortgages	$11,666
	Renters	$13,788
Owners' Imputed Costs		
	All	$16,351
	Owners with Mortgages	$17,562
	Owners without Mortgages	$14,602
	Renters	$13,788
Reported Rental Equivalence		
	All	$18,761
	Owners with Mortgages	$21,280
	Owners without Mortgages	$16,593
	Renters	$13,788

Assume CE Interview quarterly data are independent; weighted by families.

Conclusions

The housing costs of owners and resulting thresholds are evaluated in this research using three different approaches: out-of-pocket housing expenditures, reported rental equivalence, and imputed costs based on a hedonic regression model. Thresholds tend to be the lowest when based on out-of-pocket approach, followed by those based on imputed housing costs. The highest thresholds are based on the reported rental equivalence of owners.

In developing this research, several questions arose and remain with us. For example, should the focus of the poverty measure be based on the expenses that people face and the income that they have to meet those expenses? Or should the measure be based on the costs of consumption or some basic needs and the resources available to provide for that consumption or to meet those needs? Are the out-of-pocket expenditures that the Panel used too high due to the fact that there is no accounting for the deduction of mortgage interest when one estimates their income taxes? Would the thresholds based on the hedonic model be higher if the model better accounted for differences in amenities such as quality of neighborhoods and dwellings?[14]

[14] The CE is limited in variables that could be used to assess housing and neighborhood quality. Some that have been used in the literature, and that we could proxy, include access to living quarters through another unit, if the unit is in the central city of a MSA, the percentage o f residents in the PSU with a college

If a consumption approach for the thresholds is assumed, a consistent measure of resources would be needed. In the Panel's estimate for resources, there is no accounting for the value of the flow of services that owners obtain from their homes. Thus, owners with low or no mortgages have more of their incomes available for the consumption of items not covered by the basic bundle when the threshold is defined in terms of out-of-pocket expenditures of reference families. Reference families tend to have relatively high out-of-pocket expenditures since they tend to be homeowners with mortgages. The Panel noted that by excluding values for this implicit income is to underestimate homeowners' resources relative to their poverty thresholds (Citro and Michael 1995, p.245). Valuing the implicit income from owner occupied housing has interesting implications especially for elderly households who own their homes and do not have mortgages or have very low mortgage interest payments. Ignoring this implicit income for the elderly means that households living in large value houses with substantial wealth and hence implicit income in the form of owner's equity are just as likely to be classified as poor as those in small inexpensive units. If we assume that elderly households can transform their home equity into a flow of guaranteed income using a reverse annuity mortgage, this equity could be used to increase their resources. Following this approach for resources, one could assume that this implicit income could be used to meet their basic consumption. As noted by the Panel (Citro and Michael, 1995, p.246), some analysts (e.g., Ruggles, 1990) think that it may not be appropriate to add the full net imputed rent to resources especially for the elderly. The Panel stated that a downward adjustment to the value for a larger-than-needed home would be appropriate, but there appears to be no agreement concerning what the adjustment would be. One approach suggested is to cap the amount of imputed rent at the level of the housing component in the poverty thresholds (Citro and Michael, 1995, p. 246).

If the implicit cost of the flow of services from owner occupied housing is included in the thresholds, what is the best approach to account for the flow of income on the resource side? This and our earlier questions asked will be addressed in future research.

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education, family expenditures in the PSU, the percentage of persons of a given race in the PSU, the percentage of families in the PSU receiving public assistance or welfare, and the median age of the housing stock in the PSU. Additional contract variables could include the approximate size of the lot on which the unit is located (in acres). The number of persons per room could be used to represent crowding. Additional

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characteristics of the unit could include whether a refrigerator is included in the rental unit, is a stove is included, and if a dishwasher is included.

Appendix Table 1. Variables Included in Rent Hedonic Regression Model

Characteristics of the housing unit

AGE[15]	Age of the unit in years up to a maximum of 93 years for CUs interviewed in 1993, 94 years for those interviewed in 1994. Age is the midpoint of the range of years provided for year built. If age is unknown, age is imputed as the average age for other housing units in the PSU.
AGE_SQ	*AGE* squared.
DETACHED	Dummy variable equal to 1 if the unit's structure type is single detached.
ROWHOUSE	Dummy variable equal to 1 if the unit's structure type is rowhouse.
ENDROW	Dummy variable equal to 1 if the unit's structure type is endrow.
DUPLEX	Dummy variable equal to 1 if the unit's structure type is duplex (detached two-unit structure).
NUMPLEX	Dummy variable equal to 1 if the unit's structure type is numplex (three- or four-unit structure).
GARDEN	Dummy variable equal to 1 if the unit's structure type is garden.
HIGHRISE	Dummy variable equal to 1 if the unit's structure type is highrise (multi-unit structure with 4 or more floors).
FLAT	Dummy variable equal to 1 if the unit's structure type is apartment or flat.
MOBILEHOME	Dummy variable equal to 1 if the unit's structure type is a mobile home or trailer.
AG_DET	***AGE*** x ***DETACHED***
AG_ROW	***AGE*** x ***ROWHOUSE***
AG_END	***AGE*** x ***ENDROW***
AG_DUP	***AGE*** x ***DUPLEX***
AG_NUM	***AGE*** x ***NUMPLEX***
AG_GAR	***AGE*** x ***GARDEN***
AG_HIR	***AGE*** x ***HIGHRISE***
AG_APTF	***AGE*** x ***FLAT***

[15] *AGE* is also considered a proxy for neighborhood quality.

AG_MOBI	***AGE*** x ***MOBILEHOME***
BEDS	Number of reported bedrooms.
BEDS_SQ	***BEDS*** squared.
ROOMS	Number of rooms other than bedrooms and bathrooms.
ROOMS_SQ	***ROOMS*** squared.
BATHS	Number of reported bathrooms.
BATHS_SQ	***BATHS*** squared.
HGAS	Dummy variable equal to 1 if the main source of heating is gas.
HELEC	Dummy variable equal to 1 if the main source of heating is electricity.
HOIL	Dummy variable equal to 1 if the main source of heating is oil.
WINAC	Dummy variable equal to 1 if the unit has a window air conditioner.
CENTAC	Dummy variable equal to 1 if the unit has a central air conditioner.
PORCH	Dummy variable equal to 1 if the unit has a porch.
TERRACE	Dummy variable equal to 1 if the unit has a terrace.
PATIO	Dummy variable equal to 1 if the unit has a patio.
APT	Dummy variable equal to 1 if the unit has an apartment.
SWIM	Dummy variable equal to 1 if a swimming pool is provided.
TENNIS	Dummy variable equal to 1 if a tennis court is provided.
BARN	Dummy variable equal to 1 if a barn or stable is provided.
GREEN	Dummy variable equal to 1 if a greenhouse is provided.
GUEST	Dummy variable equal to 1 if a guesthouse is provided.
OFFPARK	Dummy variable equal to 1 if off-street parking is provided.

Characteristics of the contract

RTELECT	Dummy variable equal to 1 if rental payment for unit includes electricity cost.
RTGAS	Dummy variable equal to 1 if rental payment for unit includes gas cost.
RTWATER	Dummy variable equal to 1 if rental payment for unit includes water cost.
RTTRASH	Dummy variable equal to 1 if rental payment for unit includes trash cost.
RTHEAT	Dummy variable equal to 1 if rental payment for unit includes heat cost.
TRTELEC	Total Number of Rooms x ***RTELEC***
TRTGAS	Total Number of Rooms x ***RTGAS***
BRTWATER	Total Number of Bathrooms x ***RTWATER***
TRTTRASH	Total Number of Rooms x ***RTTRASH***
TRTHEAT	Total Number of Rooms x ***RTHEAT***

Characteristics of the neighborhood

AGE	Age of the unit in years up to a maximum of 93 years for CUs interviewed in 1993, 94 years for those interviewed in 1994. Age is the midpoint of the range of years provided for year built. If age is unknown, age is imputed as the average age for other housing units in the PSU.

Characteristic of the collection period

YRMON	Year and month of interview.

Geographic location within each Region

PSU[16]	Primary Sampling Unit

[16] Primary Sampling Unit (PSU) groupings for the eight hedonic regressions are presented in Appendix Table 2.

