

# Contingent Valuation: Not an Appropriate Valuation Tool

by *Albert R. Wilson*

**T**here are essentially two types of market surveys. The first type of survey is a survey of past actions taken by market participants. An appraiser's sales confirmation process is an informal and limited example of this type of survey. Its purpose is to elicit information as to what action was taken and why the participants to the transaction took that action.

The second type of survey is a survey of prospective actions that might be taken by possible market participants under hypothetical conditions. A contingent valuation (CV) survey is an example of this type of survey. Basically, respondents chosen by some statistically valid method are asked to play the part of market participants in a hypothetical scenario. The respondents are asked to answer questions as to what actions they might take under the hypothetical circumstances, and they might be asked to explain those actions.

There are fundamental differences between the two types of surveys. The first type of survey seeks information on an action taken in the market by participants to that action, while the second type of survey seeks information on an action that might be taken by individuals asked to play the part of participants in a hypothetical situation. The first type of survey seeks to identify and quantify the influences on the price paid by participants in an actual market transaction. The second type of survey seeks information as to what might influence participants in a simplified hypothetical transaction. The latter approach may hold qualitative interest, but it cannot provide meaningful quantitative information.

Note that a hypothetical survey of a potential market transaction implies a survey of a transaction between two parties. There is therefore an obligation on the part of the researcher to examine both sides of the transaction, not just the buyer or the seller side. Contingent valuation surveys, however, are explicitly designed to examine a one-sided situation, where there is a "buyer" but no seller—only a potential provider of the good or service.

This article examines problems in the use of the contingent valuation method to quantify the effects of detrimental conditions on real property values in hypo-

## abstract

The proposition has been put forth that the contingent valuation (CV) method may be used to quantify diminution in real property values due to various detrimental conditions. The blue-ribbon panel report of the National Oceanic and Atmospheric Administration has been frequently cited as primary support for this proposition. This article presents the words of that report to show the reasons why the use of contingent valuation is inappropriate for quantifying the effect of detrimental conditions on property value. Additional information is provided concerning hypothetical market surveys in general and the guidelines for evaluation of the reliability and accuracy of the results of such surveys.

thetical sales. Many of the concerns and cautions expressed here related to the conduct of a CV study are equally applicable to all hypothetical surveys and their results.

## Literature Review

Over the past few years, a number of articles in real estate literature have presented contingent valuation surveys as a method that may be used for valuing real property or impairments to the market value of real property.<sup>1</sup> The contingent valuation methodology is not an appropriate real property valuation technique, however, and the results published to date are almost certainly not reliable or accurate for the reasons described.

Among the many reasons why the CV methodology is not an appropriate technique, two may be noted as dominant. First, the recognized authorities on CV as well as advocates of the CV method clearly state that this methodology applies only to public and quasi-public goods. Second, the best results obtained will have only qualitative—but not quantitative—value. The magnitudes of values in almost all applications of CV to date have been for relatively simple public goods with one-time payments falling in the range of \$5 to \$250 per household. This is vastly different from the range that would be associated with complex real estate transactions. Carson, Flores, and Meade investigated more than 1600 CV studies, but none approached the range of payments or complexity found in real estate transactions.<sup>2</sup>

As noted by Carson, Flores, and Meade, “Rather than representing the ‘best’ case scenario for seeing how CV works as is often claimed, the private goods

case is one that should (and does) perform poorly.”<sup>3</sup> Carson et al report the results of an extensive meta-analysis examining the results of CV studies and revealed preferences<sup>4</sup> for public and quasi-public goods and observe that “because of the manner in which they are provided, private goods differ fundamentally from public goods with respect to incentives for truthful preference revelation both in actual and survey contexts. As a consequence, drawing inferences about private goods from the analysis reported in ... is problematic.”<sup>5</sup>

Quantitatively meaningful results are essentially not within the capability of the method for private goods, according to a blue-ribbon panel (Panel) convened by the National Oceanic and Atmospheric Administration (NOAA) to provide an expert review of the CV methodology.<sup>6</sup> The reason is straightforward: contingent valuation was never intended for quantitative estimation of the value of goods having a market such as real estate. Carson, Flores, and Meade state, “contingent valuation is a basic approach to non-market valuation.”<sup>7</sup> They also observe that “the term ‘contingent’ valuation is apt and one should never forget that it is only the plan to provide the good that can be valued, not the good in the abstract.”<sup>8</sup>

