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HIGHLIGHTS

Judge Improperly Defined Relevant Market for NCAA Games, Court Says

A district court erred in its definition of a relevant market and sub-markets when it enjoined enforcement of the National Collegiate Athletic Association's rule limiting competition in men's college basketball, the Sixth Circuit decides. The record, the court finds, does not contain evidence to support a proper relevant market definition. **Page 615**

'Flawed' Statistics Were Admissible, But Can't Sustain Age Bias Case

Statistics detailing a company's practice of age discrimination were flawed, but still were enough to establish a prima facie case, the U.S. Court of Appeals for the Sixth Circuit says in an unpublished opinion. But the statistics weren't enough to refute the employer's proof that dismissals were part of a reduction in force, the court concludes. **Page 619**

No Fixed Rule for Testimony on Eyewitness Reliability, First Circuit Decides

The First Circuit declines "to adopt a blanket rule that qualified expert testimony on eyewitness identification must routinely be admitted or excluded." Instead, the First Circuit says, courts should examine each case individually, "taking into account such concerns as the reliability and helpfulness of the proposed expert testimony, the importance and the quality of the eyewitness evidence it addresses, and any threat of confusion, misleading of the jury, or unnecessary delay." **Page 618**

Deposition, Affidavit Differences Don't Warrant Dismissal, Idaho Court Says

The Idaho Supreme Court finds a trial judge improperly discounted an expert's affidavit that contradicted his earlier deposition testimony. It was "not proper for the trial judge to assess the credibility of an affiant at the summary judgment stage when credibility can be tested in court before the trier of fact," the state's top court says. **Page 617**

Expert May Testify Lawyer Violated Professional Rules, Nevada Court Says

An ethics expert may testify in a malpractice action that the defendant lawyer violated professional conduct rules, and the trial judge may refer to the rules when instructing the jury, the Nevada Supreme Court holds in a case of first impression. **Page 621**

Analysis & Perspective:

Counterpoint: Class Action Appraisal Misconceptions: Author Albert R. Wilson writes this counterpoint to dispute the analysis article by John A. Kilpatrick, "Real Estate Issues in Class Certification," which ran in a previous issue of this Report. Wilson challenges the accuracy of Kilpatrick's analysis, and concludes that it "does not provide a sound basis for using the methodologies and techniques of mass appraisal in support of class certification." **Page 631**

ALSO IN THE NEWS

MODELING: Dose experts with computer models of exposure pathways are lined up on both sides for a March 2005 bell-wether trial on claims related to the release of radioactive iodine from nuclear weapons manufacturing facilities. **Page 622**

METHODOLOGY: An FBI forensic scientist's comparative bullet lead analysis methodology and her conclusion—that the bullets "analytically indistinguishable" metallurgical composition was consistent with having the same source—were both scientifically reliable, the Kentucky Supreme Court decides. **Page 620**

DAMAGES: A trial court abused its discretion in refusing to certify a class of used car dealers, the California Court of Appeal, finds, and tells the trial court on remand to decide whether the plaintiff has shown a methodology to prove damages on a classwide basis. **Page 626**

CONFLICT: Experts' disagreement on whether Cessna Aircraft Co. made misrepresentations to the Federal Aviation Administration is an issue to be decided by a factfinder, not the court on summary judgment, a Michigan appeals court holds. **Page 625**

EXPERT REPORT: A federal court judge in Florida properly precluded the plaintiffs from introducing a late-filed expert witness report detailing a crash test recreating an accident, the Eleventh Circuit rules. **Page 623**

Analysis & Perspective

Author Albert R. Wilson writes this article as a counterpoint to an article by John A. Kilpatrick, "Real Estate Issues in Class Certification," 4 Expert Evidence Report 554 (10/18/04).

Wilson faults Kilpatrick's analysis on his discussion of hedonic modeling and contingent valuation as "mass appraisal techniques." Hedonic modeling and contingent valuation surveys, Wilson says, "are highly unlikely to pass either *Daubert* or *Frye* standards as reliable analytical methodology." Kilpatrick's article, Wilson concludes, "does not provide a sound basis for using the methodologies and techniques of mass appraisal in support of class certification."