Appendix Table 2. Primary Sampling Unit (PSU) Groupings for the Eight Hedonic Regression Model

Northeast Large, 1993Q1 - 1996Q1
(Reference: PSU1101, NY City, NY, NJ, Long Island, NY-NJ-CT)

PSU1102	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD
PSU1103	Boston-Lawrence-Salem, MA-NH
PSU1104	Pittsburgh-Beaver Valley, PA
PSU1105	Buffalo-Niagara Falls, NY
PSU1110	NY/CT suburbs, NY, NJ, Long Island, NY-NJ-CT
PSU1111	NJ, NY, Long Island, NY-NJ-CT

Northeast Other, 1993Q1 - 1996Q1
(Reference: PSU2102, Hartford-New Britain-Middletown, CT)

PSU2104	Syracuse, NY
PSU2106	Springfield, MA
PSU2108	Scranton-Wilkes Barre, PA
PSU3102	Williamsport, PA
PSU3104	Lancaster, PA
PSU3106	Johnstown, PA
PSU3108	Poughkeepsie, NY
PSU4102	St. Lawrence, NY
PSU4104	Kennebec, ME
PSU5102	Schuylkill, PA
PSU5104	Franklin-Hampshire, MA

Midwest Large, 1993Q1 - 1996Q1
(Reference: PSU1207, Chicago-Gary-Lake County, IL-IN-WI

PSU1208	Detroit-Ann Arbor, MI
PSU1209	St. Louis-East St. Louis-Alton, MO-IL
PSU1210	Cleveland-Akron-Lorian, OH
PSU1211	Minneapolis-St. Paul, MN-WI
PSU1212	Milwaukee, WI
PSU1213	Cincinnati-Hamilton, OH-KY-IN
PSU1214	Kansas City, MO-Kansas City, KS

Midwest Other, 1993Q1 - 1996Q1
(Reference: PSU2210, Flint, MI)

PSU2212	Dayton-Springfield, OH
PSU2214	Youngstown-Warren, OH
PSU2216	Indianapolis, IN
PSU3210	Steubenville-Weirton, OH-WV
PSU3212	Racine, WI
PSU3214	Waterloo-Cedar Falls, IA
PSU3216	Lawrence, KS
PSU3218	Terre Haute, IN
PSU3220	Elkhart-Goshen, IN
PSU4206	Hall-Hamilton-Merrick, NE
PSU4208	Dunklin-Pemiscot, MO
PSU4210	Audrian-Lincoln-Pike-Ralls, MO
PSU4212	Hamilton-Webster, IA
PSU5206	Bond-Montgomery, IL
PSU5208	Richland-Sauk, WI
PSU5210	Jackson, IL
PSU5212	Knox-Morrow, OH
PSU5214	Hougton-Keweenaw, MI
PSU5216	Dodge-Mower, MN

South Large, 1993Q1 - 1996Q1
(Reference: PSU1315, Washington, DC-MD-VA)

PSU1316	Dallas-Fort Worth, TX
PSU1317	Baltimore, MD
PSU1318	Houston-Galveston-Brazoria, TX
PSU1319	Atlanta, GA
PSU1320	Miami-Fort Lauderdale, FL
PSU1321	Tampa-St. Petersburg-Clearwater, FL
PSU1322	New Orleans, LA

South Other, 1993Q1 - 1996Q1
(Reference: PSU2318, Richmond-Petersburg, VA)

PSU2320	Jacksonville, FL
PSU2322	Charlotte-Gastonia-Rock Hill, NC-SC
PSU2324	Tulsa, OK
PSU2326	Raleigh-Durham, NC
PSU2328	Norfolk-Virginia Beach-Newport News, VA
PSU2330	Nashville, TN
PSU2332	El Paso, TX
PSU2334	Birmingham, AL
PSU2336	Orlando, FL
PSU3322	Corpus Christi, TX
PSU3324	Pine Bluff, AR
PSU3326	Fort Smith, AR-OK
PSU3328	Brownsville-Harlingen, TX
PSU3330	Albany, GA
PSU3332	Florence, SC
PSU3334	Gainesville, FL
PSU3336	Huntsville, AL
PSU3338	Beaumont-Port Arthur, TX
PSU3340	Ocala, FL
PSU4314	Bradley, TN
PSU4316	East Feliciana-Tangipahoa, LA
PSU4320	Pontotoc-Tippah-Union, MS
PSU4322	Halifax, NC
PSU5320	Payne, OK
PSU5322	Montgomery-Toombs, GA
PSU5326	Assumption, LA
PSU5328	Freestone-Leon, TX
PSU5330	Marshall, AL
PSU5332	Green-Taylor, KY

West Large, 1993Q1 - 1996Q1
(Reference: PSU1420, Anaheim-Riverside-Ventura-LA, CA)

PSU1421	Los Angeles-Long Beach, CA
PSU1422	San Francisco-Oakland-San Jose, CA
PSU1423	Seattle-Tacoma, WA
PSU1424	San Diego, CA
PSU1425	Portland-Vancouver, OR-WA
PSU1426	Honolulu, HI
PSU1427	Anchorage, AK
PSU1433	Denver-Boulder, CO

West Other, 1993Q1 - 1996Q1
(Reference: PSU2442, Tuscon, AZ)

PSU2444	Fresno, CA
PSU3442	Redding, CA
PSU3444	Colorado Springs, CO
PSU3446	Yakima, WA
PSU3448	Provo-Orem, UT
PSU4426	Otero, NM
PSU4428	Yuma, AZ
PSU5434	Crook-Deschutes-Lake, OR
PSU5436	Bonneville, ID

Northeast Large, 1996Q2 - 1997Q4
(Reference: PSU1109, New York, NY)

PSU1102	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD
PSU1103	Boston-Lawrence-Salem, MA-NH
PSU1104	Pittsburgh-Beaver Valley, PA
PSU1110	NY/CT suburbs, NY, NJ, Long Island, NY-NJ-CT
PSU1111	NJ-Pennsylvania Suburbs

Northeast Other, 1996Q2 - 1997Q4
(Reference: PSU2102, Reading, PA)

PSU2104	Syracuse, NY
PSU2106	Buffalo-Niagara Falls, NY
PSU2108	Hartford, CT
PSU2110	Burlington, VT
PSU2112	Sharon, PA
PSU2114	Johnstown, PA
PSU2116	Springfield, MA
PSU4102	Ithaca, NY
PSU4104	Caribou-Presque Isle, ME
PSU4106	Northern NY
PSU4108	Western NY

Midwest Large, 1996Q2 - 1997Q4
(Reference: PSU1207, Chicago-Gary-Kenosha, IL-IN-WI

PSU1208	Detroit-Ann Arbor-Flint, MI
PSU1209	St. Louis, MO-IL
PSU1210	Cleveland-Akron, OH
PSU1211	Minneapolis-St. Paul, MN-WI
PSU1212	Milwaukee-Racine, WI
PSU1213	Cincinnati-Hamilton, OH-KY-IN
PSU1214	Kansas City, MO-Kansas City, KS

Midwest Other, 1996Q2 - 1997Q4
(Reference: PSU2218, Wausau, WI)

PSU2220	Dayton-Springfield, OH
PSU2222	Evansville-Henderson, IN-KY
PSU2224	Columbus, OH
PSU2226	Saginaw-Bay City-Midland, MI
PSU2228	Elkhart-Goshen, IN
PSU2230	Decatur, IL
PSU2232	Youngstown-Warren, OH
PSU2234	Madison, WI
PSU2236	Lincoln, NE
PSU3212	Faribault-Northfield, MN
PSU3216	Chanute-Iola, KS
PSU3218	Brookings-Madison, SD
PSU3222	Mount Vernon, IL
PSU4210	New Castle, IN
PSU4214	Central IA
PSU4220	Ft. Leonard-Wood-Lebanon, MO
PSU4224	Central MI

South Large, 1996Q2 - 1997Q4
(Reference: PSU1312, Washington, DC-MD-VA)

PSU1313	Baltimore, MD
PSU1316	Dallas-Fort Worth, TX
PSU1318	Houston-Galveston-Brazoria, TX
PSU1319	Atlanta, GA
PSU1320	Miami-Fort Lauderdale, FL
PSU1321	Tampa-St. Petersburg-Clearwater, FL

South Other, 1996Q2 - 1997Q4
(Reference: PSU2338, Chattanooga, TN-GA)