This article focuses on the Report of the NOAA Panel on Contingent Valuation” (Report) for several reasons. First, the Report’s findings are the result of reasonably unbiased research into the CV methodology.<sup>9</sup> Other researchers such as Hausman<sup>10</sup> are significantly less sympathetic. Even those researchers who may be counted as advocates of the CV method, such as Mitchell and Carson,<sup>11</sup> indicate significant reservations concerning the use of the methodology.

1. See for example, Bill Mundy and David McLean, “Using the Contingent Value Approach for Natural Resource and Environmental Damage Applications,” *The Appraisal Journal* (July 1998): 290–297; John A. Kilpatrick, “Real Estate Issues in Class Certification,” BNA Class Action Litigation Report, October 8, 2004; Robert A. Simons and Kimberly Winsor-Geideman, “Determining Market Perceptions on Contamination of Residential Property Buyers Using Contingent Valuation Surveys,” *Journal of Real Estate Research* 27, no. 2 (April–June 2005): 193–220; Marcus T. Allen and Grant W. Austin, “The Role of Formal Survey Research Methods in the Appraisal Body of Knowledge,” *The Appraisal Journal* (October 2001): 394–403.

2. Richard T. Carson, Nicholas E. Flores, and Norman F. Meade, “Contingent Valuation: Controversies and Evidence,” *Environmental and Resource Economics* 19, no. 2 (June 2001): 173–210.

3. *Ibid.*

4. Economists frequently speak in terms of “stated” and “revealed” preferences. A stated preference is an opinion of value expressed by an individual. A revealed preference is the price paid, usually as recorded in some transactional record such as a multiple listing service sales report or a tax assessor’s database. Note that neither of these preferences would qualify as a market value as defined by law. The first would not because it is an unqualified opinion; the second because the individual factors associated with the price paid have not been examined to determine if they are typical of the market as required by the *Uniform Standards of Professional Appraisal Practice* or as discussed in Advisory Opinion 22 of the Appraisal Standards Board.

5. Richard T. Carson et al., “Contingent Valuation and Revealed Preference Methodologies: Comparing the Estimates for Quasi-Public Goods,” *Land Economics* 72, no. 1 (February 1996): 80–99; see also Jerry A. Hausman, ed., *Contingent Valuation: A Critical Assessment*, Contributions to Economic Analysis, vol. 220 (New York: North-Holland, 1993).

6. Department of Commerce, Proposed Rules, *Natural Resource Damage Assessments Under the Oil Pollution Act of 1990*, Appendix L—“Report of the NOAA Panel on Contingent Valuation,” *Federal Register* 58, no. 10 (January 15, 1993): 4601–4614; the Report is also available online at [http://www.darp.noaa.gov/library/12\\_d.html](http://www.darp.noaa.gov/library/12_d.html).

7. Carson, Flores, and Meade.

8. *Ibid.*

9. The Panel’s charter from NOAA placed them in the position of having to suggest a methodology for use in the evaluation of passive-use values for damage estimation purposes.

10. Hausman.

11. Robert Cameron Mitchell and Richard T. Carson, *Using Surveys to Value Public Goods: The Contingent Valuation Method* (Washington, DC: Resources for the Future, 1989).

The Report therefore seems the best basis for an analysis of the CV methodology as it might be applied to real estate.

Second, the Report is frequently cited by advocates of the use of the CV methodology in real estate valuation; however, the citations are frequently incomplete and therefore may be misleading. For this reason, the Report is extensively quoted here to ensure that the full context of the Panel's findings, concerns, and recommendations are presented. The objective is to allow the Report to "speak for itself."

Third, although the Panel endorses use of the CV approach as the only available technique for establishing a starting point for passive-use values, it makes that endorsement subject to a significant number of restrictions. The restrictions are essential to the Panel's endorsement. This article extensively quotes these restrictions because they have generally not been observed in the published real estate CV research and because they are generally applicable to hypothetical surveys.

