Winnipeg Residential Tax Assessment in 1990: An Equitably Assessed City?

Research and Working Paper No. 38

By Tony J. Kuz, David Linton & Marcy Saprowich
1993

The Institute of Urban Studies

INSTITUTE OF URBAN STUDIES
UNIVERSITY OF WINNIPEG

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ABSTRACT

The City of Winnipeg Assessment Department in 1990 conducted a general reassessment of all real property. This study analyzes the relation between assessed and market valuation of single-detached properties to determine the equity of the assessment process. The 1990 assessment and the 1985 market price valuations are compared for over 7,000 observations at the neighbourhood characterization area level employing a wide variety of statistical techniques. One of the study conclusions is that the property assessments are regressive.

INTRODUCTION

Municipal property taxes have persisted as the largest single source of revenue for Canadian cities, and the equitable administration of these revenues has remained a subject of considerable debate among academics (Artibise, 1984; Dean, Hum, and Stevens, 1989; Kuz and Cariou, 1990), the popular press, and the public at large. In the City of Winnipeg, where property taxes comprised almost 50 percent of the 1990 annual budget (City of Winnipeg, 1990), the debate has been particularly intense. The focus of this controversy has been the fairness by which real property of all types has been assessed for taxation. The purpose of this study was to test the fairness of the assessment system, using measures which are considered standard by the assessment profession.

The currently accepted basis for the taxation of real property is its market value: the price which real property would command if it were sold in the marketplace. In order to fairly tax properties not sold in the marketplace during a given year, it is necessary to estimate the market value such properties would be expected to command. These market value estimations are achieved by the process of residential property assessment. Ideally then, "the purpose of assessment must be to provide an equitable means of valuing property so that the property tax may be levied and distributed as evenly as possible" (Finnis, 1979, p. 1).

SOME THEORETICAL CONSIDERATIONS

What would constitute "fair assessment" of a residential property for tax purposes? The literature states that the axiom of equal valuation of equals must hold. This means that all properties of similar land use (e.g., residential) and market value must be valued equally for tax assessment (Thrall, 1979a, p. 278). The following identity must hold:

$$AV = \lambda.MV \qquad (1)$$

where: AV = assessed value

MV = market value

λ = proportion of true market value at which assessments are levied

For the property tax to be a constant proportion of market value, λ must be spatially invariant. By rearranging equation (1)

$$\lambda = (AV/MV) \qquad (2)$$

In actual practice, it is impossible to have an invariant λ. Whatever the method of assessment, some variations in λ are inevitable. However, it should be the goal of all assessors to minimize such variations as much as technology and administrative budgets allow (Thrall, 1979b, p. 124).

What factors contribute to variations in λ? It is important to separate the influences into constituent parts in order to more easily identify the source of the variation. Anything that affects prices gives rise to variations in the denominator (MV), whereas anything that affects the numerator is an institutional characteristic.

Some of the factors which increase or decrease market value of property are:

1. negative externalities;
2. renovation;
3. quality of construction;
4. population transition of ethnic, income or racial groups;
5. increasing intensity of true market value;
6. incorrect knowledge of true market value;
7. inclusion of non-assessment items such as stove, refrigerator, window coverings in the selling price; and so forth.

The institutional factors giving rise to inequities in tax assessment are:

1. *Non-uniform changes in market valuation*. Market values which vary according to location while assessed values remain constant will give rise to a spatially differentiated λ.
2. *Group Pressure*. Assessors fearing appeals and/or political reprisals, intentionally under value property in the potentially more organized, well-to-do areas.
3. *Employing assessment methods which bias the equitable property-tax assessment rule*; and so forth.

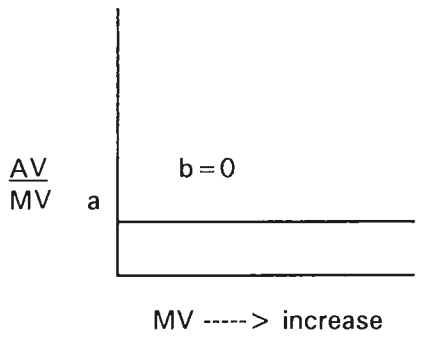
An equitable assessment should have the following relation between the ratio (AV/MV) and MV:

$$(AV/MV) = a + b\ MV$$

where: a = the intercept value on the Y axis taking on the value of λ

b = slope of the line and this value should be zero

Diagrammatically, the above equation would be presented as follows:



CITY OF WINNIPEG: STUDY AREAS AND DATA CHARACTERISTICS

The data for this study were obtained from two major sources. The 1990 assessment for all properties in Winnipeg was obtained from the City of Winnipeg Assessment Department. All the real estate sales data for Winnipeg in 1985 were obtained from the Winnipeg Real Estate Board.[1] In total there were over 11,000 real estate transactions in Winnipeg in 1985. These two files were then merged for all owner-occupied, single-detached residential properties. The end file contained approximately 7900 observations. This total constituted the population of real estate transactions in Winnipeg for single-detached residential properties in 1985.

All of the observations were spatially coded. The spatial organization employed was based on the planning areas as defined by the Department of Environmental Planning, City of Winnipeg (Appendix A, B). These neighbourhood characterization areas (NCAs) were carefully designated using housing and land use as the critical criteria in their definition. In short, this is the best available regionalization for Winnipeg for 1990 (Figure 1).

The final data base was comprised of 7054 observations[2] for 155 NCAs. Planning areas omitted from analysis were characterized by predominantly non-residential land uses, or they were located in the outer fringe areas and contained very few residential properties and significant areas of open space. Some NCAs were also eliminated from further analysis because they had too few residential real estate transactions in 1985. From the assessed value (AV) and market value (MV) variables listed for each property another variable was created, the assessed value to market value ratio (AV/MV). This variable was of crucial significance to this study as it provided the information on which judgement was made regarding the equity of residential assessment.