PSU2340	Florence, SC
PSU2342	Albany, GA
PSU2344	Norfolk-Virginia Beach-Newport News, VA
PSU2346	Pine Bluff, AR
PSU2348	Raleigh-Durham-Chapel Hill, NC
PSU2350	Richmond-Petersburg, VA
PSU2352	Beaumont-Port Arthur, TX
PSU2354	Brownsville-Harlingen-San Benito, TX
PSU2356	Florence, AL
PSU2358	Greenville-Spartanburg-Anderson, SC
PSU2360	Fort Myers-Cape Coral, FL
PSU2362	Birmingham, AL
PSU2364	Melbourne-Titusville-Palm Bay, FL
PSU2366	Lafayette, LA
PSU2368	Ocala, FL
PSU2370	Gainesville, FL
PSU2372	Amarillo, TX
PSU2374	San Antonio, TX
PSU2376	Oklahoma City, OK
PSU2378	Baton Rouge, LA
PSU2380	Odessa-Midland, TX
PSU3328	Arcadia-Wauchula, FL
PSU3332	Morristown-Jefferson City, TN
PSU3334	Picayune-Poplarville, MS
PSU3344	Statesboro-Waynesboro-Millen-Sylvania, GA
PSU4326	Dyersburg, TN
PSU4330	Louisa, VA
PSU4336	Woodward-Alva, OK
PSU4338	Southern AR
PSU4340	Paintsville-Pikeville-Prestonburg, KY
PSU4342	Hattiesburg, MS
PSU4346	Boone, NC
PSU4348	Tahlequah, OK

West Large, 1996Q2 - 1997Q4
(Reference: PSU1420, Los Angeles Suburbs, CA)

PSU1419	Los Angeles County, CA
PSU1422	San Francisco-Oakland-San Jose, CA
PSU1423	Seattle-Tacoma-Bremerton, WA
PSU1424	San Diego, CA
PSU1425	Portland-Salem, OR-WA
PSU1426	Honolulu, HI
PSU1427	Anchorage, AK
PSU1429	Phoenix-Mesa, AZ
PSU1433	Denver-Boulder-Greeley, CO

West Other, 1996Q2 - 1997Q4
(Reference: PSU2482, Chico-Paradise, CA)

PSU2484	Provo-Orem, UT
PSU2486	Modesto, CA
PSU2488	Boise City, ID
PSU2490	Las Vegas, NV-AZ
PSU2492	Yuma, AZ
PSU3450	Bend-Redmond, OR
PSU3456	Pullman-Colfax, WA
PSU4452	Spanola, NM
PSU4454	Lemoore-Corcoran-Avenal, CA

Appendix Table 3-page 1. REGRESSION RESULTS OF HOUSING EXPENDITURES FOR RENTERS USING 1993Q1-1996Q1 CONSUMER EXPENDITURE SURVEY DATA

	NORTHEAST REGION		MIDWEST REGION		SOUTH REGION		WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs 1993-1995	ALL OTHER PSUs
N	2876	1407	2811	1814	2985	2972	3985	1197
INTERCEPT	2.641*	3.934	2.591**	-0.231	2.601**	-1.730	2.656**	1.723
	(1.910)	(1.718)	(2.034)	(-0.140)	(2.410)	(-1.428)	(2.208)	(0.773)
AGE	0.003	-0.018**	-0.009	-0.002	-0.009*	0.008	0.012	-0.006
	(0.283)	(-2.218)	(-1.102)	(-0.215)	(-1.713)	(1.085)	(1.288)	(-0.323)
AGESQ	0.000	0.000	0.000	0.000	0.000**	0.000	0.000**	0.000
	(0.897)	(0.811)	(0.557)	(0.583)	(3.506)	(-0.767)	(2.525)	(2.990)
DETACHED	0.789*	-0.651	-0.098	-0.055	-0.105	0.383*	0.567**	0.698
	(1.680)	(-1.567)	(-0.280)	(-0.144)	(-0.611)	(1.851)	(2.166)	(1.298)
ROWHOUSE	0.453	-0.754*	-0.101	0.342	-0.190	0.192	0.419	0.674
	(0.960)	(-1.716)	(-0.279)	(0.808)	(-1.057)	(0.810)	(1.521)	(1.165)
ENDROW	0.617	-0.395	-0.751	0.454	-0.181	0.566*	0.671**	1.227*
	(1.071)	(-0.759)	(-1.521)	(0.874)	(-0.494)	(1.782)	(2.037)	(1.670)
DUPLEX	0.676	-0.795*	-0.159	0.145	-0.187	0.180	0.353	0.790
	(1.394)	(-1.833)	(-0.453)	(0.370)	(-0.966)	(0.783)	(1.297)	(1.405)
NUMPLEX	0.404	-1.060*	-0.036	-0.326	0.118	0.284	0.268	0.423
	(0.808)	(-1.891)	(-0.100)	(-0.772)	(0.534)	(1.132)	(1.000)	(0.741)
GARDEN	0.685	-1.003**	-0.073	-0.047	-0.231	0.378*	0.247	0.844
	(1.472)	(-2.394)	(-0.213)	(-0.120)	(-1.310)	(1.718)	(0.958)	(1.532)
HIGHRISE APARTMENT	0.568	-0.606	-0.037	0.121	-0.079	0.998**	0.400	0.887
	(1.221)	(-1.005)	(-0.100)	(0.233)	(-0.329)	(2.973)	(1.407)	(1.521)
FLAT	0.395	-0.933**	-0.142	0.111	-0.146	0.180	0.351	0.616
	(0.850)	(-2.306)	(-0.414)	(0.284)	(-0.877)	(0.763)	(1.325)	(1.083)
MOBILEHOME	-0.825	-1.074**	-0.815	-0.125	-0.537	0.251	-0.103	0.185
	(-0.818)	(-2.170)	(-1.604)	(-0.291)	(-1.505)	(1.016)	(-0.271)	(0.310)
AGE*DETACHED	-0.009	0.010	0.007	0.001	-0.002	-0.011*	-0.024**	-0.012
	(-1.054)	(1.444)	(0.872)	(0.085)	(-0.368)	(-1.819)	(-2.675)	(-0.706)
AGE*ROW HOUSE	-0.004	0.013	0.003	-0.004	-0.002	-0.013	-0.021**	-0.007
	(-0.422)	(1.629)	(0.367)	(-0.397)	(-0.513)	(-1.598)	(-2.170)	(-0.371)
AGE*END UNIT	-0.005	0.009	0.029*	-0.021	0.002	-0.040**	-0.033**	-0.038
	(-0.498)	(0.932)	(1.944)	(-1.150)	(0.132)	(-2.876)	(-2.629)	(-1.558)
COEFFICIENTS AND T-STATISTICS: ** 0.05 LEVEL OF SIGNIFICANCE, * 0.10 LEVEL OF SIGNIFICANCE								