Counterpoint: Class Action Appraisal Misconceptions

By ALBERT R. WILSON, CRE

Introduction

In an article in the Expert Evidence Report on October 18, 2004, Dr. John Kilpatrick¹ put forth a series of opinions concerning the applicability and accuracy of a number of appraisal and academic research techniques and methodologies for possible application to class certification. Those opinions appear to be ill-founded and may lead the reader into a series of unfortunate situations. This article will discuss each of that author's major opinions and the reasons why those opinions are lacking in appropriate foundation.

Accuracy of USPAP Standard 1 and 2 Appraisals. The first opinion of note is that a Uniform Standards of Professional Appraisal Practice (USPAP)² Standard (not Rule) 1 or 2 appraisal is based partially on a "subjective" evaluation of a situation as if "subjective" were pejorative. This implication is misplaced. The market value of real estate has subjective characteristics and the proper evaluation of those characteristics is critical to the development of an accurate opinion of value.

A buyer is certainly interested in quantitative characteristics such as size of home, size of lot, size of garage,

number of bedrooms, number of baths, existence of a basement and the like, but they are also interested in the color of bath fixtures, modernity of fixtures, arrangement of the space, etc. The evaluation of the latter characteristics is subjective and these characteristics are virtually never recorded in an assessor's database. They may make tens of thousands of dollars of difference in the sale price and market value of a home. Neighborhood characteristics such as appearance of the street scene, quality of schools, and crime rate, among others, are also important and are characteristics that are particularly poor subjects for hedonic modeling. All of these subjective characteristics are appropriate for analysis by the appraiser and using that individual's experience and judgment leads to a fundamentally more accurate assessment of the market value.

In general, appraisers are expected to render an opinion of market value when compared to sale price in the range of ± 10 percent for homogeneous and ± 15 percent for heterogeneous residential properties. Hedonic modeling and contingent valuation techniques do not approach this level of accuracy.

Note that the comparison is between an opinion of market value³ and a sale price,⁴ a price that may or may

¹ Kilpatrick, John A., Ph.D.; "Real Estate Issues in Class Certification," The Bureau of National Affairs, Inc. Expert Evidence Report, Washington, D.C., October 18, 2004.

² *Uniform Standards of Professional Appraisal Practice*, 2002 Edition, The Appraisal Foundation.

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³ Definition of Market Value: "The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." *The Dictionary of Real Estate Appraisal*, Fourth Edition, Appraisal Institute, Chicago, Ill.

⁴ Definition of price: "The term price represents the amount a particular purchaser agrees to pay and a particular seller agrees to accept under the circumstances surrounding their

not reflect all of the ideal characteristics of a market value opinion. When sale prices are adjusted for departures from the ideal allowing an apples to apples comparison, the market value opinion will be seen to be significantly more accurate.

Applicability of USPAP Standard 6—Mass Appraisal Techniques. The author of *Real Estate Issues in Class Certification* (hereafter Author) predominantly mentions two "mass appraisal" techniques; hedonic modeling and contingent valuation. That these are indeed mass appraisal techniques is questionable. While regression is a recognized mass appraisal technique, hedonic modeling is not, although the tendency to imprecise language is currently resulting in confusion of the two techniques. Contingent valuation will be discussed in a following section and is also not a recognized mass appraisal technique.⁵

Hedonic modeling (more precisely "hedonic analysis") is an econometric concept that seeks to quantitatively interpret the coefficients of the variables representing explanatory characteristics in a regression model. This is an econometric interpretation that is not supported by the mathematics of regression.⁶

In order to conduct a mass appraisal based on regression statistics, it is necessary to develop a hypothetical mathematical model that relates those characteristics believed to be explanatory of a sale price to the sale price. The hypothetical nature of the regression relationship must always be kept in mind. There is simply no scientifically practical or mathematically supportable method for demonstrating that a given regression relationship using real-world observational data is the "correct" relationship. It is entirely possible that the relationship contains characteristics that are completely extraneous to the determination of a sale price and yet offers an apparently predictive contribution to the relationship.⁷

The value of the regression model for analytical purposes will be primarily judged on the accuracy or precision of the resultant mean estimated sale price. The accuracy of this sale price will in turn be partially dependent

on the extent to which the fundamental assumption of data homogeneity is observed by the actual data used to develop the model. The model will be most useful and accurate when applied to properties having the same or very similar characteristics to those in the data base from which it was developed.