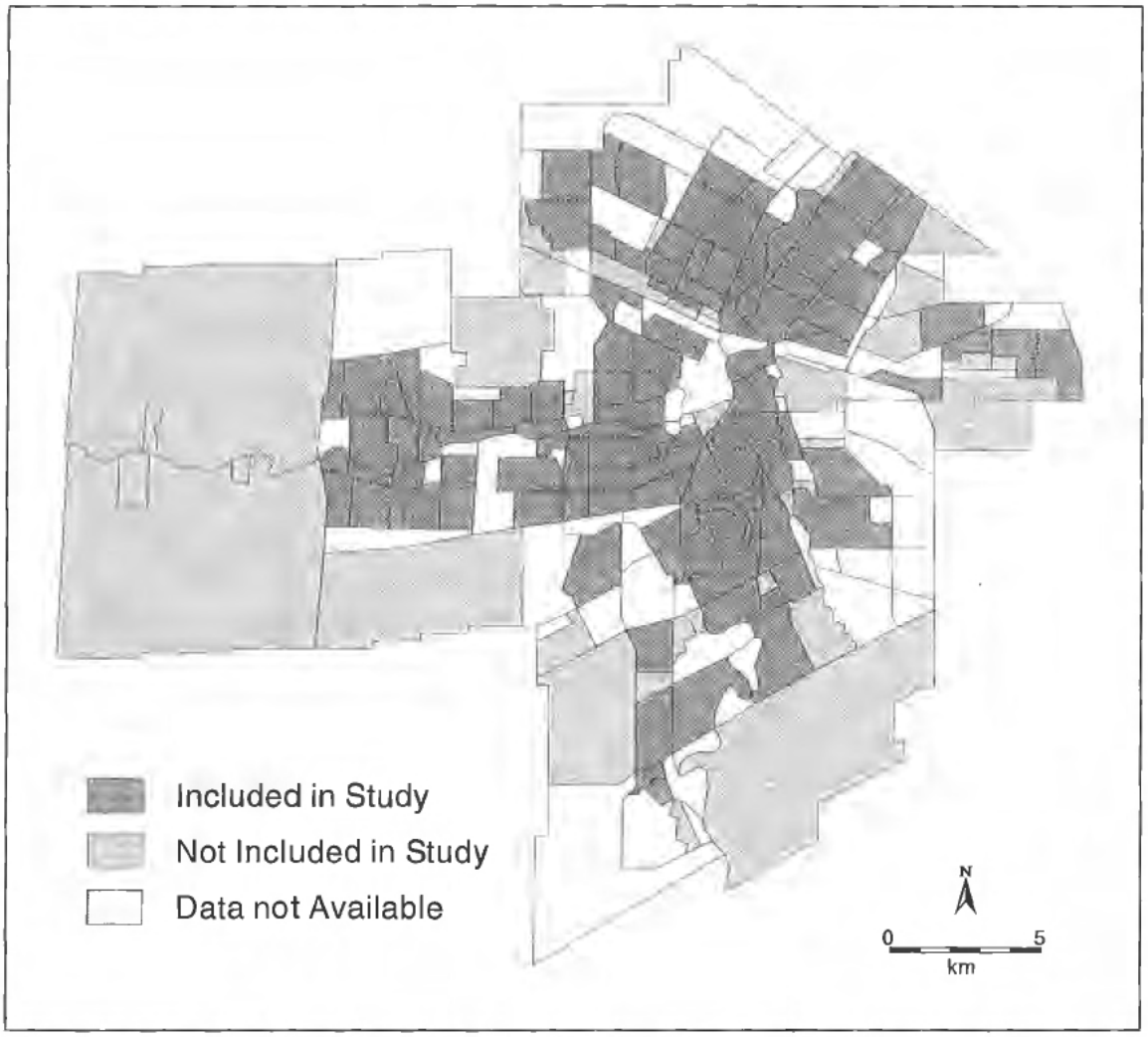
THE ANALYSIS OF THE AV/MV RATIO

To determine the equity of residential tax assessment in Winnipeg in 1990, the AV/MV ratio was analyzed in a variety of ways:

1. The AV/MV ratio was analyzed as a single distribution (N = 7054) using descriptive statistics (median, percentiles, mean, standard deviation, skewness, and kurtosis);
2. The market value data were ordered into 22 classes and then each class was analyzed for its AV/MV ratio characteristics; and
3. The AV/MV ratio was analyzed at the NCA level using the coefficient of dispersion to determine spatially those areas in Winnipeg which in 1990 were fairly and unfairly assessed.

FIGURE 1

Neighbourhood Characterization Areas, Winnipeg, 1990.



A brief comment on the characteristics of the market value of property variable is helpful because the statistics provide a description of the data being used in this study. For the 7054 observations the median market value was $63,500 (Table 1). The standard reference points of the twenty-fifth and seventy-fifth percentiles are house values of $43,825 and $79,000, indicating that 50 percent of the sold homes commanded a price between these two values. Ten percent of the houses sold for $103,000 and greater, to a maximum of $385,000. The range between the minimum and maximum values indicated that the data set contained extensive variations by which comparisons in assessment to market values could be made (Table 2). The spatial distribution of house values and their pattern is presented in Figure 2.

THE AV/MV RATIO (N = 7054)

The requirements of equitable property tax assessment dictate that the distribution of the AV/MV ratio be leptokurtic (very small variations around the median or mean). The variation calculated for the distribution of 7054 AV/MV values is not leptokurtic, suggesting a degree of assessment inequity (Table 3). The descriptive statistics for the distribution indicated a median value of .99 with a minimum and maximum value of .50 and 2.00. Again using the standard benchmarks of the twenty-fifth and seventy-fifth percentiles, the ratios were .91 and 1.08. Fifty percent of the observations had AV/MV ratios between .91 and 1.08. Ten percent of the observations had AV/MV ratios between .84 and .50 and ten percent between 1.22 and 2.00. These ratios indicated the correspondence between assessed and market values. Any deviations from 1.0 may be treated as over- or underassessment in percent. For example, 25 percent of the 7054 properties were underassessed from nine to 50 percent of their market value. An additional 25 percent of the observations were overassessed anywhere from eight percent to as much as 100 percent of their market value.