Appendix Table 3-page 2. REGRESSION RESULTS OF HOUSING EXPENDITURES FOR RENTERS USING 1993Q1-1996Q1 CONSUMER EXPENDITURE SURVEY DATA								
	NORTHEAST REGION		MIDWEST REGION		SOUTH REGION		WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs 1993-1995	ALL OTHER PSUs
AGE*DUPLEX	-0.009	0.013*	0.007	0.003	0.001	-0.007	-0.021**	-0.012
	(-0.948)	(1.659)	(0.833)	(0.272)	(0.112)	(-1.019)	(-2.188)	(-0.653)
AGE*NUMPLEX	-0.009	0.017*	0.004	0.008	-0.009	-0.011	-0.017*	-0.006
	(0.010)	(1.743)	(0.525)	(0.797)	(-1.348)	(-1.352)	(-1.817)	(-0.340)
AGE*GARDEN	-0.008	0.016**	0.004	0.004	0.002	-0.017**	-0.016*	-0.024
	(-0.852)	(2.154)	(0.498)	(0.441)	(0.359)	(-2.395)	(-1.761)	(-1.377)
AGE*HIGHRISE	-0.008	0.010	0.004	-0.003	-0.001	-0.018	-0.015	
	(-0.900)	(0.930)	(0.476)	(-0.238)	(-0.132)	(-1.587)	(-1.514)	
AGE*FLAT	-0.004	0.013*	0.006	-0.002	-0.004	-0.011	-0.020**	-0.010
	(-0.471)	(1.764)	(0.731)	(-0.247)	(-0.805)	(-1.608)	(-2.147)	(-0.524)
AGE*MOBILEHOME	0.027	0.019**	0.022	-0.001	0.003	-0.010	-0.014	-0.005
	(0.837)	(1.972)	(1.580)	(-0.124)	(0.231)	(-1.268)	(-0.986)	(-0.228)
RTELECT	-0.117	0.256	0.143	0.131	-0.066	0.350**	0.173*	0.192
	(-1.052)	(1.335)	(1.089)	(0.447)	(-0.551)	(2.007)	(1.850)	(0.872)
RTHEAT	-0.089	0.005	-0.189*	0.267	0.092	0.210	0.094	-0.463**
	(-1.000)	(0.028)	(-1.655)	(1.114)	(0.968)	(1.285)	(1.477)	(-2.110)
RTTRASH	0.013	0.226	0.063	-0.048	-0.088	0.201**	-0.033	0.146
	(0.132)	(1.450)	(0.617)	(-0.352)	(-0.986)	(1.972)	(-0.423)	(1.067)
RTWATER	-0.047	-0.181	-0.093	0.151	0.048	-0.064	0.064	0.118
	(-0.472)	(-0.926)	(-0.957)	(1.270)	(0.619)	(-0.804)	(0.921)	(1.086)
RTGAS	0.182**	-0.081	0.082	-0.069	0.189*	-0.117	-0.045	0.124
	(2.051)	(-0.517)	(0.715)	(-0.222)	(1.786)	(-0.868)	(-0.523)	(0.567)
T_RTELECT	0.002	-0.079**	-0.026	-0.039	0.002	-0.050	-0.057**	-0.017
	(0.114)	(-2.151)	(-1.075)	(-0.697)	(0.065)	(-1.606)	(-3.146)	(-0.423)
T_RTHEAT	0.016	-0.001	0.048**	-0.057	-0.027	-0.035	-0.021*	0.074*
	(1.074)	(-0.019)	(2.302)	(-1.284)	(-1.544)	(-1.105)	(-1.862)	(1.819)
T_RTTRASH	0.002	-0.059**	-0.009	0.002	0.030**	-0.025	0.009	-0.033
	(0.115)	(-2.307)	(-0.530)	(0.076)	(2.059)	(-1.487)	(0.677)	(-1.428)
B_RTWATER	-0.021	0.264	0.067	-0.137	-0.036	0.025	-0.095*	-0.037
	(-0.245)	(1.491)	(0.819)	(-1.312)	(-0.680)	(0.423)	(-1.922)	(-0.439)
T_RTGAS	-0.031*	0.024	-0.025	0.035	-0.029	0.013	0.012	-0.030
	(-1.843)	(0.799)	(-1.114)	(0.584)	(-1.427)	(0.512)	(0.730)	(-0.708)
COEFFICIENTS AND T-STATISTICS: ** 0.05 LEVEL OF SIGNIFICANCE, * 0.10 LEVEL OF SIGNIFICANCE								

Appendix Table 3 page 3. REGRESSION RESULTS OF HOUSING EXPENDITURES FOR RENTERS USING 1993Q1-1996Q1 CONSUMER EXPENDITURE SURVEY DATA								
	NORTHEAST REGION		MIDWEST REGION		SOUTH REGION		WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs 1993-1995	ALL OTHER PSUs
NUMBER OF BEDROOMS	0.196** (3.556)	0.255** (2.623)	0.089 (1.319)	0.033 (0.588)	0.060 (1.491)	0.094** (2.053)	0.230** (4.869)	0.290** (2.980)
NUMBER OF BEDROOMS SQUARED	-0.042** (-3.627)	-0.038** (-2.006)	-0.013 (-0.954)	-0.005 (-0.674)	-0.012** (-2.105)	-0.007 (-1.064)	-0.046** (-4.866)	-0.054** (-2.899)
NUMBER OF ROOMS OTHER THAN BEDROOMS AND BATHS	0.022 (0.543)	0.071 (0.723)	0.050 (0.777)	0.014 (0.191)	0.025 (0.598)	0.202** (3.304)	-0.004 (-0.103)	0.160* (1.803)
NUMBER OF ROOMS OTHER THAN BEDROOMS AND BATHS SQUARED	0.002 (0.360)	0.000 (-0.009)	-0.003 (-0.298)	0.004 (0.312)	0.004 (0.563)	-0.021** (-2.005)	0.010 (1.371)	-0.019 (-1.234)
NUMBER OF BATHROOMS	0.278 (1.429)	-0.131 (-0.379)	0.424 (1.505)	0.826** (3.399)	0.140 (0.912)	0.275 (1.410)	0.260* (1.662)	0.262** (2.046)
NUMBER OF BATHROOMS SQUARED	0.034 (0.540)	0.017 (0.156)	-0.075 (-0.839)	-0.210** (-2.944)	0.010 (0.220)	-0.083 (-1.412)	-0.020 (-0.414)	-0.011 (-0.459)
GAS HEATING	-0.046 (-0.840)	0.088 (0.935)	-0.031 (-0.548)	-0.002 (-0.019)	0.024 (0.362)	0.039 (0.595)	0.045 (0.715)	0.027 (0.290)
ELECTRIC HEATING	0.020 (0.295)	0.092 (0.910)	-0.032 (-0.489)	-0.018 (-0.198)	0.035 (0.542)	0.113* (1.782)	0.011 (0.159)	0.001 (0.012)
OIL HEATING	0.009 (0.163)	0.124 (1.367)	-0.130 (-0.945)	0.189 (1.402)	-0.047 (-0.359)	-0.014 (-0.111)	0.174 (1.266)	0.012 (0.060)
SWIMMING POOL	0.126 (1.379)	0.073 (0.542)	0.157** (2.770)	0.036 (0.290)	0.038 (0.904)	0.074 (1.107)	0.027 (0.642)	0.047 (0.663)
TENNIS COURT	-0.043 (-0.302)	0.277 (1.224)	-0.064 (-0.755)	0.016 (0.082)	0.061 (1.049)	-0.093 (-1.191)	0.043 (0.546)	-0.001 (-0.004)
BARN OR STABLE	-0.352 (-1.220)	0.091 (0.425)	-0.390* (-1.955)	-0.149 (-1.038)	0.246 (0.858)	-0.032 (-0.249)	0.241 (1.408)	0.088 (0.526)
GREENHOUSE	-2.002** (-4.801)					0.461 (1.484)	0.057 (0.173)	0.395 (0.985)
GUESTHOUSE	0.913** (2.338)	0.799 (1.181)	0.022 (0.047)		0.877 (1.614)	-0.068 (-0.365)	-0.061 (-0.133)	0.987** (2.514)
PORCH	0.016 (0.167)	-0.041 (-0.391)	0.047 (0.626)	0.014 (0.173)	0.158** (2.306)	0.109 (1.414)	0.087 (1.009)	0.165 (1.576)
COEFFICIENTS AND T-STATISTICS: ** 0.05 LEVEL OF SIGNIFICANCE, * 0.10 LEVEL OF SIGNIFICANCE								

Appendix Table 3-page 4. REGRESSION RESULTS OF HOUSING EXPENDITURES FOR RENTERS USING 1993Q1-1996Q1 CONSUMER EXPENDITURE SURVEY DATA

	NORTHEAST REGION		MIDWEST REGION		SOUTH REGION		WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs 1993-1995	ALL OTHER PSUs
TERRACE	0.388**	-0.329**	0.084	0.064	0.081	-0.101	0.214**	0.503**
	(3.436)	(-1.886)	(0.546)	(0.309)	(1.076)	(-0.941)	(2.836)	(2.840)
PATIO	0.105**	0.016	0.094**	0.111**	0.129**	0.108**	0.155**	0.151**
	(2.045)	(0.224)	(2.580)	(2.001)	(4.027)	(2.645)	(5.598)	(2.664)
APARTMENT	0.031	0.091	-0.014	0.186	-0.067	-0.410	0.091	0.012
	(0.332)	(0.639)	(-0.120)	(1.383)	(-0.809)	(-1.479)	(1.438)	(0.055)
OFF-STREET PARKING	0.047	0.007	0.047	0.086*	0.037	-0.006	0.085**	0.081
	(1.331)	(0.094)	(1.364)	(1.692)	(1.097)	(-0.145)	(2.884)	(1.355)
WINDOW AIR CONDITIONING	0.103**	0.072	0.170**	0.159**	0.067	0.110**	0.022	-0.108
	(2.836)	(1.049)	(4.592)	(3.016)	(1.387)	(2.254)	(0.554)	(-1.540)
CENTRAL AIR CONDITIONING	0.180**	-0.001	0.339**	0.248**	0.236**	0.355**	0.043	0.077
	(2.717)	(-0.006)	(7.545)	(4.182)	(5.166)	(7.267)	(1.010)	(1.236)
YRMON	0.000**	0.000*	0.000**	0.001**	0.001**	0.001**	0.000**	0.000*
	(2.885)	(1.647)	(3.462)	(3.906)	(4.104)	(6.310)	(3.162)	(1.678)