The findings of the NOAA Panel are valid in the context of today's knowledge and information, despite the passage of a dozen years.

## **Report of the NOAA Panel on Contingent Valuation Background**

The National Oceanic and Atmospheric Administration convened a blue-ribbon panel on contingent valuation in the early 1990s. The NOAA had responsibility for promulgating regulations to establish procedures for assessing damages resulting from oil spills. The Panel was specifically charged with investigating whether the CV technique could provide reliable information about lost-existence or other passive-use values.

The NOAA Panel indicates that the CV methodology might be used for the purposes of estimating the range of possible "passive-use" losses in litigation, but with the cautionary note that the CV estimate should be viewed as the upper end of the range of loss and the estimate should be subject to interpretation by the court or trier of fact in an adversarial setting where there is significant additional information and other economic estimates. It was not to be used in any sense as the best estimate of loss or damage.

The Panel's report begins with a valuable discussion of damages and the CV methodology, its origins, and its potential applications.

The *Oil Pollution Act of 1990* authorizes payments for damages related to oil spills. The Report notes that some damages are relatively straightforward to measure through information revealed in market transactions. For example, if an oil discharge kills fish and thereby reduces the incomes of fishermen, their losses can reasonably be calculated by the reduced catch multiplied by the market price(s) of the fish, less any costs they would have incurred. If the oil discharge discourages tourist travel to an area, the lost incomes of those owning and/or operating tourist facilities can be computed using the difference in revenues between the affected period and a normal season. Losses of this type are described as lost "use values," because they are experienced by those who make active use of the resources adversely affected by the discharge. Other, more difficult-to-measure losses are also possible.

[F]or at least the last twenty-five years, economists have recognized the possibility that individuals who make no active use of a particular beach, river, bay, or other such natural resource might, nevertheless, derive satisfaction from its mere existence, even if they never intend to make active use of it... This concept has come to be known as "existence value" and it is the major element of what are now referred to as "non-use" or "passive-use" values...<sup>12</sup>

The Panel observes that there is significant difficulty involved in determining passive-use damages.

If passive-use values are to be included among the compensable losses...how will they be estimated? Unlike losses to commercial fishermen or recreational property owners, there are no direct market transactions that can be observed to provide information on which estimates can be based. Unlike losses to boaters, swimmers, recreational fishermen and others, there exist no indirect methods through which market data can provide at least some clues as to lost values. In other words, there appear to be neither obvious nor even subtle behavioral trails that can provide information about lost passive-use values.<sup>13</sup>

The Panel goes on to examine the possibility of using contingent valuation for the measurement of passive-use damages, which cannot be measured through market data. Initially, the Panel notes the following regarding the CV methodology:

Some experts believe that there exists an approach that can provide useful information about the economic significance of the lost passive-use values individuals may suffer... Known as the contingent valuation (or CV) technique, this approach is based on the direct elicitation of these values from individuals through the use of carefully designed and administered sample surveys. Its appeal lies in its potential to inform damage assessment

12. "Report of the NOAA Panel on Contingent Valuation," 58 Fed. Reg. 4602.

13. Ibid.

in an area (lost passive-use values) where there appear to be no behavioral trails to be followed.

...

The CV technique is the subject of great controversy. Its detractors argue that respondents give answers that are inconsistent with the tenets of rational choice, that these respondents do not understand what it is they are being asked to value (and, thus, that stated values reflect more than that which they are being asked to value), that respondents fail to take CV questions seriously because the results of the surveys are not binding, and raise other objections as well.<sup>14</sup>

As may be observed from the foregoing, the CV technique is far from a widely accepted method or one without serious potential flaws. It is clearly a technique intended for use in the absence of market data. Proponents of the use of the CV technique for real estate sometimes point to thin markets or to markets where there is little recorded activity as situations where the use of this methodology is appropriate. On occasion, proponents point to markets where they believe the participants are ill informed or not completely informed; they suggest that a CV survey offers a method for remedying this lack of knowledge on the part of participants.

