
STATE OF INDIANA

DEPARTMENT OF LOCAL GOVERNMENT FINANCE



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April 10, 2008

The Honorable Carol McDaniel
LaPorte County Assessor
555 Michigan Avenue, Suite 204
LaPorte, IN 46350

Mr. Shaw R. Friedman
Friedman & Associates P.C.
705 Lincolnway
LaPorte, IN 46350

Mr. Thomas M. Atherton
Bose McKinney & Evans, LLP
135 North Pennsylvania Street
Indianapolis, IN 46204

Dear Ms. McDaniel and Gentlemen:

This letter is to notify you of the results of the new ratio study created by the Department of Local Government Finance ("Department") from the 2006-pay-2007 tax billing/Auditor data submitted to the Department by LaPorte County, and the results of the Mann-Whitney test performed by the Department on the assessments for sold and unsold improved residential parcels for 2006-pay-2007 in LaPorte County. Based upon the results of the Department's analysis, there appears to be inequity in the assessments in some townships in LaPorte County.

First, as promised in our December 21, 2007 letter to both parties, the Department created a new ratio study. This ratio study was created using the final Nexus 2006-pay-2007 ratio study matched with the LaPorte County Auditor's tax billing file for 2006-pay-2007, which was submitted to the Department on or about December 3, 2007. The Department found that the assessed values on several of the parcels Nexus used in their 2006 ratio study did not match the assessed value billed by the LaPorte County Auditor. Also, the Department's new ratio study found the following non-conforming medians, CODs, and PRDs:

Springfield (improved residential) outside COD range; Noble (improved residential) outside PRD range; Galena (vacant residential) outside PRD range; Hanna (vacant residential) outside PRD range; Hudson (vacant residential) outside median, COD, and PRD ranges; Noble (vacant residential) outside PRD

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range; Scipio (vacant residential) outside PRD range; Springfield (vacant residential) outside PRD range; Center (improved commercial) outside PRD range; Michigan (improved commercial) outside PRD range; and LaPorte County, as a whole, (vacant commercial) outside COD range.

Second, to address the "sales chasing" allegations raised numerous times by Mr. Wendt, Mr. Atherton, and Mr. Denne, the Department conducted the Mann-Whitney test to determine whether there were significant differences between the assessments in sold and unsold improved residential parcels in LaPorte County. The Department's Mann-Whitney test revealed the likelihood that sold and unsold improved residential parcels were not treated equally in nine (9) of the nineteen (19) tested townships in LaPorte County.

The Mann-Whitney test is a recommended statistical measure by the International Association of Assessing Officers (IAAO) 1999 Standard on Ratio Studies (IAAO Standard) to determine whether there is horizontal equity between two (2) or more property groups; in other words, to check to see whether two or more property groups are appraised at the same percentage of market value. IAAO Standard 10.1 requires assessing officials to "ensure that sold and unsold parcels are treated equally." It further states that, "if unsold properties are not appraised consistently with sold properties and applicable guidelines, unadjusted sales ratio results cannot be used."

50 IAC 21-3-1 requires "local assessing officials" to perform "all ratio studies using the methods or combination of methods acceptable under the Standard on Ratio Studies published by the International Association of Assessing Officers (IAAO Standard) or other acceptable methods approved by the Department." Thus, by conducting the Mann-Whitney test, the Department is abiding by the IAAO Standard to determine whether sold and unsold improved residential parcels in LaPorte County were equally assessed.

IAAO Standard 10.2 states that, for example, if values for sold parcels in a given stratum increased an average of ten percent (10%) while values for unsold parcels in the same stratum increased an average of only two percent (2%), "sales chasing" probably exists. The Standard further states that, at a more sophisticated level, one can compare the distribution of value changes for sold and unsold parcels or use statistical tests to determine whether the distributions are different at a given level of confidence. IAAO Standard 10.3 recommends use of the Mann-Whitney test to determine whether differences are "significant." Based upon the results of the Department's Mann-Whitney test, sold and unsold improved residential parcels were not equally assessed in nine (9) LaPorte County townships for 2006-pay-2007.

Attached to this letter is the new ratio study created by the Department and the results of the Mann-Whitney test conducted by the Department. I believe it is critically important that all parties meet to discuss the findings and a possible resolution to this matter as soon as possible. As of this date, I am available to meet with both parties on the afternoon of Friday, April 11 and

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in the afternoons of Monday, April 14, Tuesday, April 15, and Wednesday, April 16. I am hoping both parties will come to Indianapolis to discuss this matter with an open mind and fresh ideas to resolve this situation in LaPorte County in a timely manner.