COEFFICIENTS AND T-STATISTICS: ** 0.05 LEVEL OF SIGNIFICANCE, * 0.10 LEVEL OF SIGNIFICANCE

Appendix Table 4-page 1. REGRESSION RESULTS OF HOUSING EXPENDITURES FOR RENTERS USING 1996Q2-1997Q4 CONSUMER EXPENDITURE SURVEY DATA								
	NORTHEAST REGION		MIDWEST REGION		SOUTH REGION		WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs 1993-1995	ALL OTHER PSUs
N	1595	603	1431	954	1408	1942	2373	769
INTERCEPT	3.204	-2.263	5.342**	-3.610	-5.255	2.227	-0.285	-1.184
	(1.350)	(-0.462)	(2.156)	(-1.044)	(-1.517)	(0.959)	(-0.159)	(-0.266)
AGE	-0.020**	-0.001	-0.020**	-0.024**	0.030*	-0.005	-0.001	-0.007
	(-2.630)	(-0.061)	(-2.161)	(-2.611)	(1.789)	(-0.532)	(-0.114)	(-0.718)
AGESQ	0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(2.075)	(1.514)	(0.329)	(0.891)	(-0.022)	(0.291)	(0.891)	(0.283)
DETACHED	-0.473	1.230*	-0.813**	-0.753**	0.652	-0.380	0.141	-0.368
	(-1.255)	(1.852)	(-2.102)	(-2.267)	(1.390)	(-1.507)	(0.375)	(-1.446)
ROWHOUSE	-0.595	1.090	-0.625	-0.655	0.631	-0.368	0.449	-0.026
	(1.552)	(1.568)	(-1.518)	(-1.364)	(1.326)	(-1.254)	(1.090)	(-0.083)
ENDROW	-0.052	0.719	-0.949*	-0.565	0.410	0.140	0.116	0.183
	(-0.105)	(0.890)	(-1.805)	(-0.775)	(0.760)	(0.388)	(0.237)	(0.366)
DUPLEX	-0.475	1.021	-0.894**	-0.637	0.591	-0.344	0.330	-0.183
	(-1.141)	(1.5300	(-2.152)	(-1.644)	(1.230)	(-1.177)	(0.853)	(-0.617)
NUMPLEX	-1.239**	0.880	-0.751*	-1.088**	0.601	-0.072	-0.082	-0.101
	(-2.924)	(1.198)	(-1.766)	(-2.774)	(1.157)	(-0.233)	(-0.208)	(-0.362)
GARDEN	-0.428	1.142*	-0.550	-0.766**	0.602	-0.173	0.085	-0.292
	(-1.162)	(1.693)	(-1.441)	(-2.071)	(1.290)	(-0.682)	(0.229)	(-1.051)
HIGHRISE APARTMENT	-0.724**	0.518	-0.718	-0.552	1.049**	-0.422	0.018	-0.641
	(-1.978)	(0.705)	(-1.563)	(-1.067)	(2.099)	(-0.512)	(0.047)	(-0.905)
FLAT	-0.479	1.233*	-0.869**	-0.968**	0.776*	-0.447*	0.147	-0.353
	(-1.312)	(1.937)	(-2.267)	(-2.909)	(1.670)	(-1.719)	(0.392)	(-1.318)
MOBILEHOME	-0.893	0.914	-1.130	-0.881**	1.309*	-0.611**	-0.168	-0.596**
	(-1.132)	(1.059)	(-0.757)	(1.980)	(1.737)	(-2.231)	(-0.338)	(-1.981)
AGE*DETACHED	0.009	-0.012	0.019**	0.019**	-0.032**	0.005	-0.005	0.003
	(1.346)	(-1.009)	(2.266)	(2.709)	(-1.963)	(0.635)	(-0.476)	(0.359)
AGE*ROW HOUSE	0.008	-0.011	0.012	0.008	-0.029*	0.008	-0.014	-0.002
	(1.175)	(-0.841)	(1.228)	(0.539)	(-1.764)	(0.694)	(-1.203)	(-0.131)
AGE*END UNIT	-0.001	0.008	0.024	0.010	-0.028	-0.021	0.000	-0.013
	(-0.146)	(0.366)	(1.566)	(0.476)	(-1.511)	(-1.445)	(-0.009)	(-0.612)
COEFFICIENTS AND T-STATISTICS: ** 0.05 LEVEL OF SIGNIFICANCE, * 0.10 LEVEL OF SIGNIFICANCE								

Appendix Table 4-page2. REGRESSION RESULTS OF HOUSING EXPENDITURES FOR RENTERS USING 1996Q2-1997Q4 CONSUMER EXPENDITURE SURVEY DATA								
	NORTHEAST REGION		MIDWEST REGION		SOUTH REGION		WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs 1993-1995	ALL OTHER PSUs
AGE*DUPLEX	0.008	-0.013	0.018**	0.012	-0.026	0.000	-0.007	0.008
	(1.132)	(-1.119)	(2.009)	(1.293)	(-1.552)	(-0.013)	(-0.681)	(0.732)
AGE*NUMPLEX	0.016**	-0.006	0.018*	0.027**	-0.033*	-0.009	-0.003	-0.001
	(2.100)	(-0.442)	(1.938)	(2.811)	(-1.832)	(-0.800)	(-0.239)	(-0.085)
AGE*GARDEN	0.008	-0.013	0.011	0.015	-0.029*	-0.002	-0.003	-0.003
	(1.144)	(-1.038)	(1.251)	(1.579)	(-1.753)	(-0.170)	(-0.323)	(-0.261)
AGE*HIGHRISE	0.012*	0.002	0.014	0.013	-0.037**	0.014	-0.001	0.019
	(1.777)	(0.172)	(1.290)	(1.067)	(-2.213)	(0.495)	(-0.135)	(0.687)
AGE*FLAT	0.007	-0.013	0.017**	0.017**	-0.032**	0.003	-0.002	0.004
	(1.052)	(-1.104)	(1.989)	(2.303)	(-1.978)	(0.308)	(-0.216)	(0.450)
AGE*MOBILEHOME	0.011	-0.011	0.030	0.018	-0.062**	0.008	-0.005	0.013
	(0.627)	(-0.686)	(0.692)	(1.538)	(-2.097)	(0.825)	(-0.298)	(1.148)
RTELECT	-0.178	0.304	-0.293	-0.087	0.082	-0.314	0.041	-0.409
	(-1.177)	(1.093)	(-1.485)	(-0.345)	(0.519)	(-1.369)	(0.327)	(-1.296)
RTHEAT	0.157	0.218	0.049	0.154	0.064	0.738**	-0.010	0.051
	(1.216)	(0.776)	(0.355)	(0.647)	(0.443)	(3.257)	(-0.119)	(0.177)
RTTRASH	0.036	-0.317	0.202	0.220	0.147	-0.075	0.092	0.378*
	(0.241)	(-1.449)	(1.323)	(1.349)	(1.154)	(-0.627)	(1.040)	(1.739)
RTWATER	-0.005	0.226	0.146	-0.081	0.028	-0.067	-0.084	-0.123
	(-0.037)	(1.022)	(1.077)	(-0.495)	(0.273)	(-0.659)	(-1.023)	(-0.737)
RTGAS	0.013	-0.205	0.143	-0.003	-0.049	-0.632**	-0.042	0.096
	(0.108)	(-0.789)	(1.035)	(-0.016)	(-0.361)	(-2.823)	(-0.356)	(0.281)
T_RTELECT	0.023	-0.045	0.049	0.024	-0.042	0.040	-0.012	0.048
	(0.780)	(-0.954)	(1.402)	(0.520)	(-1.305)	(0.890)	(-0.482)	(0.883)
T_RTHEAT	-0.013	-0.038	-0.002	-0.006	-0.014	-0.155**	-0.002	-0.042
	(-0.587)	(-0.828)	(-0.074)	(-0.131)	(-0.492)	(-3.598)	(-0.144)	(-0.856)
T_RTTRASH	-0.015	0.062*	-0.020	-0.028	-0.016	0.011	-0.019	-0.091**
	(-0.597)	(1.768)	(-0.769)	(-1.140)	(-0.818)	(0.512)	(-1.317)	(-2.763)
B_RTWATER	0.086	-0.207	-0.159	0.020	-0.039	0.016	0.073	0.172
	(0.693)	(-1.087)	(-1.383)	(0.142)	(-0.569)	(0.236)	(1.250)	(1.528)
T_RTGAS	-0.002	0.048	-0.036	-0.010	0.020	0.129**	-0.001	-0.012
	(-0.107)	(1.027)	(-1.349)	(-0.239)	(0.764)	(3.032)	(-0.061)	(-0.193)
COEFFICIENTS AND T-STATISTICS: ** 0.05 LEVEL OF SIGNIFICANCE, * 0.10 LEVEL OF SIGNIFICANCE								