TABLE 1

SELLING PRICE OF HOUSES, WINNIPEG, 1985	
Percentile	Selling Price
1.0	18,000
2.0	20,000
3.0	22,000
4.0	24,000
5.0	25,612
10.0	30,500
20.0	39,000
25.0	43,825
30.0	47,500
40.0	55,500
50.0	63,500
60.0	69,000
70.0	75,500
75.0	79,000
80.0	83,500
90.0	103,000
95.0	126,600
96.0	135,000
97.0	143,500
98.0	156,450
99.0	180,000

N = 7,054
Median = 63,500
Mean = 66,055
Standard Deviation = 32,566

Minimum 3,300
Maximum 385,000

TABLE 2

SINGLE DETACHED HOUSING: CHARACTERISTICS BY PRICE CLASS						
Price Class	Number of Observations	Median	Mean	Standard Deviation	Maximum	Minimum
< 20,000	116	17,000	16,419	2,775	19,900	3,300
20-24,900	193	22,500	22,320	1,450	20,000	24,900
25-29,900	321	27,500	27,390	1,419	29,900	25,000
30-34,900	362	32,500	32,195	1,535	34,900	30,000
35-39,900	467	37,500	37,190	1,501	39,900	35,000
40-44,900	387	42,300	42,273	1,455	44,900	40,000
45-49,900	457	47,000	47,062	1,505	49,900	45,000
50-54,900	425	52,000	52,242	1,503	54,900	50,000
55-59,900	444	57,000	57,144	1,517	59,900	55,000
60-64,900	513	62,500	62,407	1,521	64,900	60,000
65-69,900	604	67,000	67,135	1,521	69,900	65,000
70-74,900	545	72,000	72,276	1,526	74,900	70,000
75-79,900	528	77,000	77,052	1,506	79,900	75,000
80-84,900	343	82,000	81,951	1,441	84,900	80,000
85-89,900	277	87,000	86,948	1,494	89,900	85,000
90-99,900	315	94,000	94,177	2,877	99,900	90,000
100-109,900	166	105,000	104,604	2,658	109,900	100,000
110-119,900	155	114,500	114,107	2,737	119,900	110,000
120-129,900	118	125,000	124,875	2,851	129,900	120,000
130-149,900	148	139,075	139,153	5,409	149,900	130,000
150-199,900	127	167,500	168,965	12,733	199,900	150,000
> 200,000	43	223,000	235,888	37,312	385,000	200,000

FIGURE 2

Market Value Classifications of Sold Houses by NCA, Winnipeg, 1985.

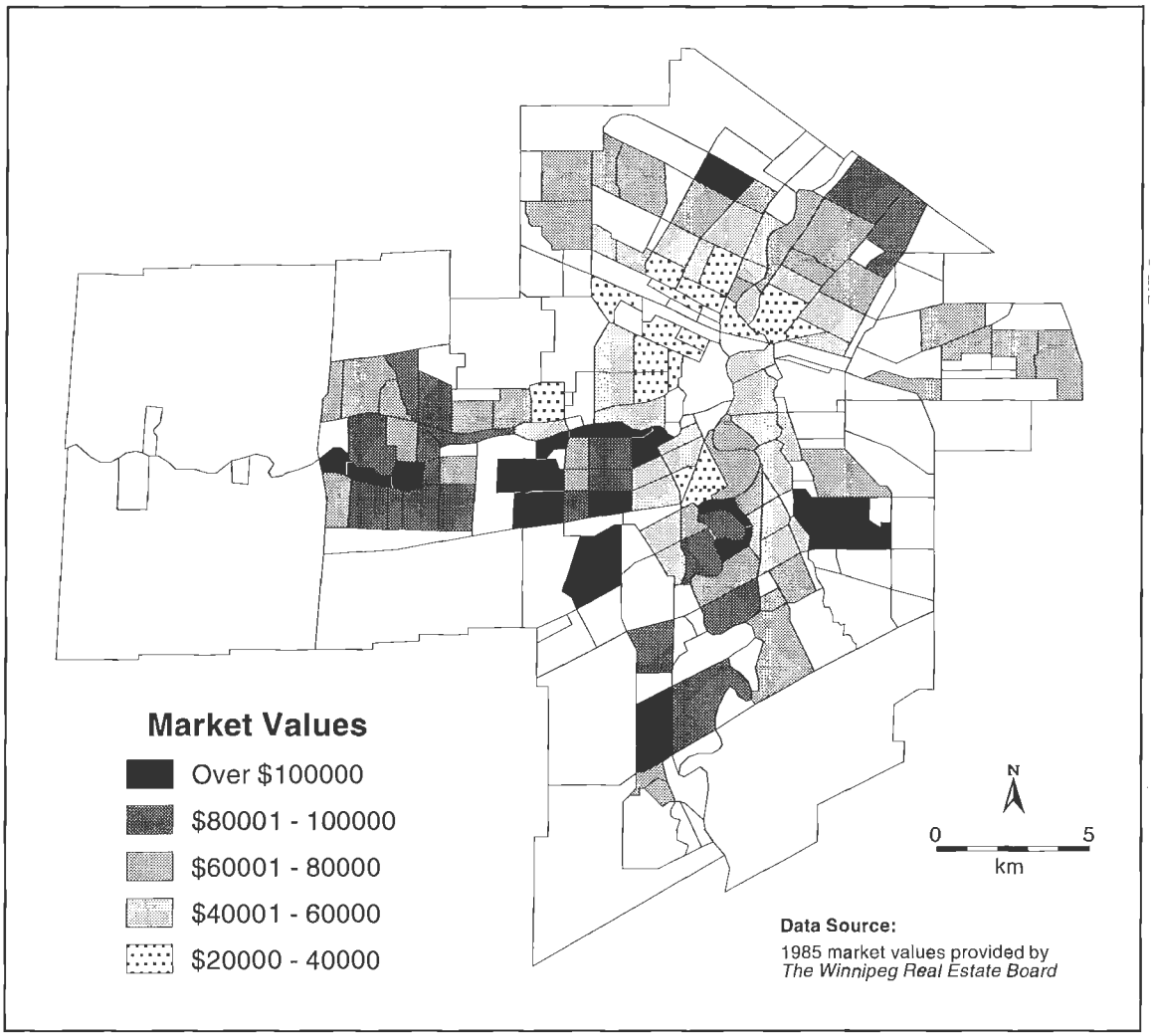


TABLE 3

ASSESSED VALUE/MARKET VALUE (AV/MV) RATIO DISTRIBUTION	
Percentile	AV/MV Ratio
1.0	.66
2.0	.72
3.0	.75
4.0	.77
5.0	.79
10.0	.84
20.0	.89
25.0	.91
30.0	.93
40.0	.96
50.0	.99
60.0	1.02
70.0	1.06
75.0	1.08
80.0	1.11
90.0	1.22
95.0	1.36
96.0	1.42
97.0	1.48
98.0	1.60
99.0	1.75