Please call my assistant Linda Ebert at (317) 232-3775 or email her at liebert@dlgf.in.gov to let us know your earliest availability. It is my intention to have all of the interested parties gather together at the Department to discuss the results of the attached analyses.

If you have any other questions or concerns, please feel free to contact the Department's General Counsel, Timothy J. Rushenberg, at (317) 233-6770 or trushenberg@dlgf.in.gov.

Sincerely,



Cheryl A. W. Musgrave
Commissioner

Attachments:

1. Department's LaPorte Ratio Study, 2006-pay-2007 tax billing data, April 9, 2008 (3 pages)
2. Department's Mann-Whitney test results, April 9, 2008 (6 pages)

cc: Marilyn Meighen

Township	Group #	Median	From Submitted Study					DLGF Calculated PRD	Sales Used per year	# of Years	From DLGF files	
			DLGF Calculated Median	COD	DLGF Calculated COD	PRD	DLGF Calculated PRD				# of Parcels	Sales Used / Parcels Yearly
Cass		98.49%	9.84		1.0045	28	14	546	0.026			
Center		99.47%	10.83		1.0127	784	392	8494	0.046			
Clinton		98.68%	6.65		1.0030	31	15.5	389	0.040			
Coolspring		101.63%	10.34		1.0237	168	84	4174	0.020			
Dewey		101.64%	10.10		0.9932	22	11	344	0.032			
Galena		101.26%	12.96		1.031	23	11.5	602	0.019			
Hanna		102.51%	10.30		1.0181	16	8	314	0.025			
Hudson		107.60%	11.66		1.0253	26	13	881	0.013			
Johnson		103.56%	9.23		1.0052	2	1	34	0.029			
Kankakee		97.17%	8.26		1.0116	31	15.5	1838	0.008			
Lincoln		98.93%	7.04		1.0172	581	290.5	10732	0.027			
Michigan		100.71%	9.67		1.0135	74	37	1120	0.033			
New Durham		100.80%	9.87		1.0379	18	9	472	0.019			
Noble		100.49%	9.33		1.0056	86	43	1025	0.042			
Pleasant		99.27%	6.44		1.0057	69	34.5	1293	0.000			
Prairie		98.18%	17.75		1.0333	54	27	1288	0.027			
Scipio		94.84%	10.52		1.0038	30	15	764	0.020			
Springfield		97.95%	7.39		1.0060	14	7	365	0.019			
Union		101.01%	5.35		1.0138	10	5	412	0.012			
Washington												
Wills												
TOTALS						2141	1070.5	36360	0.029			
GROUP												
GROUP												

Township	Group #	Median	From Submitted Study					DLGF Calculated PRD	Sales Used per year	# of Years	From DLGF files	
			DLGF Calculated Median	COD	DLGF Calculated COD	PRD	DLGF Calculated PRD				# of Parcels	Sales Used / Parcels Yearly
Cass		92.37%	18.26		1.0303	9	4.5	180	0.047			
Center		98.42%	18.27		1.0315	97	48.5	2206	0.044			
Clinton		96.50%	15.69		1.0166	28	14	146	0.192			
Coolspring		98.24%	7.32		1.0189	48	24	1210	0.040			
Dewey		93.55%	5.08		0.9958	7	3.5	172	0.041			
Galena		98.68%	16.72		1.0523	18	9	553	0.033			
Hanna		94.61%	19.75		1.0799	10	5	113	0.088			
Hudson		89.33%	40.63		1.2131	23	11.5	1412	0.016			
Johnson		96.65%	21.24		1.0382	35	17.5	504	0.000			
Kankakee		100.00%	10.00		1.0267	5	2.5	1825	0.003			
Lincoln		97.16%	14.62		1.0377	99	49.5	3712	0.027			
Michigan		100.00%	10.75		1.0092	33	16.5	389	0.085			
New Durham		90.20%	16.06		1.0400	4	2	142	0.028			
Noble		93.90%	17.44		0.9431	12	6	286	0.042			
Pleasant		97.01%	0.12		1.0000	3	1.5	20	0.150			
Scipio		83.70%	4.10		1.0364	39	19.5	353	0.110			
Springfield		107.82%	15.83		0.9308	13	6.5	788	0.016			
Union		106.79%	13.95		0.9965	5	2.5	317	0.016			
Washington		90.48%	14.96		1.0097	12	6	182	0.066			
Wills		90.73%	12.80		1.0262	11	5.5	177	0.062			
TOTALS						511	255.5	14703	0.035			
GROUP												
GROUP												