There are two major problems with these arguments. First, all market survey techniques using a hypothetical market tend to yield an overestimate of the value or price of the good.<sup>15</sup>

Second, the market is the market. Attempting to place arbitrary conditions on what the market "should have known" is inappropriate and contrary to market valuation theory. It is for this reason that appraisers do not use hypothetical markets in the development of opinions of value. Instead they seek actual sales and confirmation of the circumstances of the sale price, allowing adjustments to be made to the actual sale price to remove those influences peculiar to the specific transaction. This provides a sound footing for the estimation of value rooted in a market where the discipline of the actual expenditure of funds has been exercised. As noted years ago by Patchin, there is always market data that can be employed in an analysis although it may be necessary to extend the search for data beyond the norm.<sup>16</sup>

## Panel Criticisms of the Contingent Valuation Method

The NOAA Panel identifies a number of specific criticisms of the CV methodology that it found particularly compelling. As previously indicated, many of these criticisms apply equally to hypothetical surveys in general.

The Panel first notes that with the CV technique, there is the impossibility of validating the results externally. It then goes on to report the results of research on contingent valuation.

A few such experiments [comparing hypothetical to actual market behavior] have been attempted... Seip and Strand (1992), used CV to estimate willingness to pay for membership in a Norwegian organization devoted to environmental affairs, and compared this estimate with actual responses when a number of the same respondents were presented with an opportunity actually to contribute. The finding was that self-reported willingness to pay was significantly greater than "actual" willingness to pay. A recent study by Duffield and Patterson (1991) took as the environmental amenity in question the maintenance of stream flow in two Montana rivers. The rivers in question provided spawning grounds for two rare species of fish; passive-use was believed to be the main motivation for respondents. One of two parallel samples was asked about hypothetical willingness to contribute to the Montana Nature Conservancy which would then maintain stream flow; the other was offered an opportunity actually to contribute to the same organization for the same purpose. It was found that response rates and expressed willingness to contribute were significantly higher when the contribution was hypothetical than when "expressed willingness" meant an immediate cash contribution. On the other hand, the size of contributions, hypothetical in one case and actual in the other, was not much different as between those who said they would contribute and those who did so.<sup>17</sup>

Based on these and other studies, the Panel concludes "the CV technique is likely to overstate 'real' willingness to pay."<sup>18</sup> The Panel then enumerates other flaws in the CV technique.

Of the other problems arising in CV studies, the following are of most concern to the Panel: (i) the contingent valuation method can produce results that appear to be inconsistent with assumptions of rational choice; (ii) responses to CV surveys sometimes seem implausibly large...(iv) it is difficult in CV surveys to provide adequate information to respondents about the policy or program for which values are being elicited and to be sure they have absorbed and accepted this information as the basis for their responses;...<sup>19</sup>

14. Ibid., 4603.

15. In addition to the Report, see for example Gilbert A. Churchill Jr., *Marketing Research: Methodological Foundations*, 7th ed. (New York: The Dryden Press, 1999); and Philip Kotler, *Marketing Management: Analysis, Planning, and Control*, 5th ed. (Englewood Cliffs, NY: Prentice-Hall, 1984).

16. Peter J. Patchin, "Contaminated Properties and the Sales Comparison Approach," *The Appraisal Journal* (July 1994): 402-409.

17. "Report of the NOAA Panel on Contingent Valuation," 58 Fed. Reg. 4603.

18. Ibid., 4604.

19. Ibid.

The Panel also expresses specific concerns regarding the way information is presented to survey participants.

[E]ven when CV surveys provide detailed and accurate information about the effects of the program being valued, respondents must accept that information in making their (hypothetical) choices. If, instead, respondents rely on a set of heuristics (“these environmental accidents are seldom as bad as we’re led to believe,” or “authorities almost always put too good a face on these things”), in effect they will be answering a different question from that being asked; thus, the resulting values that are elicited will not reliably measure willingness to pay...<sup>20</sup>

The Panel notes that the survey responses may be subject to what is called the “warm glow” effect.