Appendix Table 4-page 3. REGRESSION RESULTS OF HOUSING EXPENDITURES FOR RENTERS USING 1996Q2-1997Q4 CONSUMER EXPENDITURE SURVEY DATA								
	NORTHEAST REGION		MIDWEST REGION		SOUTH REGION		WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs 1993-1995	ALL OTHER PSUs
NUMBER OF BEDROOMS	0.122 (1.343)	0.047 (0.403)	0.145 (1.632)	0.310** (2.914)	0.473** (5.685)	0.075 (0.948)	0.094 (1.618)	0.442** (4.587)
NUMBER OF BEDROOMS SQUARED	-0.018 (-0.902)	-0.026 (-1.422)	-0.025 (-1.511)	-0.063** (-3.015)	-0.075** (-4.310)	-0.012 (-0.793)	-0.008 (-0.068)	-0.068** (-4.161)
NUMBER OF ROOMS OTHER THAN BEDROOMS AND BATHS	0.077 (0.889)	0.102 (0.733)	0.103 (1.158)	0.014 (0.190)	0.064 (0.929)	0.039 (0.605)	0.098* (1.706)	0.060 (0.705)
NUMBER OF ROOMS OTHER THAN BEDROOMS AND BATHS SQUARED	0.008 (0.533)	-0.014 (-0.693)	-0.005 (1.158)	-0.002 (-0.232)	-0.001 (-0.076)	-0.006 (-0.622)	0.002 (0.255)	0.007 (0.591)
NUMBER OF BATHROOMS	0.084 (0.552)	0.354* (1.700)	0.025 (0.190)	-0.374 (-1.093)	0.529** (2.347)	0.438** (2.061)	0.073 (0.367)	-0.469 (-1.403)
NUMBER OF BATHROOMS SQUARED	-0.023 (-0.997)	0.021 (0.622)	0.030 (1.361)	0.140 (1.483)	-0.151** (-2.220)	-0.106 (-1.620)	0.010 (0.167)	0.198* (1.833)
GAS HEATING	0.011 (0.167)	-0.155 (-1.358)	-0.037 (-0.479)	0.207** (2.296)	-0.002 (-0.017)	-0.007 (-0.100)	-0.037 (-0.604)	0.310** (3.866)
ELECTRIC HEATING	0.098 (1.095)	-0.339** (-2.450)	-0.062 (-0.699)	0.232** (2.342)	-0.011 (-0.126)	0.047 (0.680)	0.022 (0.346)	0.220** (2.664)
OIL HEATING	0.032 (0.482)	-0.124 (-0.990)	-0.156 (-0.889)	0.103 (0.463)	-0.161 (-1.047)	0.149 (1.061)	-0.370** (-2.197)	-1.091** (-3.012)
SWIMMING POOL	0.278** (2.437)	0.286 (1.562)	0.140 (1.595)	0.176 (1.002)	0.027 (0.434)	0.083 (1.356)	0.007 (0.155)	0.054 (0.688)
TENNIS COURT	-0.037 (-0.175)	0.715 (1.631)	0.031 (0.263)	-0.398 (-1.483)	0.087 (1.034)	-0.076 (-1.017)	0.039 (0.500)	-0.139 (-0.916)
BARN OR STABLE	0.769 (1.623)	0.523** (2.432)	-0.039 (-0.164)	0.144 (0.644)	0.445 (0.871)	-0.257 (-1.304)	0.229 (0.685)	-0.021 (-0.074)
GREENHOUSE	-0.750 (-1.269)			0.506 (0.614)		0.305 (0.521)	-0.035 (-0.054)	0.023 (0.039)
GUESTHOUSE				0.648 (1.241)	0.771* (1.650)	0.607** (2.074)	0.194 (0.918)	
PORCH	-0.172 (-1.401)	-0.184* (-1.771)	-0.030 (-0.316)	0.098 (0.939)	0.218** (2.614)	0.012 (0.132)	0.005 (0.056)	-0.207* (-1.700)
COEFFICIENTS AND T-STATISTICS: ** 0.05 LEVEL OF SIGNIFICANCE, * 0.10 LEVEL OF SIGNIFICANCE								

Appendix Table 4-page 4. REGRESSION RESULTS OF HOUSING EXPENDITURES FOR RENTERS USING 1996Q2-1997Q4 CONSUMER EXPENDITURE SURVEY DATA

	NORTHEAST REGION		MIDWEST REGION		SOUTH REGION		WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs	ALL OTHER PSUs	A-SIZE PSUs 1993-1995	ALL OTHER PSUs
TERRACE	-0.467**	-0.534**	0.039	0.239	0.057	-0.167	0.149	-0.194
	(3.460)	(-2.487)	(0.204)	(1.205)	(0.431)	(-1.353)	(1.500)	(-0.861)
PATIO	-0.075	0.093	0.145**	0.183**	0.062	0.043	0.090**	-0.108**
	(-1.024)	(0.975)	(2.985)	(2.544)	(1.507)	(0.964)	(2.756)	(-1.991)
APARTMENT	-0.170	-0.223	0.134	0.095	0.112	0.002	-0.010	0.259
	(-1.350)	(-1.425)	(0.932)	(0.745)	(0.911)	(0.016)	(-0.115)	(1.101)
OFF-STREET PARKING	0.116**	0.089	-0.014	-0.104	0.028	0.031	0.050	0.047
	(2.351)	(1.077)	(-0.268)	(-1.509)	(0.597)	(0.699)	(1.384)	(0.687)
WINDOW AIR CONDITIONING	0.120**	-0.005	0.021	0.012	0.019	0.044	0.040	-0.026
	(2.563)	(-0.052)	(0.391)	(0.171)	(0.262)	(0.824)	(1.384)	(-0.355)
CENTRAL AIR CONDITIONING	0.205**	-0.021	0.247**	0.148**	0.183**	0.376**	0.102**	0.022
	(2.694)	(-0.124)	(3.742)	(1.970)	(2.791)	(6.768)	(2.144)	(0.296)
YRMON	0.001*	0.001*	0.000	0.001**	0.001**	0.000*	0.001**	0.001*
	(1.918)	(1.637)	(0.922)	(3.266)	(3.150)	(1.778)	(4.028)	(1.768)

COEFFICIENTS AND T-STATISTICS: ** 0.05 LEVEL OF SIGNIFICANCE, * 0.10 LEVEL OF SIGNIFICANCE

Appendix 5-page 1. Regression Results of Housing Expenditures for Renters Using 1993Q1-1996Q1 Consumer Expenditure Survey Data: PSU Coefficients

	MIDWEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
Reference PSU	PSU1207	PSU2210
N	2811	1814
PSU1208	-0.255** (-4.250)	
PSU1209	-0.557** (-9.055)	
PSU1210	-0.403** (-7.286)	
PSU1211	-0.233** (-3.863)	
PSU1212	-0.156** (-2.673)	
PSU1213	-0.371** (-6.453)	
PSU1214	-0.553** (-8.737)	
PSU2212		-0.021 (-0.174)
PSU2214		-0.511** (-3.825)
PSU2216		-0.114 (-0.934)
PSU3210		-0.615** (-4.259)
PSU3212		0.053 (0.402)
PSU3214		-0.517** (-3.444)
PSU3216		-0.494** (-4.609)
PSU3218		-0.392** (-3.027)
PSU3220		-0.081 (-0.621)
PSU4206		-0.456** (-3.746)
PSU4208		-0.710** (-5.596)
PSU4210		-0.533** (-3.887)
PSU4212		-0.482** (-3.180)
PSU5206		-0.528** (-3.563)
PSU5208		-0.375** (-2.307)

Appendix 5-page 2. Regression Results of Housing Expenditures for Renters Using 1993Q1-1996Q1 Consumer Expenditure Survey Data: PSU Coefficients		
	MIDWEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
PSU5210		-0.429** (-3.366)
PSU5212		-0.327** (-2.140)
PSU5214		-0.180 (-1.032)
PSU5216		-0.389** (-2.554)

Appendix 5-page 3. Regression Results of Housing Expenditures for Renters Using 1993Q1-1996Q1 Consumer Expenditure Survey Data: PSU Coefficients		
	NORTHEAST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
Reference PSU	PSU1101	PSU2102
N	2876	1407
PSU1102	-0.337** (-5.710)	
PSU1103	-0.112** (-2.059)	
PSU1104	-0.596** (-9.338)	
PSU1105	-0.551** (-8.984)	
PSU1110	0.024 (0.404)	
PSU1111	-0.018 (-0.331)	
PSU2104		-0.421** (-3.349)
PSU2106		-0.128 (-0.907)
PSU2108		-0.349** (-2.549)
PSU3102		-0.225 (-1.558)
PSU3104		-0.329** (-2.376)
PSU3106		-0.680** (-4.414)
PSU3108		-0.034 (-0.262)
PSU4102		-0.320** (-2.366)
PSU4104		-0.272** (-2.136)
PSU5102		-0.407** (-2.475)
PSU5104		-0.204* (-1.817)

Appendix 5-page 4. Regression Results of Housing Expenditures for Renters Using 1993Q1-1996Q1 Consumer Expenditure Survey Data: PSU Coefficients		
	SOUTH REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
Reference PSU	PSU1315	PSU2318
N	2985	2972
PSU1316	-0.339** (-5.740)	
PSU1317	-0.126** (-1.975)	
PSU1318	-0.403** (-6.897)	
PSU1319	-0.359** (-5.811)	
PSU1320	-0.163** (-2.430)	
PSU1321	-0.329** (-4.935)	
PSU1322	-0.301** (-4.186)	
PSU2320		-0.254** (-2.273)
PSU2322		-0.162 (-1.226)
PSU2324		-0.048 (-0.372)
PSU2326		-0.201* (-1.723)
PSU2328		0.279** (2.394)
PSU2330		-0.321** (-3.045)
PSU2332		-0.204* (-1.749)
PSU2334		-0.452** (-3.640)
PSU2336		-0.173 (-1.487)
PSU3322		-0.318** (-2.864)
PSU3324		-0.534** (-4.004)
PSU3326		-0.162 (-1.269)
PSU3328		-0.205* (-1.668)
PSU3330		-0.638** (-5.611)
PSU3332		-0.268** (-2.079)

Appendix 5-page 5. Regression Results of Housing Expenditures for Renters Using 1993Q1-1996Q1 Consumer Expenditure Survey Data: PSU Coefficients		
	SOUTH REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
PSU3334		-0.434** (-3.934)
PSU3336		-0.164 (-1.369)
PSU3338		-0.456** (-3.371)
PSU3340		-0.229* (-1.748)
PSU4314		-0.378** (-3.050)
PSU4316		-0.600** (-3.662)
PSU4320		-0.393** (-2.857)
PSU4322		-0.480** (-3.637)
PSU5320		-0.533** (-4.062)
PSU5322		-1.003** (-7.067)
PSU5326		-0.412** (-2.346)
PSU5328		-0.420** (-2.509)
PSU5330		-0.899** (-6.809)
PSU5332		-0.576** (-3.620)

Appendix 5-page 6. Regression Results of Housing Expenditures for Renters Using 1993Q1-1996Q1 Consumer Expenditure Survey Data: PSU Coefficients		
	WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
Reference PSU	PSU1420	PSU2442
N	3985	1197
PSU1421	0.081 (1.435)	
PSU1422	0.091 (1.515)	
PSU1423	-0.232** (-3.424)	
PSU1424	0.044 (0.739)	
PSU1425	-0.169** (-2.526)	
PSU1426	0.246** (2.733)	
PSU1427	0.153** (2.319)	
PSU1433	-0.281** (-4.622)	
PSU2444		0.262** (2.136)
PSU3442		0.246** (2.074)
PSU3444		0.238** (2.077)
PSU3446		0.120 (0.928)
PSU3448		-0.185 (-1.484)
PSU4426		0.179 (1.574)
PSU4428		0.132 (1.166)
PSU5434		0.226 (1.400)
PSU5436		0.022 (0.136)

Appendix 5-page 7. Regression Results of Housing Expenditures for Renters Using 1996Q2-1997Q4 Consumer Expenditure Survey Data: PSU Coefficients		
	MIDWEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
Reference PSU	PSU1207	PSU2218
N	1431	954
PSU1208	-0.229** (-2.774)	
PSU1209	-0.400** (-4.447)	
PSU1210	-0.190** (-2.230)	
PSU1211	-0.203** (-2.438)	
PSU1212	-0.177** (-2.262)	
PSU1213	-0.257** (-3.371)	
PSU1214	-0.436** (-5.165)	
PSU2220		0.099 (0.512)
PSU2222		-0.434** (-2.224)
PSU2224		-0.180 (-0.983)
PSU2226		-0.187 (-0.953)
PSU2228		-0.106 (-0.533)
PSU2230		-0.225 (-1.139)
PSU2232		-0.434** (-2.012)
PSU2234		0.213 (1.127)
PSU2236		-0.308* (-1.667)
PSU3212		-0.065 (-0.315)
PSU3216		-0.641** (-2.908)
PSU3218		-0.688** (-3.635)
PSU3222		-0.397* (-1.920)

Appendix 5-page 8. Regression Results of Housing Expenditures for Renters Using 1996Q2-1997Q4 Consumer Expenditure Survey Data: PSU Coefficients		
	MIDWEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
PSU4210		-0.645** (-3.327)
PSU4214		-0.792** (-3.498)
PSU4220		-0.389* (-1.776)
PSU4224		0.111 (0.372)

Appendix 5-page 9. Regression Results of Housing Expenditures for Renters Using 1996Q2-1997Q4 Consumer Expenditure Survey Data: PSU Coefficients		
	MIDWEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
Reference PSU	PSU1207	PSU2218
N	1431	954
PSU1208	-0.229** (-2.774)	
PSU1209	-0.400** (-4.447)	
PSU1210	-0.190** (-2.230)	
PSU1211	-0.203** (-2.438)	
PSU1212	-0.177** (-2.262)	
PSU1213	-0.257** (-3.371)	
PSU1214	-0.436** (-5.165)	
PSU2220		0.099 (0.512)
PSU2222		-0.434** (-2.224)
PSU2224		-0.180 (-0.983)
PSU2226		-0.187 (-0.953)
PSU2228		-0.106 (-0.533)
PSU2230		-0.225 (-1.139)
PSU2232		-0.434** (-2.012)
PSU2234		0.213 (1.127)
PSU2236		-0.308* (-1.667)
PSU3212		-0.065 (-0.315)
PSU3216		-0.641** (-2.908)
PSU3218		-0.688** (-3.635)

Appendix 5-page 10. Regression Results of Housing Expenditures for Renters Using 1996Q2-1997Q4 Consumer Expenditure Survey Data: PSU Coefficients		
	MIDWEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
PSU3222		-0.397* (-1.920)
PSU4210		-0.645** (-3.327)
PSU4214		-0.792** (-3.498)
PSU4220		-0.389* (-1.776)
PSU4224		0.111 (0.372)