N = 7,054
Median = .99
Mean = 1.01
Standard Deviation = .18

Minimum = .50
Maximum = 2.00

THE DIRECTION OF INEQUITY: AV/MV RATIOS AND MARKET VALUES

Dividing the market values of Winnipeg's housing into relatively homogeneous categories and then looking at the median assessment to market value ratios for each category is a useful procedure for identifying the direction of assessment inequity. This procedure allows for direct comparisons of assessment rates among higher and lower priced housing. For the purpose of this study, 22 categories of market values were created (Table 4).

The results indicated that tax assessment ratios were consistently higher for lower-priced houses and generally decreased as the market value of the dwellings increased. The houses in the lowest price category were on average assessed 45 percent above market value, 46 percent above the median rate for the entire population (.99) and fully 56 percent above the dwellings valued over 200,000. Houses with market values between 30,000 and 110,000 were more consistently assessed and the rates of assessment were near the overall median of the distribution. The median ratio values for this price range varied between .96 and 1.04.

Variations in assessments within the categories can be indicated by calculating the coefficient of variation (c.v. = standard deviation/mean) or using the median and percentiles. In this case, because of the great similarities in values between the median and the mean, the coefficient of variation was calculated and interpreted. Higher c.v. values generally indicate heterogeneity in the variation in AV/MV ratio distributions among categories while lower c.v. values indicate homogeneity. The c.v. values for each price category are displayed in Table 4. These values show that properties in the price categories of less than 60,000 and in the category greater than 200,000 display the greatest variation in AV/MV ratios. Taking as an example the price class 45-49,900, the c.v. value is .18. The lowest and highest assessment to market price ratios in this class are .50 and 2.00. In this example, there are houses valued between $45,000 - 49,900 which are assessed at one-half their market value while others are assessed at two-times their market value.

The variation in assessment within the various price classes is much greater than the variation between classes as indicated by the median and mean values. Again using our example of the $45,000 to $49,900 price class, if we assume the ratio to be normally distributed (it is actually slightly skewed to the right), the distribution indicates that approximately 68 percent of the observations have AV/MV ratios between .80 and 1.16, and 95 percent of the observations have AV/MV ratios between .62 and 1.34. These values indicate exceedingly large variations in assessments for similarly valued property as determined by the market place.

TABLE 4

CHARACTERISTICS BY PRICE CLASS ASSESSED VALUE/MARKET VALUE RATIOS (AV/MV)							
Price Class	Number of Observations	Median	Mean	Standard Deviation	Coefficient of Variation	Maximum	Minimum
< 200,000	116	1.45	1.47	.28	.19	1.97	.78
20-24,900	193	1.27	1.30	.27	.18	1.98	.74
25-29,900	321	1.09	1.14	.26	.22	1.99	.50
30-34,900	362	1.04	1.08	.22	.20	1.92	.64
35-39,900	467	1.01	1.01	.22	.21	1.96	.54
40-44,900	387	.97	1.00	.20	.20	1.90	.51
45-49,900	457	.97	.98	.18	.18	2.00	.50
50-54,900	425	.98	1.00	.19	.19	1.80	.54
55-59,900	444	.98	1.00	.14	.14	1.57	.59
60-64,900	513	1.00	1.00	.12	.12	1.54	.51
65-69,900	604	.98	1.00	.12	.12	1.76	.61
70-74,900	545	.97	.99	.12	.12	1.80	.59
75-79,900	528	.97	.98	.12	.12	1.98	.61
80-84,900	343	.97	.98	.12	.12	1.55	.50
85-89,900	277	.97	.98	.11	.11	1.46	.51
90-99,900	315	.98	.99	.11	.11	1.52	.54
100-109,900	166	.96	.97	.12	.12	1.50	.67
110-119,900	155	.94	.95	.12	.13	1.34	.64
120-129,900	118	.93	.94	.11	.12	1.28	.67
130-149,900	148	.92	.93	.11	.12	1.41	.64
150-199,900	127	.91	.94	.13	.14	1.35	.68
> 200,000	43	.89	.93	.18	.19	1.49	.68

TABLE 5

SKEWNESS AND KURTOSIS VALUES BY PRICE CLASS						
Price Class	Kurtosis*			Skewness*		
	Normal	Platykurtic	Leptokurtic	Normal	Left	Right
< 20,000	2.18			-.075		
20-24,990	2.96					.475
25-29,990			4.039			.953
30-34,900			4.114			.918
35-39,900			4.442			1.011
40-44,900			5.791			1.085
45-49,900			6.836			.888
50-54,900			5.235			1.055
55-59,900			4.543			.598
60-64,900			6.529			.453
65-69,900			9.003			1.445
70-74,900		1.811		-.028		
75-79,900			13.123			1.643
80-84,900			5.562			.557
85-89,900			6.710			.550
90-99,900			6.315			.306
100-109,900			5.634			.882
110-119,900		1.987		.137		
120-129,900			4.279			.540
130-149,900			6.192			1.032
150-199,900	3.467					.882
> 200,000	3.974					.951
Overall (N = 7054)			4.753			1.587

* For each price class the skewness and kurtosis values were statistically tested to determine if the distribution was normal. A normal distribution has a skewness value of 0 and a kurtosis value of 3.0. All of the skewness and kurtosis values are arranged to indicate the nature of each distribution.