Some critics of the CV technique (e.g., Diamond and Hausman (1992)) have observed that the distribution of responses to open-ended questions about willingness to pay often is characterized by a significant proportion of “zeros”—people who would pay nothing for the program—and also a number of sizable reports. This bi-modal distribution also characterizes individual giving: Most of us give nothing to most charities, but give non-trivial amounts to the ones we do support (at least \$10 or \$20, say). This has led these critics to conclude that individuals’ responses to CV questions serve the same function as charitable contributions—not only to support the organization in question, but also to feel the “warm glow” that attends donating to worthy causes (see Andreoni (1989)). If this is so, CV responses should not be taken as reliable estimates of true willingness to pay, but rather as indicative of approval for the environmental program in question.<sup>21</sup>

### Key Issues in the Design of Contingent Valuation Instruments

The wording and structure of survey instruments are of particular importance if reliable results are to be obtained. The Panel strongly emphasizes this point throughout its report.

There are many examples in the survey literature of how changes in wording or context will affect results based on questions about subjective phenomena (see Schuman and Presser (1981)). For example, in national surveys close to a quarter of the population will choose the “don’t know” response to most attitude questions if it is explicitly offered; yet these same people will select a substantive alternative if “don’t know” is not specifically provided, even though accepted when asserted spontaneously. More puzzlingly, a question about “forbidding” a particular action tends to elicit less agreement than a question about “not allowing” the same action, although the two questions are logically equivalent. Beyond these examples, most attitude objects are simply too complex to be summarized by a single survey question...<sup>22</sup>

The Panel observes that contingent valuation surveys are subject to the same problems as other types of surveys.

Contingent valuation studies seek descriptive information, yet call for a response similar to those elicited by questions about subjective phenomena. Thus they risk many of the same response effects and other wording difficulties that turn up regularly in attitude surveys. Minimizing these effects presents a considerable challenge to anyone wishing to elicit reliable CV estimates.

...

The Panel is of the opinion that open-ended CV questions—e.g., “What is the smallest sum that would compensate you for environmental damage X?” or, “What is the largest amount you would be willing to pay to avoid (or repair) environmental damage X?”—are unlikely to provide the most reliable valuations.

...

There is no strategic reason for the respondent to do other than answer truthfully, although a tendency to overestimate often appears even in connection with surveys concerning routine market goods.<sup>23</sup>

Most significantly for CV surveys attempting to quantify damages for detrimental conditions, the Panel concludes the following:

CV studies almost always seek to measure willingness to pay to avoid a particular incident rather than compensation that would be required for damage that has already occurred. This is because respondents are more likely to exaggerate the compensation they would require than their willingness to pay, and because the latter is expected to be less than the former and so is conservative.<sup>24</sup>

### Survey Guidelines

The Report sets out the guidelines for a reasonably reliable CV survey. These guidelines may result in a higher cost for proper survey design, testing, administration and analysis, but in the opinion of the Panel there is simply no means of avoiding these costs except at the sacrifice of survey reliability. Although conformance with the guidelines is critical to the reliability of the CV methodology, they are frequently not observed by researchers using CV or hypothetical market surveys for real estate. In the Report, the Panel indicates that it is trying “to lay down a fairly complete set of guidelines compliance with which would define an ideal CV survey.” The Panel states, “A CV survey does not have to meet each of these

20. Ibid., 4605.

21. Ibid.

22. Ibid., 4606.

23. Ibid.

24. Ibid., 4607.

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*.<sup>25</sup> The Report provides the following general guidelines for surveys:

**Sample Type and Size:** Probability sampling is essential for a survey used for damage assessment. The choice of sample specific design and size is a difficult, technical question that requires the guidance of a professional sampling statistician.

**Minimize Nonresponses:** High nonresponse rates would make the survey results unreliable.

**Personal Interview:** The Panel believes it unlikely that reliable estimates of values could be elicited with mail surveys. Face-to-face interviews are usually preferable, although telephone interviews have some advantages in terms of cost and centralized supervision.

**Pretesting for Interviewer Effects:** An important respect in which CV surveys differ from actual referenda is the presence of an interviewer (except in the case of mail surveys). It is possible that interviewers contribute to “social desirability” bias, since preserving the environment is widely viewed as something positive. In order to test this possibility, major CV studies should incorporate experiments that assess interviewer effects.

**Reporting:** Every report of a CV study should make clear the definition of the population sampled, the sampling frame used, the sample size, the overall sample non-response rate and its components (e.g., refusals), and item non-response on all important questions. The report should also reproduce the exact wording and sequence of the questionnaire and of other communications to respondents (e.g., advance letters). All data from the study should be archived and made available to interested parties (see Carson et al. 1992).