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A lack of homogeneity in a class area will imply a need to develop several regression models, each based on its own homogeneous data set comparable to some subset of the class properties. This is an extremely data-intensive process requiring the collection of a large amount of carefully validated data for each regression model. There may simply not be enough data from similar areas with similar market conditions and property types to allow for the development of models having sufficient precision for the matter at hand.

The Author indicates that a readily accessible source of data for hedonic modeling is the tax assessors' files. While this source is readily available in most cases, it is rarely of sufficient quality to use in an hedonic model. Errors such as incorrect improvement descriptions or incorrectly recorded sale prices are not infrequent. As will be noted below, even a single erroneous data point among nearly 20,000 data points is sufficient to produce an erroneous result. At best, the use of assessors' data (or MLS data) must be accompanied by very thorough data validation.

The Author has opined that the academic literature supports the use of hedonic analysis and contingent valuation in preference to Standard 1 and 2 appraisal methodology. Significant caution must be exercised prior to reliance on the academic literature. Academic research is not subject to the strict requirements of USPAP Standard 6 or any other recognized standards. Further, the "peer review" conducted in the academic literature (and real estate literature generally) is only "editorial" in nature, not "true" or "scientific" peer review.⁸ The peer review conducted in the real estate field has been found to generally consist only of a review of the information contained within the four corners of the document as submitted by its author and is therefore of questionable reliability, particularly when statistical procedures are employed.⁹

A true or scientific peer review would require the submission of the raw data, details of the validation work performed on the raw data, details of any editing performed on the data, details of all analytical method-

transaction. A price, once finalized, refers to a sale or transaction price and implies an exchange; a price is an accomplished fact." *The Appraisal of Real Estate, Twelfth Edition*, Appraisal Institute, Chicago, Ill., 2001, page 19.

⁵ Note that neither of these so-called "mass appraisal" techniques are identified by these names in Standard 6. Further, this article's author discussed this issue with several members of the International Association of Assessing Officers who confirmed this point for both contingent valuation and hedonic modeling.

⁶ A survey of 19 textbooks used in college (undergraduate and graduate) courses on regression mathematics as offered by mathematics departments reveals that none of them contain a mention of hedonic analysis. Further, all of them clearly state that it is not possible to determine if a given regression relationship is the "correct" relationship or that any of the included characteristics are meaningful in a cause/effect sense based solely on the regression results.

⁷ Probably the most famous of such relationships is the hypothetical relationship between the number of storks sighted on the island of Bjornholm and the number of live births in Stockholm. This hypothesized relationship has a very high coefficient of determination indicating a potentially strong explanatory relationship. One must doubt, however, that Swedish couples gave serious consideration to the stork population on an island in the Baltic nine months in the future prior to engaging in activities precedent to a birth.

⁸ See Chan, Effie J., "The 'Brave New World' of Daubert: True Peer Review, Editorial Peer Review, and Scientific Validity," *New York University Law Review*, April, 1995. Cite: 70 N.Y.U.L. Rev. 100

⁹ Wilson, Albert R., "The Questionable Reliability of the 'Peer Reviewed' Real Estate Literature," Bureau of National Affairs Expert Evidence Report, January 9, 2004.

the sampling area in order to minimize estimation error. But a consensus has yet to evolve on how to define a sufficiently homogeneous market, especially given the need for a large number of observations. Mark's¹⁵ investigations the extent to which the coefficients of a housing equation are stable over time, finding that instability of the coefficients increases with the length of the estimation period. Parsons,¹⁶ and Smith and Huang¹⁷ indicate that market conditions are important when determining the estimators of hedonic coefficients because variations due to location conditions can be significant.¹⁸

The Author noted that Atkinson and Crocker¹⁸ investigated the optimum number of variables in a model. Atkinson and Crocker found that there was very little agreement among researchers with respect to the number of characteristics to include in a model, or which characteristics among more than 100 used by various researchers they surveyed should be included.