The nature of each distribution for each price class is indicated by its skewness and kurtosis values. The majority of the price classes display leptokurtic and skewed-to-the-right distributions (Table 5). The exceptions are the $70-74,900 and $110-119,900 price classes which show symmetrical distributions about the mean and rather flat distributions. The <20,000 price class displays a normal distribution.

In conclusion, the descriptive statistics indicate that the greatest difference between market price and assessed value occurs at each end of the total price distribution, with the highest differential taking place in the lower price classes. Furthermore, there is an inverse relationship (not linear) between market value and the AV/MV ratio. The lowest median ratios are recorded for the highest price classes. The pattern of the overall assessment to market value ratios is clearly regressive.

The aggregate statistics, however, mask enormous differences in the AV/MV ratios within the price classes. When the minimum and maximum values are compared, the greatest homogeneity of assessment is noted for all price categories $85-89,900 and greater. The greatest variability is noted for the $45-49,900 price class with a 150 percent range in assessment difference (2.00-.50=1.50).

THE SPATIAL DISTRIBUTION OF THE COEFFICIENT OF DISPERSION

The quality of assessments is most frequently determined by analyzing the assessment (AV) to market value (MV) ratio using the coefficient of dispersion (D). This is a statistical procedure with a long history in the traditional property tax literature (Geraci, 1977, p. 195). To compute D, the procedure involves the substraction of the AV/MV ratio for each individual observation from the median of the AV/MV ratio for the study area. The final value (D) indicates the percentage by which the assessment ratios of the various individual items differ on the average from the median assessment ratio for the area (Geraci, 1977, p. 195).[3] The D ranges in value from zero and greater but D cannot identify whether an area is over-, or under-assessed.

For Winnipeg the coefficient of dispersion was calculated for each of the 121 NCAs. To insure reliability in the D statistic only those NCAs with 10 or more observations were included in the analysis.

The values of D ranged from a low of 3.994 to a high of 29.74 (Table 6). The frequency distribution of the D values indicated the fewest number of NCAs in the 0.0 to 4.99 range and the largest number in the 10.00 to 14.99 range. Over nine percent of the NCAs had D values equal to or greater than 20 percent.

TABLE 6

COEFFICIENT OF DISPERSION BY NCA FOR WINNIPEG 1990			
Coefficient of Dispersion Values	Frequency	Percentage	Cumulative percentage
0.0 - 4.99	1	.83	.83
5.0 - 9.99	41	33.88	34.71
10.0 - 14.99	45	37.20	71.91
15.0 - 19.99	23	19.00	90.91
> 20.00	11	9.09	100.00
N =	121	100.00	

Minimum value 3.994
Maximum value 29.740

The category intervals in Table 6 were established to reflect the Winnipeg Assessment Branch's concerns about assessment equity. As mentioned before, variation around the ideal ratio value of 1.0 is unavoidable. The rule determining equitable assessment in Winnipeg is a D value up to ten percent for homogeneous areas and up to 15 percent for heterogeneous areas. Any D value greater than 15 percent is considered unacceptable and those areas exhibiting such values would be singled out for re-evaluation. Based on the analytical results, 28.09 percent of the 121 analyzed NCAs had D values exceeding 15 percent. It would be useful at this time to identify the poorly assessed NCAs and establish their spatial distribution.

The poorly assessed NCAs are highly agglomerated and are concentrated in the inner area of the city. The most poorly assessed areas with D $\geq$ 20% basically surround the central business district and form a truncated concentric pattern while the NCAs with D values between 15 and 19.99 percent are found contiguous to the D $\geq$ 20% group (Figure 3). The general pattern of distribution for this category is also concentric. Several exceptions to the general pattern are found with a few NCAs located further afield, mostly adjacent to the Red and Assiniboine Rivers.

These poorly assessed areas are in general characterized by: old housing stock; relatively inexpensive property; housing occupied by lower income householders; and mixed land uses—single-detached residences, apartments, and commercial and industrial land uses.

While the coefficient of dispersion is an extensively used statistic in determining assessment uniformity it has a number of limitations which detract from its usefulness. Its greatest limitation is its inability to identify over- and under-assessed areas. To an assessor, knowing whether an area is over- or under-assessed is vitally important. Used alone, the coefficient of dispersion is not robust enough to provide all the answers about the equity of the assessment process. While helpful, it is not sufficient for policy making purposes (Bowman and Mikesell, 1978, p. 138).