Appendix 5-page 11. Regression Results of Housing Expenditures for Renters Using 1996Q2-1997Q4 Consumer Expenditure Survey Data: PSU Coefficients		
	NORTHEAST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
Reference PSU	PSU1109	PSU2102
N	1595	603
PSU1102	-0.420** (-5.244)	
PSU1103	-0.097 (-1.302)	
PSU1104	-0.415** (-4.565)	
PSU1110	0.039 (0.527)	
PSU1111	-0.009 (-0.124)	
PSU2104		-0.024 (-0.129)
PSU2106		-0.050 (-0.292)
PSU2108		0.167 (0.984)
PSU2110		0.218 (1.089)
PSU2112		-0.126 (-0.559)
PSU2114		-0.195 (-0.981)
PSU2116		0.024 (0.133)
PSU4102		-0.171 (-0.979)
PSU4104		-0.484** (-2.073)
PSU4106		-0.133 (-0.633)
PSU4108		0.135 (0.563)

Appendix 5-page 12. Regression Results of Housing Expenditures for Renters Using 1996Q2-1997Q4 Consumer Expenditure Survey Data: PSU Coefficients		
	SOUTH REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
Reference PSU	PSU1312	PSU2338
N	1408	1942
PSU1313	-0.455** (-5.582)	
PSU1316	-0.330** (-4.037)	
PSU1318	-0.495** (-6.791)	
PSU1319	-0.348** (-4.442)	
PSU1320	-0.187** (-2.203)	
PSU1321	-0.588** (-6.438)	
PSU2340		-0.126 (-0.797)
PSU2342		-0.229 (-1.617)
PSU2344		0.370** (2.554)
PSU2346		-0.031 (-0.203)
PSU2348		0.233 (1.552)
PSU2350		0.395** (2.603)
PSU2352		0.083 (0.532)
PSU2354		0.023 (0.156)
PSU2356		-0.130 (-0.851)
PSU2358		0.169 (1.045)
PSU2360		0.417** (2.390)
PSU2362		0.065 (0.429)
PSU2364		0.222 (1.378)
PSU2366		-0.288* (-1.844)
PSU2368		0.045 (0.247)

Appendix 5-page 13. Regression Results of Housing Expenditures for Renters Using 1996Q2-1997Q4 Consumer Expenditure Survey Data: PSU Coefficients		
	SOUTH REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
PSU2370		0.098 (0.690)
PSU2372		0.261* (1.811)
PSU2374		0.098 (0.687)
PSU2376		0.121 (0.810)
PSU2378		-0.033 (-0.219)
PSU2380		-0.003 (-0.020)
PSU3328		-0.108 (-0.555)
PSU3332		-0.033 (-0.222)
PSU3334		-0.073 (-0.395)
PSU3344		-0.403** (-2.933)
PSU4326		0.053 (0.377)
PSU4330		0.297* (1.787)
PSU4336		-0.067 (-0.415)
PSU4338		-0.300 (-1.591)
PSU4340		-0.313* (-1.845)
PSU4342		0.126 (0.817)
PSU4346		-0.130 (-0.923)
PSU4348		-0.204 (-1.259)

Appendix 5-page 14. Regression Results of Housing Expenditures for Renters Using 1996Q2-1997Q4 Consumer Expenditure Survey Data: PSU Coefficients		
	WEST REGION	
INDEPENDENT VARIABLES	A-SIZE PSUs	ALL OTHER PSUs
Reference PSU	PSU1420	PSU2482
N	2373	769
PSU1419	0.209** (3.377)	
PSU1422	0.250** (3.691)	
PSU1423	-0.021 (-0.267)	
PSU1424	0.071 (1.055)	
PSU1425	-0.097 (-1.294)	
PSU1426	0.327** (3.514)	
PSU1427	0.213** (2.783)	
PSU1429	-0.361** (-4.896)	
PSU1433	-0.189** (-2.530)	
PSU2484		-0.198 (-1.388)
PSU2486		0.237* (1.682)
PSU2488		0.206 (1.172)
PSU2490		0.159 (0.993)
PSU2492		-0.196 (-0.991)
PSU3450		-0.076 (-0.436)
PSU3456		-0.135 (-0.818)
PSU4452		-0.202 (-1.007)
PSU4454		0.048 (0.329)

Appendix Table 6. Statistics for Imputed Housing Expenditures Regressions
Log Likelihood and Chi-Square Statistics

Housing Expenditures 1993 Quarter 1-1996 Quarter 1

Area	Sample Size	Columns in X	Columns in F	Unrestricted Log Likelihood	Restricted F Log Likelihood	Restricted X and F Log Likelihood	model df	Restricted F	df	Restricted X and F	df	Chi-Square Statistics: Critical Value Full Model	Critical Value Restricted Model F	Critical Value Restricted Model X and F	Is Calculated Chi-Square > Critical Value at 0.95? Restricted Model F *calculated X^2-critical value*	Restricted Model X and F *calculated X^2-critical value*
Northeast																
Large A Type Cities	2876	59	1145	3467.796	4576.153	5202.696	1672	1108.357	1145	1734.9	1204	1768.2409	1224.8333	1285.8362	-116.4763	449.0638
Other Areas	1407	63	620	2378.605	2698.576	2686.298	724	319.971	620	307.693	683	787.70719	679.03582	744.90848	-359.06482	-437.21548
South																
Large A Type Cities	2985	59	1376	3759.570	4567.941	5041.355	1550	808.371	1376	1281.785	1435	1642.7044	1463.4102	1524.241	-655.0392	-242.456
Other Areas	2972	82	1360	4391.694	5364.545	6249.258	1530	972.851	1360	1857.564	1442	1622.1116	1446.907	1531.4557	-474.056	326.1083
Midwest																
Large A Type Cities	2811	59	1216	3768.801	4528.234	4933.244	1536	759.433	1216	1164.443	1275	1628.2898	1298.2375	1359.1824	-538.8045	-194.7394
Other Areas	1814	70	797	2422.334	3057.562	3252.805	947	635.228	797	830.471	867	1019.7031	863.78788	936.61193	-228.55988	-106.14093
West																
Large A Type Cities	3985	61	1783	4736.838	6158.726	6852.947	2141	1421.888	1783	2116.109	1844	2249.7592	1882.3479	1945.0142	-460.4599	171.0948
Other Areas	1197	61	569	1716.423	2020.109	2271.215	567	303.686	569	554.792	630	623.50382	625.60146	689.50124	-321.91546	-134.70924

Housing Expenditures 1996 Quarter 2 -1997 Quarter 4

Area	Sample Size	Columns in X	Columns in F	Log Likelihood	Restricted F Log Likelihood	Restricted X and F Log Likelihood	model df	Restricted F	df	Restricted X and F	df	Chi-Square Statistics: Critical Value Full Model	Critical Value Restricted Model F	Critical Value Restricted Model X and F	Is Calculated Chi-Square > Critical Value at 0.95? Restricted Model F *calculated X^2-critical value*	Restricted Model X and F *calculated X^2-critical value*
Northeast																
Large A Type Cities	1595	57	746	2143.021	2687.999	2716.213	792	544.978	746	573.192	803	858.5815	810.65135	870.03469	-265.67335	-296.84269
Other Areas	603	62	313	1019.413	1109.861	1035.541	228	90.448	313	16.128	375	264.22422	355.2595	421.15422	-264.8115	-405.02622
South																
Large A Type Cities	1408	58	694	1692.836	2114.781	2316.303	656	421.945	694	623.467	752	716.69431	756.39625	816.90642	-334.45125	-193.43942
Other Areas	1942	86	1021	2797.127	3325.116	3683.15	835	527.989	1021	886.023	1107	903.33566	1096.448	1185.5158	-568.459	-299.4928
Midwest																
Large A Type Cities	1431	58	675	1892.471	2313.934	2263.263	698	421.463	675	370.792	733	760.57265	736.55127	797.09515	-315.08827	-426.30315
Other Areas	954	70	484	1546.062	1737.357	1796.727	400	191.295	484	250.665	554	447.63247	536.28739	609.86487	-344.99239	-359.19987
West																
Large A Type Cities	2373	62	1151	2779.505	3566.999	3823.429	1160	787.494	1151	1043.924	1213	1240.3473	1231.0393	1295.1373	-443.5453	-251.2133
Other Areas	769	61	437	1433.749	1533.478	1533.658	271	99.729	437	99.909	498	310.39654	486.73782	551.02262	-387.00882	-451.11362