Among many other findings, Atkinson and Crocker also noted that

HPV (Hedonic Property Value) regressions have two characteristics making them a fertile area for data mining (specification searching) to obtain desired signs as well as the selective reporting of unrepresentative results. First, since they are reduced form expressions with attributes as explanatory variables (covariates), theory provides little guidance about covariate selection. To reduce the potential for omitted variable bias, nearly all HPV researchers choose to include a large number of attributes taken from a yet larger number available in their data. . . . We shall show later that this characteristic increases the likelihood of unreliable parameter estimates with unexpected signs. . . . Second, many unmeasured covariates in these studies are highly collinear. . . .

"A pattern of considerable data mining in order to obtain significant coefficients with desired signs seems to pervade the HPV literature. . . ."

"Our empirical results indicate that the specification uncertainty caused by collinearity is small for structural attributes (e.g., floor space, age, and lot size) but substantial for neighborhood attributes (e.g., air pollution, school quality, and crime); intolerance to measurement error is great for both types of attributes."

To illustrate the findings of Atkinson and Crocker, consider an investigation of the influence of a benzene contamination incident for a water utility owned by a homeowners association in Texas.¹⁹ Some 1,800 sales were used in the hedonic model, but several of those sales had a missing "year built," the year built being used in the model to calculate the age variable and causing the model to consider those properties to be some 84 years older than actuality. After the analyst

the American Real Estate and Urban Economics Association, 1985, 13, 58-75.

¹⁵ Mark, J. H., "An Empirical Examination of the Stability of Price Equations over Time," *Journal of the American Real Estate and Urban Economics Association*, 1983, 11, 397-415.

¹⁶ Parson, G. R., "Hedonic Prices and Public Goods: An Argument for Weighing Locational Attributes in Hedonic Regressions by Lot Size," *Journal of Urban Economics*, 1990, 27, 308-321.

¹⁷ Smith, V. K. and J. Huang, "Can Markets Value Air Quality? A Meta-Analysis of Hedonic Property Value Models, *Journal of Political Economy*, 1994, 103, 209-227.

¹⁸ Atkinson, Scott E., Thomas D. Crocker, A Boyesain Approach to Assessing the Robustness of Hedonic Property Value Studies, *Journal of Applied Econometrics*, Vol. 2, 27-45 (1987).

¹⁹ This article's author's files.

ologies applied to the data, and the results of those analyses. This information would then be validated independently by the reviewers to determine if the data, analytical techniques applied, and conclusions were appropriate, correctly applied, and fully supported. I know of no instance where such extensive review has been performed on an article in this field prior to publication.

Applicability of Hedonic Modeling. The Author states "Lentz and Wang¹⁰ show that '[M]ost appraisal textbooks advocate this method [hedonic pricing models] as an essential tool for mass appraisal.' However, a further reading of the Lentz and Wang article reveals that a "less commonly mentioned but potentially more serious problem is the high standard error of the estimated (fitted) value obtained from regression models, which is frequently too large to render the appraisal estimate useful. . . . They provide an example of a standard deviation of prediction error of \$79,828 for a mean estimated price of \$200,000 yielding an accuracy of ± 40 percent for the most accurate estimate that can be made using the regression results."¹¹ In most class actions the purported damage to value is of the order of 5 percent to 20 percent. A prediction accuracy of ± 40 percent cannot be expected to reveal anything of any significance in such a situation.