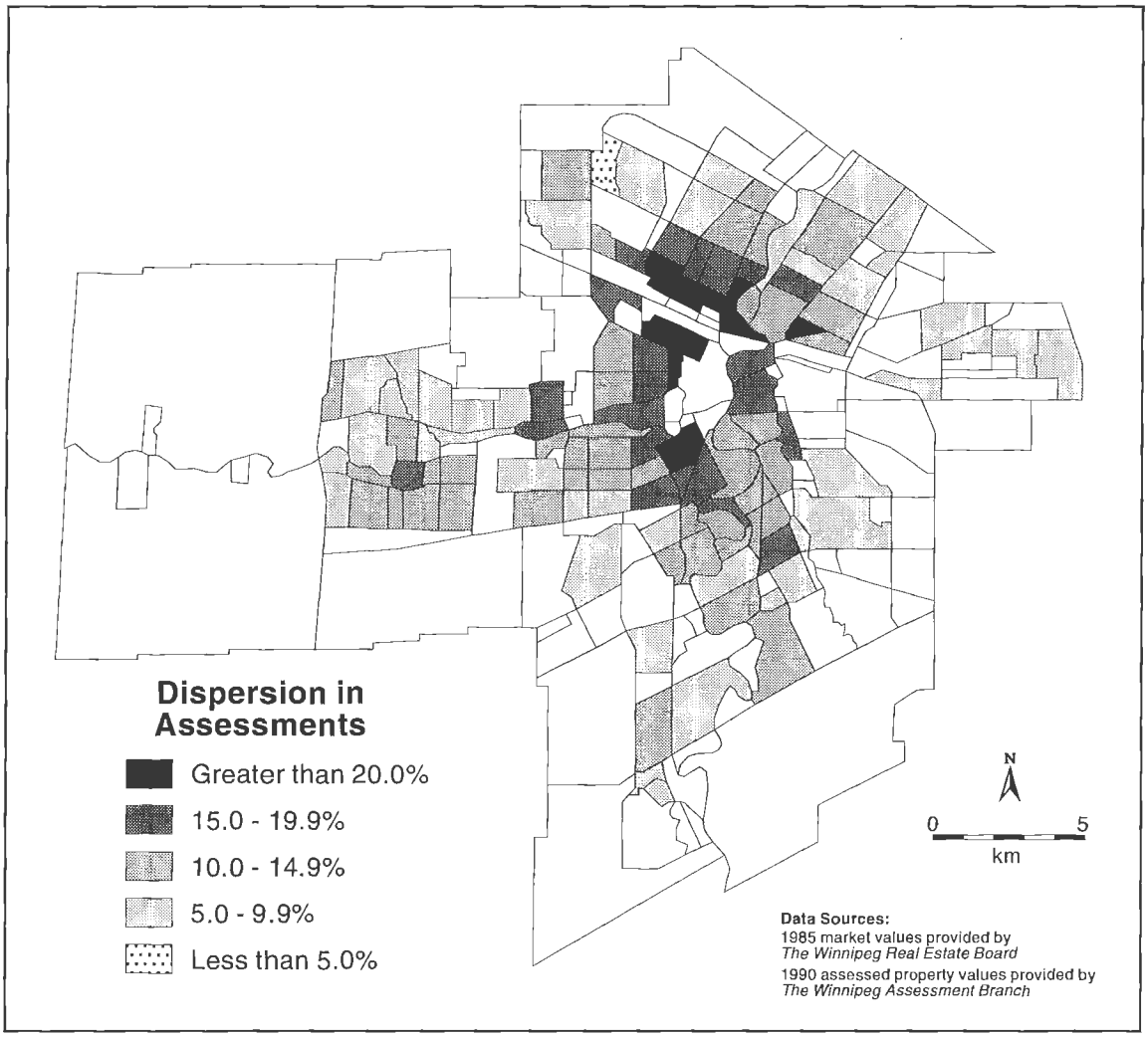
PUBLIC REACTION TO THE 1990 REASSESSMENT

The Board of Revision, City of Winnipeg, has been extremely busy handling reassessment appeals. The number of appeals dealt with per year were 7,769 in 1990, 2,712 in 1991, and 1,663 in 1992.[6] The total number of reductions over the three-year period was 4935 for an adjustment rate of approximately 41 percent.

The number of appeals indicates a substantial disaffection with the assessment process. Appeals are time-consuming and, in some instances when lawyers become involved, costly. Yet thousands have challenged the system. The complainants must have done a good job of preparing their briefs, as their success rate has been high. Two out of every five appeals were upheld and the

FIGURE 3

Coefficient of Dispersion by NCA, Winnipeg, 1990



assessments reduced. The appeal statistics only tell one side of the reassessment story. The other side, the unheard-from side, are all the owners who think their properties have been underassessed. If we assume the assessment error to be normally distributed, the total number of properties not fairly assessed must be in the 10-15 percent range.

CONCLUSIONS

This study has been a descriptive statistical analysis of assessment and market price data to establish the assessment uniformity for single detached residential properties for Winnipeg in 1990. In the final analysis, 7054 properties were analyzed in a variety of ways: as a single distribution; as distributions based on price classes; and as distributions within neighbourhood characterization areas. The research findings generated the following conclusions:

1. A condition of regressivity existed in the 1990 assessment. Lower-valued properties on average had a higher AV/MV ratio than did higher-valued properties.
2. The assessment of lower-valued properties displayed the greatest variation. The price class 45,000 - 49,900 displayed the largest range in the AV/MV ratios. Higher-valued properties had on average the lowest AV/MV ratio. However, the largest variation in the AV/MV ratio was within price classes as opposed to between price classes.
3. The coefficient of dispersion varied from a low of 3.994 to a high of 29.740. Over 28 percent of the NCAs had D values $\geq$ 15 percent. The NCAs displaying such high values of D were concentrated in the inner city surrounding the CBD.

The findings of this study clearly indicate that assessment uniformity has not been achieved, and as a consequence the effective property tax rate varies among equally valued properties. To rectify the situation as it existed in 1990, the following realities must be addressed:

1. the assessment process is regressive;
2. the D statistic defined NCAs with unacceptable levels of AV/MV variance; and
3. the poorly assessed areas are highly concentrated in the inner city surrounding the CBD.

This study also has its weaknesses, which can be addressed by more sophisticated research designs. It is relatively easy to be critical, but much more difficult to propose concrete steps to improve the process. One of the important objectives of research of this type is to identify how much of the assessment error is attributable to random causes and how much is systematic assessment error. To achieve this type of disaggregation in error, the Cheng model[4] is highly appropriate. The model can be used to identify those areas displaying large systematic errors in assessment. Such an identification would indicate to the assessment department the problem areas and the need for reassessment to bring

those areas into line with the other NCAs. However, the Cheng Model will not be applied here at this time; we will pursue this problem at a later date.

NOTES

1. In 1990, the City of Winnipeg assessment department carried out a reassessment of all residential properties. The assigned assessment values were meant to reflect 1985 market values. The combined land and building assessment was an estimate of market value of the property in 1985.

2. After the assessment and market value files were merged, only the single-detached residential properties were retained for further analysis. The number of such properties in the file totalled 7924. A preliminary analysis of assessment to market value ratios showed some extreme values; consequently any observation with ratio values less than .50 and greater than 2.00 were eliminated from further analysis. The number of such observations was 870.

3. The coefficient of dispersion (D) is stated as the percentage by which the assessment ratios of the various individual items differ, on the average, from the median assessment ratios for the area:

$$D = [(1/m) \sum_{i=1}^{m} | ri - r^\circ |] / r^\circ$$

Where ri = assessment to sales ratio for individual observation i.
r° = median value of the series.
ri-r° = the difference between the observed assessment to sales ratio and the median for the series. All differences are assumed to be positive values.