**Careful Pretesting of a CV Questionnaire:** Respondents in a CV survey are ordinarily presented with a good deal of new and often technical information, well beyond what is typical in most surveys. This requires very careful pilot work and pretesting, plus evidence from the final survey that respondents understood and accepted the main description and questioning reasonably well.<sup>26</sup>

The Panel goes on to offer specific guidelines for elicitation surveys. It asserts that these guidelines “are met by the best CV surveys and need to be present in order to assure reliability and usefulness of the information that is obtained.” The specific guidelines listed are as follows:

**Conservative Design:** Generally, when aspects of the survey design and the analysis of the responses are ambiguous, the option that tends to underestimate willingness to pay is preferred. A conservative design in-

creases the reliability of the estimate by eliminating extreme responses that can enlarge estimated values wildly and implausibly.

**Elicitation Format:** The willingness to pay format should be used instead of the compensation required because the former is the conservative choice.

**Referendum Format:** The valuation question should be posed as a vote on a referendum.

**Accurate Description of the Program or Policy:** Adequate information must be provided to respondents about the environmental program that is offered. It must be defined in a way that is relevant to damage assessment.

**“No-Answer” Option:** A “no-answer” option should be explicitly allowed in addition to the “yes” and “no” vote options on the main valuation (referendum) question. Respondents who choose the “no-answer” option should be asked nondirectively to explain their choice. Answers should be carefully coded to show the types of responses, for example: (i) rough indifference between a yes and a no vote; (ii) inability to make a decision without more time or more information; (iii) preference for some other mechanism for making this decision; and (iv) bored by this survey and anxious to end it as quickly as possible.

**Yes/No Follow-ups:** Yes and no responses should be followed up by the open-ended question: “Why did you vote yes/no?” Answers should be carefully coded to show the types of responses, for example: (i) It is (or isn’t) worth it; (ii) Don’t know; or (iii) The oil companies should pay.

**Cross-Tabulations:** The survey should include a variety of other questions that help to interpret the responses to the primary valuation question. The final report should include summaries of willingness to pay broken down by these categories. Among the items that would be helpful in interpreting the responses are:

- Income
- Prior Knowledge of the Site
- Prior Interest in the Site (Visitation Rates)
- Attitudes Toward the Environment
- Attitudes Toward Big Business
- Distance to the Site
- Understanding of the Task
- Belief in the Scenarios
- Ability/Willingness to Perform the Task

**Checks on Understanding and Acceptance:** The above guidelines must be satisfied without making the instrument so complex that it poses tasks that are beyond the ability or interest level of many participants.<sup>27</sup>

The Panel concludes that CV studies can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive-use values. However, to be acceptable for this purpose, such studies should follow the guidelines described. The Panel indicates

25. *Ibid.*, 4608.

26. *Ibid.*

27. *Ibid.*, 4608–4609.

“the phrase ‘be the starting point’ is intended to emphasize that the Panel does not suggest that CV estimates can be taken as automatically defining the range of compensable damages within narrow limits.” The Panel closes with the following cautions:

The Panel is persuaded that hypothetical markets tend to overstate willingness to pay for private as well as public goods. The same bias must be expected to occur in CV studies. To the extent that the design of CV instruments makes conservative choices when alternatives are available...this intrinsic bias may be offset or even over-corrected. All surveys of attitudes or intentions are bound to exhibit sensitivity of response to the framing of questions and the order in which they are asked. No automatic or mechanical calibration of responses seems to be possible.

The judicial process must in each case come to a conclusion about the degree to which respondents have been induced to consider alternative uses of funds and take the proposed payment vehicle seriously. Defendants will argue that closer attention to substitute commodities would have yielded lower valuations. Trustees will argue that they have already leaned over backwards to ensure conservative responses. Judges and juries must decide as they do in other damage cases. The Panel’s conclusion is that a well-conducted CV study provides an adequately reliable benchmark to begin such arguments. It contains information that judges and juries will wish to use, in combination with other evidence, including the testimony of expert witnesses.<sup>28</sup>