Improved Commercial	From Submitted Study							# of Years	Sales Used	per year	# of Parcels	From DLGF files
	Group #	Median	DLGF Calculated Median	COD	DLGF Calculated COD	PRD	DLGF Calculated PRD					
Cass								0		0	62	0.000
Center			99.49%		14.20		1.0418	48	24	24	845	0.057
Clinton								1	0.5	15	15	0.067
Coolspring			99.18%		12.00		0.9794	27	13.5	342	342	0.079
Dewey								0	0	34	0	0.000
Galena								0	0	16	0	0.000
Hanna								0	0	22	0	0.000
Hudson								0	0.5	25	25	0.040
Johnson								0	0	3	0	0.000
Kankakee								2	1	109	109	0.018
Lincoln								1	0	47	0	0.000
Michigan			99.54%		13.51		1.0910	73	36.5	655	655	0.111
New Durham								4	2	82	82	0.049
Noble								0	0	26	0	0.000
Pleasant								5	2.5	34	34	0.147
Prairie								1	0.5	0	0	0.000
Scipio								1	0.5	29	29	0.034
Springfield								1	0.5	46	46	0.022
Union								1	0.5	19	19	0.053
Washington								0	0	35	35	0.029
Wills								0	0	10	10	0.000
TOTALS			100.00%		16.89		1.0293	166	83	2456	2456	0.068
GROUP								17				

Vacant Commercial	From Submitted Study							# of Years	Sales Used	per year	# of Parcels	Sales Used / Parcels
	Group #	Median	DLGF Calculated Median	COD	DLGF Calculated COD	PRD	DLGF Calculated PRD					
Cass								0		0	26	0.000
Center			73.45%		74.28		0.9669	5	1.66666667	427	427	0.012
Clinton								0	0	13	0	0.000
Coolspring								2	0.66666667	274	274	0.007
Dewey								0	0	17	0	0.000
Galena								0	0	24	0	0.000
Hanna								0	0	11	0	0.000
Hudson								1	0.33333333	16	16	0.063
Johnson								0	0	0	0	0.000
Kankakee								1	0.33333333	38	38	0.026
Lincoln								0	0	26	0	0.000
Michigan								2	0.66666667	529	529	0.004
New Durham								0	0	129	0	0.000
Noble								1	0.33333333	6	6	0.167
Pleasant								0	0	0	0	0.000
Prairie								0	0	18	0	0.000
Scipio								0	0	134	0	0.000
Springfield								0	0	15	0	0.000
Union								0	0	20	0	0.000
Washington								0	0	7	0	0.000
Wills								12	4	4	1742	0.007
TOTALS			98.83%		3.64		0.9345	12	4	4	1742	0.007
Totals with Countywide			98.95%		20.85		1.0196	5	1.66666667	5	5	0.007
GROUP (countywide)								11				

Improved Industrial	From Submitted Study							From DLGF files				
	Group #	Median	DLGF Calculated Median	COD	DLGF Calculated COD	PRD	DLGF Calculated PRD	Sales Used	per year	# of Parcels	Sales Used / Parcels	
Township												
Cass										0	7	0.000
Center										0	52	0.000
Clinton										0	1	0.000
Coolspring										0	30	0.000
Dewey										0	2	0.000
Galena										0	0	0.000
Hanna										0	1	0.000
Hudson										0	0	0.000
Johnson										0	0	0.000
Kankakee										0	12	0.000
Lincoln										0	0	0.000
Michigan										0	119	0.000
New Durham										0	5	0.000
Noble										0	0	0.000
Pleasant										0	1	0.000
Prairie										0	0	0.000
Scipio										0	4	0.000
Springfield										0	4	0.000
Union										0	1	0.000
Washington										0	37	0.000
Wills										0	0	0.000
TOTALS										0	0	0.000
GROUP (countywide)		98.38%		1.679609251			15.87811681			0	276	0.000
GROUP												

Vacant Industrial	From Submitted Study							From DLGF files				
	Group #	Median	DLGF Calculated Median	COD	DLGF Calculated COD	PRD	DLGF Calculated PRD	Sales Used	per year	# of Parcels	Sales Used / Parcels	
Township												
Cass										0	3	0.000
Center										0	35	0.000
Clinton										0	5	0.000
Coolspring										0	16	0.000
Dewey										0	0	0.000
Galena										0	0	0.000
Hanna										0	0	0.000
Hudson										0	0	0.000
Johnson										0	0	0.000
Kankakee										0	0	0.000
Lincoln										0	16	0.000
Michigan										0	2	0.000
New Durham										0	213	0.000
Noble										0	1	0.000
Pleasant										0	0	0.000
Prairie										0	6	0.000
Scipio										0	0	0.000
Springfield										0	0	0.000
Union										0	1	0.000
Washington										0	3	0.000
Wills										0	36	0.000
TOTALS										0	0	0.000
GROUP (countywide)										0	337	0.000
GROUP												

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MEMORANDUM

TO: LaPorte County Assessor, Shaw Friedman, and Thomas Atherton

FROM: David Schwab, Assessment Division

DATE: April 10, 2008

SUBJECT: Evaluation of Horizontal Equity Between Sold and Unsold Parcels in LaPorte Co.