Further, this is a common issue with all hedonic models. An examination of 37 of the most frequently cited hedonic modeling articles revealed that the 95 percent confidence interval around the mean expected value of the variable of interest ranged from a minimum of ± 29 percent to a maximum of $\pm 5,600$ percent. Leaving out the exceptionally high value, the mean confidence interval was ± 36 percent and the median was ± 30 percent. Such accuracy is virtually useless for purposes of determining if damage to value has occurred. It must be noted that the standard error of prediction will generally be approximately twice the confidence interval used in the foregoing discussion, making the technique even less useful.¹²

Lentz and Wang also stated: "Other problems encountered in estimating hedonic pricing equations include the delineation of homogeneous submarkets and the selection of an estimation period." Butler¹³ and Ba-jic¹⁴ propose that a homogeneous market be used as

¹⁰ Lentz, George H.; Ko Wang, "Residential Appraisal and the Lending Process: A Survey of Issues," *Journal of Real Estate Research*, Vol 15, Numbers 1 / 2, 1998, page 13.

¹¹ The mean estimated sale price is the sale price calculated using the regression model applied to the mean property characteristics in the database and mathematically will be the most accurate estimate for the entire regression. Great care must be exercised with respect to a property having any other characteristics as the estimate will be less accurate. It is for this reason that the use of homogeneous data sets to develop a regression model is particularly important, and the application of that model to properties with significantly different characteristics may be both mathematically inappropriate and highly inaccurate.

¹² Consult any reputable text on regression statistics, such as Neter, John; Michael H. Kutner; Christopher J. Nachtsheim; William Wasserman; *Applied Linear Regression Models*, Third Edition, Irwin, 1996.

¹³ Butler, R. V., "Cross-Sectional Variation in the Hedonic Relationship for Urban Housing Markets," *Journal of Regional Science*, 1980, 4: 375-393.

¹⁴ Bajic, V., "Housing-Market Segmentation and Demand for Housing Attributes: Some Empirical Findings," *Journal of*

corrected the year built for all of the homes—except one—the model indicated a 13 percent diminution in property values in the area served by the water district. When the one remaining age was corrected—without disturbing any of the balance of the analyst's procedures, data or analytical package—the diminution in value disappeared. The correction of one single item of data within the (approximately) 19,800 items of data (11 per sale) used in the study resulted in a complete reversal of findings.

As noted by Atkinson and Crocker, and others, hedonic models are highly unstable and almost totally lacking in predictive accuracy. They are also fertile fields for data mining to find just the right combination of characteristics to illustrate whatever point the modeler wishes to make. Hedonic modeling is in fact a rubber ruler.

Applicability of 'Contingent Valuation.' The Author stated: "The panel [referring to the Blue Ribbon Panel on Contingent Valuation, hereafter, the Panel] has deemed survey methods (specifically contingent valuation) as providing a reasonable starting point for a judicial determination of value and damages in contamination cases."

The Panel did make this statement. But, the Panel also pointed out (1) that contingent valuation is limited in application to the elicitation of non-use values, (2) the extremely high cost of performing a creditable contingent valuation survey (several hundreds of thousands of dollars for a minimal survey), (3) that the best known attempt to determine the relationship between a value predicted by the methodology and the value of a marketable good resulted in a 50 percent overestimate of value. These and other caveats expressed by the Panel in their report makes clear that this methodology is not suitable for purposes of valuing a market good such as real estate.²⁰ The Panel further makes it abundantly clear that deviation from their specific requirements for a properly conducted contingent valuation effort will render the results of any such survey highly suspect if not completely invalid.²¹

²⁰ *Federal Register*, Vol. 58, No. 10, January 15, 1993, Proposed Rules, Department of Commerce, National Oceanic and Atmospheric Administration, 15 CFR Chapter IX, Appendix I—Report of the NOAA Panel on Contingent Valuation.

²¹ "In this section we try to lay down a fairly complete set of guidelines, compliance with which would define an ideal CV survey. A CV survey does not have to meet each of these guidelines fully in order to qualify as a source of reliable information to a damage assessment process. Many departures from the guidelines or even a single serious deviation would, however, suggest unreliability *prima facie*." IV Survey Guidelines, *Federal Register*, Vol. 58, No. 10, January 15, 1993, Proposed Rules, Department of Commerce, National Oceanic and Atmospheric Administration, 15 CFR Chapter IX, Appendix I—Report of the NOAA Panel on Contingent Valuation.