## Contingent Valuation in Real Estate Research

The contingent valuation technique is sometimes used in real estate research to attempt to measure the price effects of a detrimental condition on property values. To investigate the extent that the Panel’s guidelines are being followed in real estate CV studies, a recent contingent valuation survey was examined. This survey concerned the amount by which a hypothetical buyer would reduce a purchase price for a residential property because the property was adjacent to a leaking underground storage tank at a service station. The objective of the CV research was to measure the impact of the leak. The data had been made available in several litigation matters.<sup>29</sup>

The examination of the research found several serious concerns that had been mentioned in the Panel’s report. The real estate CV survey had the following fundamental design flaws:

1. A real estate sale is a transaction between two parties, but no attempt had been made to exam-

ine the position of the seller in the hypothesized situation. That the seller would willingly accept the discounts demanded is highly problematic and would likely have a strong influence on the outcome of any negotiated transaction.

2. The survey question asked was essentially: How much less would you pay for the home? The problem here is that this is a willingness to accept (WTA), not a willingness to pay (WTP) question as required by the Panel protocols. The WTA responses have been found to nearly always exceed WTP responses.
3. There was not an appropriate comparative baseline. How much would the discount be for a residential property next to any commercial use property—McDonald’s, nonleaking service station, or other commercial use? By implication, the survey comparison is to a property having no condition that might detract from its value. Absent a baseline of a comparable property adjacent to a service station without the leak, the incremental difference for a residential property next to a leaking service station cannot be determined, if it exists at all.

In addition to fundamental design flaws, there were a number of other violations of the guidelines set forth in the Report in the design, pretesting, and execution of the survey, including the following:

1. The wording of the survey instrument had not been pretested for bias and clear recipient understanding of the questions being asked or the scenarios presented.
2. The administration of the survey was not examined for interviewer bias.
3. The “no answer” option was not provided to the respondents with appropriate follow-up questioning.
4. There were no cross tabulations of issues such as prior knowledge of a similar site, attitudes toward the environment, attitudes toward big business, and the like.

According to the NOAA Panel’s report, there is no avoidance of the fundamental survey guidelines if a survey is to produce reliable results, a point also emphasized in the *Reference Manual on Scientific Evidence*.<sup>30</sup> As stated by the Panel, “Many departures

28. *Ibid.*, 4610.

29. Author’s files.

30. See Shari Seidman Diamond, “Reference Guide on Survey Research,” in *Reference Manual on Scientific Evidence*, 2nd ed., 229–276 (Washington, DC: Federal Judicial Center, 2000).

from the guidelines or even a single serious deviation would...suggest unreliability *prima facie*.<sup>31</sup> Therefore, in the study examined here, as well as other similar studies, major violations of the guidelines indicate that the results are not reliable measures of the price effects of the detrimental condition studied.

### Summary and Conclusions

Despite the recent publication of articles in peer-reviewed real estate journals, the application of the CV technique to real estate or real estate damage quantification is unlikely to be reliable or quantitatively meaningful. The CV technique was neither designed for, nor is it applicable to, the valuation of goods for which there is a market.

The argument has been advanced that the CV methodology “holds all else constant” with respect to conditions not explicitly included in the hypothetical scenario. This is not the case. A great part of the Report guidelines for the conduct of a reliable hypothetical survey is concerned with how the respondent understands the scenario presented and with ensuring that the respondent does not view the survey questions in a manner inappropriate to the objective of the survey. This is because the imagination of the respondent cannot be controlled. Respondents could easily imagine situations familiar to them that strongly influence their responses that have not been anticipated or identified as a part of the researcher’s investigative efforts. This is in some way the fatal flaw of all hypothetical survey re-

search—the inability to control the perception of the respondent that governs the answers provided.

There is no reason to believe that the results of CV surveys, as applied to real estate valuation in the peer-reviewed literature or in litigation, have any quantitative value due to serious—indeed fatal—flaws in the execution of an inapplicable methodology.

The fundamental point is one long recognized by the valuation community: There is no substitute for a careful examination of actual sales information. There is a very large and important difference between an opinion of what someone might do under hypothetical circumstances and an examination of actual transactions.

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31. “Report of the NOAA Panel on Contingent Valuation,” 58 Fed. Reg. 4608.

## Additional Reading

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