Summary

- An independent evaluation of LaPorte County reveals that in 9 out of 19 tested townships, sold residential-improved parcels were assessed differently than unsold residential-improved parcels.¹
- The townships at issue are: Center, Galena, Hanna, Kankakee, Michigan, New Durham, Scipio, Springfield, and Washington.
- With three exceptions, these results agree with the findings of Robert Denne published in "Sales Chasing in LaPorte County for Pay 2007 Assessments."
- These findings constitute a significant violation of the IAAO standard regarding horizontal equity in property assessment (1999 IAAO Standard on Ratio Studies, Standard 10); and thus, a violation of 50 IAC 21-3-1.

Method

This study compared the percentage change in assessed value for two groups of parcels in LaPorte County: (1) those parcels used in the original ratio study, and (2) all other parcels in the county which had not been sold since January 1, 2004². The comparison was done on the township level, and properties which were newly constructed or had changed in property class during the comparison years were not included. For expediency, only residential-improved properties were studied.

¹ The townships of Johnson and Prairie could not be tested due to a lack of sales data.

² The file with original ratio study data was "2006 LaPorte Ratio Study RESUBMITTED final 2_08_07 DLGF CALC.xls." The two other files were "2005_LaPorteParcels_AllOthers.xls" and "2006_LaPorteParcels_AllOthers.xls."

The data for this study was obtained from two sources: (1) the approved ratio study of LaPorte County, which included 2005 as well as 2006 assessed values for sold properties; and (2) two datasets from the Department listing the assessed value for 2005 and 2006 of all unsold properties in LaPorte County. The parcel identifiers for each unsold parcel were matched to one another for 2005 and 2006 to ensure that the increase in assessment was accurately measured. This matching was done by computer with zero tolerance for error; all parcels in either year with no matches were excluded from further analysis.

Once the parcels had been matched, the percentage change in assessed value for both sold and unsold properties was calculated on a township basis. The mean, 5% trimmed mean, and median of this percentage were also calculated for each township.

In addition, as per the manual *Mass Appraisal of Real Property* and the 1999 IAAO Standard on Ratio Studies, Standard 10.3, a Mann-Whitney test was conducted on sold and unsold properties in each township to determine whether horizontal equity had been violated³. The Mann-Whitney test is widely used to determine whether differences in two populations of data can be attributed solely to random chance. It is a non-parametric test, meaning that it gives valid results regardless of the underlying distribution of data, and it is a comparatively low power test, meaning that it overlooks subtle differences which more sensitive tests might pick up on. It is certainly an appropriate test to use in this situation.⁴

Findings

Table 1 presents the mean, trimmed mean, and median percentage change in assessed value by township. The left part of the table presents these figures for all sold parcels. The center part of the table presents the figures for unsold parcels, while the right part of the table presents the difference between the two sets of figures. Large differences within a township indicate that sold and unsold parcels may have been assessed differently.

Figure 1 presents the same information graphically by comparing the mean assessed value from Table 1 for sold and unsold parcels by township. Again, large differences within a township indicate that sold and unsold parcels may have been assessed differently.

Finally, to ensure that any observed differences are not the result of random error and that the parcels were in fact assessed differently, Table 2 presents the results of a township-level Mann-Whitney test. This test compares the changes in assessed value for both sold and unsold properties and determines the probability that this change is due to random error. This probability is expressed as a p-value between 0 and 1, with a p-value of 0 indicating there is 0% chance that the difference is due to random error, and a p-value of 1 indicating there is 100% chance that the difference is due to random error.

³ Gloudemans, Robert J. 1999. *Mass Appraisal of Real Property*. International Association of Assessing Officers. Chicago: p. 295.

⁴ All statistical calculations were done in R 2.6.2 for Windows XP. The null hypothesis in all cases was "no difference between the two groups."