Hedonic models are highly unstable and almost totally lacking in predictive accuracy. The models are also fertile fields for data mining to find just the right combination of characteristics to illustrate whatever point the modeler wishes to make. Hedonic modeling is in fact a rubber ruler.

A careful reading of the Panel's complete report will reveal that even if some party were willing to pay the several hundreds of thousands of dollars necessary to meet the strict requirements set forth by the Panel for a creditable contingent valuation survey, any results would have to be viewed with even more skepticism than that applicable to hedonic modeling results.

A Fundamental Issue: Damage to Value vs. Locational Premiums. Unfortunately, some of the academic literature using mass appraisal methodologies as described by the Author can be misconstrued to mean that all properties in a given geographic area have been damaged by a particular disamenity. In reality, properties in a given geographic area may be worth less (or more) than similar (comparable) properties in another area. However, this may not constitute a damage to value, and may be simply a demonstration of the real estate adage of "location, location, location." That is, they have been influenced by a locational premium, albeit a negative locational premium when compared to a location considered "superior" by the market.

Damage to value is an ownership- and highly time-specific issue dependent on the influence of conditions known to the typical marketplace participant at the time of purchase, and the influence (if any) of a change in market conditions resulting in a change in market value after the date of purchase. If the change results in a negative impact on value, then that specific owner may have been damaged, but no owner purchasing after the effective date of the new market knowledge will have suffered a damage because the market value at the date of purchase will be governed by the market's new knowledge.

Note that: "A market value appraisal is also based on whatever the 'normal' or 'typical' conditions are in the marketplace for the property appraised in a time frame that is consistent with the date of value in the appraisal."²² Unfortunately some of the academic and

²² Advisory Opinion 22, *Uniform Standards of Professional Appraisal Practice*, 2002 Edition, The Appraisal Foundation, page 207, line 89 et seq.

other researchers have failed to recognize that it is the knowledge of the typical market participant at the time of evaluation that is definitive and tend to hypothesize other conditions such as "complete" knowledge. The market value and sale price have nothing to do with hypothetical conditions, only with the actual conditions in the marketplace as required by USPAP.

Conclusions. "Real Estate Issues in Class Certification" does not provide a sound basis for using the methodologies and techniques of mass appraisal in support of class certification. In fact, the use of such techniques can lead to embarrassingly erroneous conclusions. There are a number of reasons for this.

The mathematical limitations of regression statistics do not permit the level of precision necessary to document or quantify a diminution in value resulting from some alleged disamenity. Further, hedonic modeling generally is prone to data mining and frequently results in a rubber ruler effect that allows any party to derive whatever conclusions they wish from the same data.

Put simply, hedonic modeling and contingent valuation surveys are highly unlikely to pass either Daubert or Frye standards as reliable analytical methodology.

The use of contingent valuation survey methods is completely out of place in a real estate setting for two

reasons. First, such techniques were never intended for, and generally cannot be used for the quantitative analysis of market goods. Second, whenever such techniques have been tested against a real market good, the error rate has been found to be excessive.

Put simply, hedonic modeling and contingent valuation surveys are highly unlikely to pass either *Daubert* or *Frye* standards as reliable analytical methodology.

Damage to value is a time-of-ownership specific issue. The fact that properties in an area sell for a lesser price than similar properties in another area is not a demonstration of damage to value, only of the import of location. For damage to occur, an owner must purchase the property under one set of market conditions, and then have those market conditions changed after purchase by some outside agency, resulting in a reduced market value. Determining whether damage has occurred requires the individual appraisal of the property in the before- and after-market conditions—appraisals generally conducted under Standards 1 and 2, not Standard 6.

It may be possible to apply Standard 6 mass appraisal techniques in support of a class damage argument, but the data requirements to develop creditable regression models for such an application would be daunting, to say the least, and may simply not be possible.