Example:

ri	r°	ri - r°	ri	r°	ri - r°
2.0	1.2	.8	1.1	1.2	.1
1.9	1.2	.7	1.0	1.2	.2
1.8	1.2	.6	.9	1.2	.3
1.7	1.2	.5	.8	1.2	.4
1.6	1.2	.4	.7	1.2	.5
1.5	1.2	.3	.6	1.2	.6
1.4	1.2	.2	.5	1.2	.7
1.3	1.2	.1	.4	1.2	.8
1.2	1.2	.0	$\sum_{i=1}^{m}$	=	7.2
			$\sum_{i=1}^{m}/m$	=	7.2 ÷ 17
				=	.423

$$D = \frac{.423}{1.200} \times 100$$

$$= 35.29\%$$

4. The Cheng model is fully developed in James E. Reinmuth, "The Measurement of Vertical Inequities in Assessment Practice," in International Association of Assessing Officers, *Analyzing Assessment Equity* (U.S.: International Association of Assessing Officers, 1977). The model, by analyzing the AV/MV ratio, can identify if regressivity exists, whether vertical inequity has a significant effect on the quality of assessments, and the proportion of the assessment variance which is controllable and the proportion which is uncontrollable.

5. Yearly totals represent some double counting. Appeals pending from one year are simply transferred to another year. The estimated double-counts number 6,662. The number of appeals dealt with during the three years total 12,151. The statistics deal with all classes of property, not only residential property. It is impossible to indicate the exact number of residential appeals, as only gross statistics are maintained (statistics provided by Board of Revision, City of Winnipeg, May 21, 1993).

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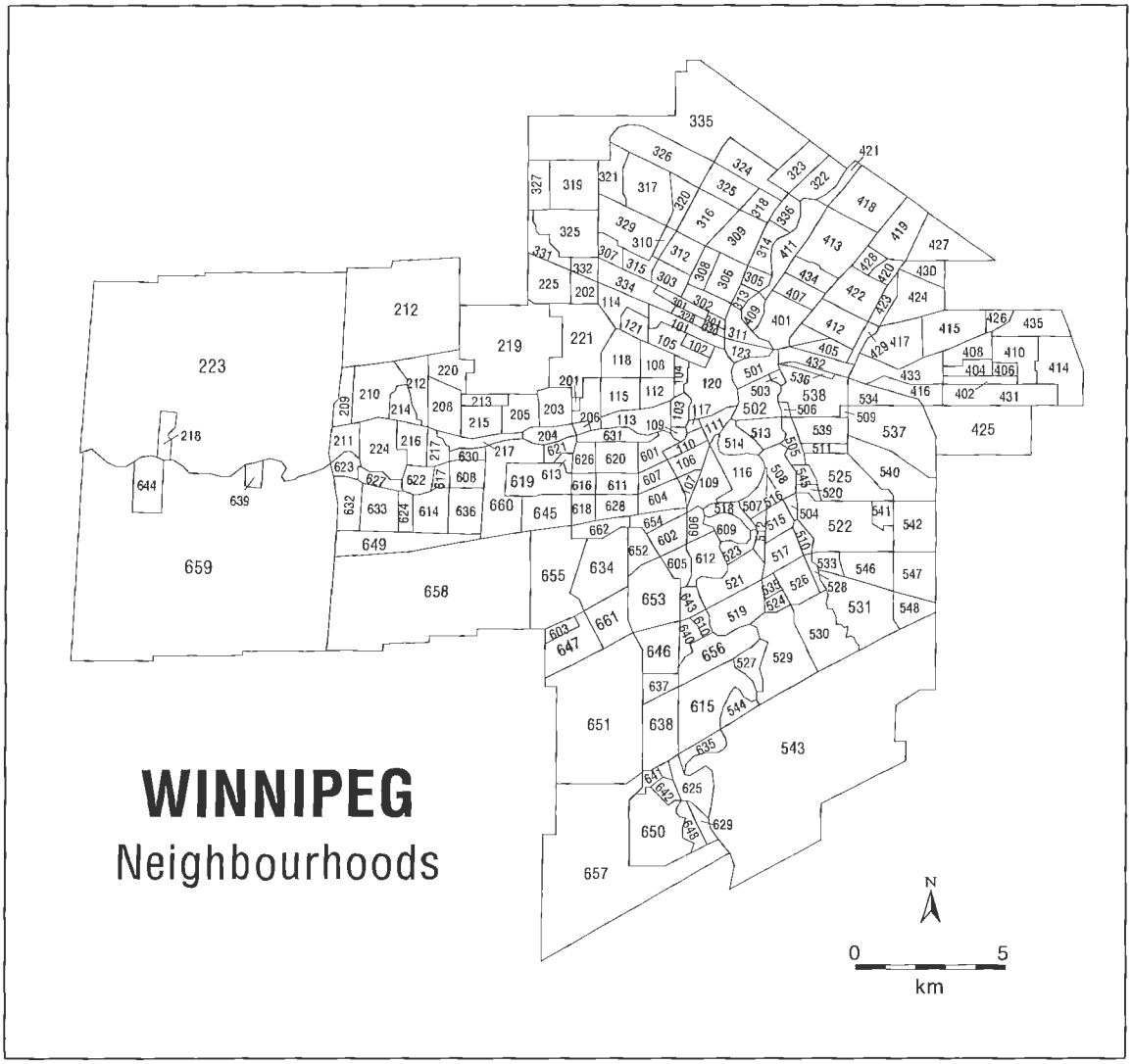
APPENDIX A