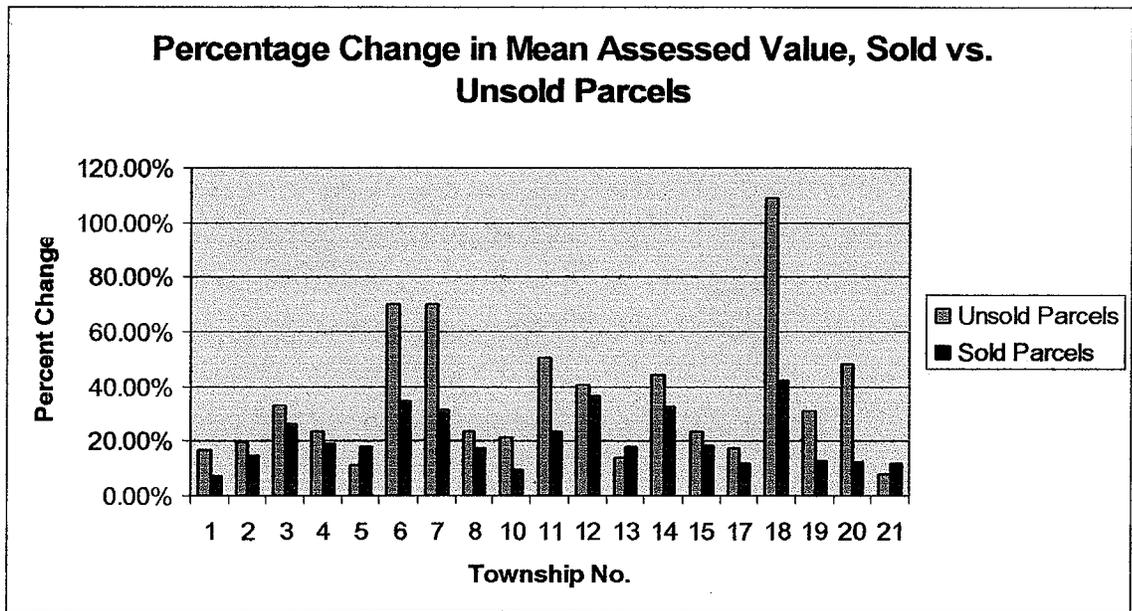
It is customary to express the p-value in terms of statistical confidence. The confidence level for a given test is found by subtracting the p-value from 1 and expressing the result as a percentage. Thus, if the p-value is .01, then the confidence level is $(1 - .01 = 99\%)$. This level indicates how confident we are that the results of the test are correct. In general, confidence levels of 95% or higher (that is, 1 chance of out 20 that the test is wrong) indicate that the test is accurate. On Table 2, townships where we can be at least 95% confident that sold and unsold properties were assessed differently are highlighted.

Comparison with the Denne Study

These results are very close to those reported by Robert Denne in his study “Sales Chasing in LaPorte County for Pay 2007 Assessments.” Eight of the townships identified by Denne as having assessed sold and unsold properties differently—Center, Galena, Hanna, Kankakee, Michigan, Scipio, Springfield, and Washington—are also identified by this study.

In addition, although the Denne study does not identify New Durham Township as problematic, his confidence level for this township is 93.3%, which is very close to the 95% needed for statistical accuracy. The reverse occurs with Cass Township, which the Denne study calculates a confidence level of 95% while this study only finds 90%. These minor differences are probably the result of small differences in method and/or data between the two studies.

The one township where the two studies do not agree is Coolspring Township. Although the Denne study finds it problematic with 100% confidence, this study only records a 56.41% level of confidence that sold and unsold properties were treated differently. Further investigation is warranted to determine the source of this discrepancy.



Number	Township
1	Cass
2	Center
3	Clinton
4	Coolspring
5	Dewey
6	Galena
7	Hanna
8	Hudson
10	Kankakee
11	Lincoln
12	Michigan
13	New Durham
14	Noble
15	Pleasant
17	Scipio
18	Springfield
19	Union
20	Washington
21	Wills

Figure 1: Mean Percent Change in Assessed Value, Sold vs. Unsold Parcels

Township	Mann-Whitney p-value	Confidence Level
Cass	0.0974	90.26%
Center	0.0221	97.79%
Clinton	0.9104	8.96%
Coolspring	0.4359	56.41%
Dewey	0.5706	42.94%
Galena	0.0161	98.39%
Hanna	0.0000	100.00%
Hudson	0.9646	3.54%
Kankakee	0.0000	100.00%
Lincoln	0.5743	42.57%
Michigan	0.0287	97.13%
New Durham	0.0203	97.98%
Noble	0.1500	85.00%
Pleasant	0.3101	68.99%
Scipio	0.0022	99.78%
Springfield	0.0000	100.00%
Union	0.1418	85.82%
Washington	0.0094	99.06%
Wills	0.7303	26.97%

Table 2: Confidence Levels from Mann-Whitney Test, by Township