WINNIPEG NEIGHBORHOOD CHARACTERIZATION AREAS, 1990



APPENDIX B

CITY OF WINNIPEG DEPARTMENT OF PLANNING NEIGHBORHOOD CHARACTERIZATION AREAS (PLANNING AREAS) ALPHABETICAL INDEX

NEIGHBORHOOD	CODE	NEIGHBORHOOD	CODE
AGASSIZ	610	GLENDALE	211
AIRPORT	219	GLENWOOD	508
ALPINE PLACE	504	GRANT PARK	604
ARCHWOOD	505	GRASSIE	424
ARMSTRONG POINT	119	HERITAGE PARK	212
ASSINIBOINE	189 *	HOLDEN	509
BEAUMONT	602	INKSTER FARADAY	308
BETSWORTH	633	INKSTER GARDENS	319
BIRCHWOOD	207	INKSTER INDUS PARK	329
BOOTH	208	ISLAND LAKES	546
BROADWAY	188 *	J.B. MITCHELL	616
BROOKLANDS	202	JAMESWOOD	213
BRUCE PARK	204	JEFFERSON	309
BUCHANAN	209	KENSINGTON	201
BURROWS CENTRAL	303	KERN PARK	406
BURROWS KEEWATIN	307	KIL CONA PARK	427
CANTERBURY PARK	414	KILDARE REDONDA	410
CEN ST. BONIFACE	502	KILDONAN DRIVE	411
CENTENNIAL	102	KING EDWARD	203
CENTRAL PARK	104 *	KINGSTON CRES.	518
CENTRAL RIVER H.	611	KIRKFIELD	216
CHALMERS	401	LA BARRIERE	657
CHEVRIER	653	LAVALEE	510
CHINATOWN	183 *	LEILA MCPHILLIPS	320
CLOUTIER DRIVE	635	LEILA NORTH	326
CRESCENT PARK	612	LINDENWOODS	634
CRESCENTWOOD	601	LOGAN CPR	101
CRESTVIEW	210	LORD ROBERTS	109
DAKOTA CROSSING	530	LORD SELKIRK PK.	304
DANIEL MCINTYRE	108	LUXTON	305
DEER LODGE	205	MAGINOT	511
DOWNTOWN	120	MANDALAY WEST	321
DUFFERIN	301	MARGARET PARK	318
DUFFERIN INDUS.	328	MARLTON	617

Appendix B (cont.)

NEIGHBORHOOD	CODE	
DUFRESNE	506	
EARL GREY	106	
EAST ELMWOOD	405	
EBBY WENTWORTH	107	
EDGELAND	613	
ELM PARK	507	
ELMHURST	636	
ERIC COY	614	
EXCHANGE DIST.	181	
FAIRFIELD PARK	637	
FORT RICHMOND	615	
FORT WHYTE	603	
GARDEN CITY	316	
N. ST. BONIFACE	501	
NIAKWA PARK	520	
NORBERRY	512	
NORTH PORTAGE	192	*
NORTH RIVER HEI.	620	
NORWOOD EAST	513	
NORWOOD WEST	514	
OLD TUXEDO	621	
PADDOCK	206	
PARC LA SALLE	642	
PEGUIS	417	
PEMBINA STRIP	643	
POINT ROAD	606	
POLO PARK	122	
PULBERRY	521	
RADISSON	408	
RICHFIELD	528	
RICHMOND LAKES	641	
RICHMOND WEST	638	
RIDGEDALE	622	
RIDGEWOOD SOUTH	649	
RIVER EAST	418	
RIVER OSBORNE	111	
RIVER PARK SOUTH	529	
RIVERBEND	323	

NEIGHBORHOOD	CODE
MATHERS	618
MAYBANK	605
MCMILLAN	110
MEADOWOOD	526
MEADOWS	415
MELROSE	402
MEMORIAL	103
MINNETONKA	519
MINTO	115
MISSION GARDENS	416
MONTCALM	640
MUNROE EAST	412
MUNROE WEST	407
MYNARSKI	310
N. HEADINGLEY	218
N. PERIMETER W.	223
N. POINT DOUGLAS	311
ST. GEORGE	515
ST. JOHNS	306
ST. JOHNS PARK	313
ST. MATTHEWS	112
ST. NORBERT	625
ST. VITAL PER. S	543
STURGEON CREEK	214
TALBOT GREY	403
TEMPLETON SINCLA	324
THE MAPLES	317
TISSOT	503
TRANSCONA NORTH	425
TRAPPISTES	650
TUXEDO	619
TYNDALL PARK	325
UNIVERSITY	656
VALHALLA	421
VALLEY GARDENS	422
VALLEY GARDENS A	423
VARENNES	516
VARSITY VIEW	608
VIALOUX	630
VICTORIA CRES.	523
VICTORIA WEST	404
VISTA	524

Appendix B (cont.)

NEIGHBORHOOD	CODE	
RIVERGROVE	322	
RIVERVIEW	116	
RIVERWEST PARK	623	
ROBERTSON	312	
ROBLIN PARK	624	
ROCKWOOD	607	
ROSLYN	117	
ROSSER O. KILDON	335	
ROSSMERE A	413	
ROSSMERE B	434	
S. HEADINGLEY	644	
S. JOHN FRANKLIN	626	
S. POINT DOUGLAS	123	
SARGENT PARK	118	
SEVEN OAKS	314	
SHAUGHNESSY PARK	315	
SILVER HEIGHTS	215	
SOUTH PERIMETER	659	
SOUTH PORTAGE	186	*
SOUTH RIVER HEI.	628	
SOUTH TUXEDO	645	
SOUTHBOINE	627	
SOUTHDALE	522	
SPENCE	104	
SPRINGFIELD NOR.	419	
SPRINGFIELD SOU.	420	
ST. BONIFACE REF	538	
W. ALEXANDER	105	
WAVERLEY HEIGHTS	646	
WELLINGTON CRES.	631	
WEST ELMWOOD	409	
WESTDALE	632	
WESTMINSTER	113	
WESTON	114	
WESTWOOD	224	
WILDWOOD	609	
WILKES SOUTH	658	
WILLIAM WHYTE	302	
WINDSOR PARK	525	
WOODHAVEN	217	
WORTHINGTON	517	
YORK	187	*

* THESE CHARACTERIZATION AREAS, IN COMBINATION WITH A FEW NON-RESIDENTIAL AREAS SUCH AS THE LEGISLATURE, FORM THE DOWNTOWN NCA (NUMBER 120).