

The Gulf Oil Spill and Its Impact on Coastal Property Value Using The Before-and-After Procedure

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Abstract

The before-and-after procedure is applied to Coastal Alabama property to estimate the economic loss in property value caused by the recent Gulf oil spill. The project is unique in that it relies on market trends shown in the total population of deed recordings allowing the total impact to be estimated with the dynamic nature of a potential stigma. The results indicate that the oil spill has minimal influence on property value for waterfront condos and single-family dwellings, and approximately 16 percent in value on waterfront residential land.

1. Introduction

Sudden events that are external to the property, like the Gulf Oil Spill, can have a detrimental impact on the sales price of real property and eventual value. The nature of the event causing the potential stigma, such as a fire, hurricane, or environmental activity, will determine whether the change in market price is temporary or permanent. Further, the location of the property and distance from the event is critical as the alleged impact is believed to be larger for properties located near the event, and less as the distance from the event grows larger.

The commonly used approach to estimate the dollar amount of a potential decline in value on “stigmatized” property is the *before-and-after procedure*.¹ The unaffected value prior to the spill must be determined first. Second, the subsequent impacted value is determined at some point in time following the event. The difference between the two

normally is labeled the potential loss due to the event. This procedure is recommended by one federal agency (Internal Revenue Service, 2009) and appears frequently in the professional literature (see Bell, 2008). This “before-and-after procedure” (hereafter BAAP) requires sufficient market price data to demonstrate accurately that a detrimental impact remains, grows larger or declines, or remains nonexistent. ²

An investigation into the magnitude of an alleged impact must begin with the meaning of “stigma.” Although the application of the BAAP is self-contained and does not require a definition it is useful to help explain any resulting damages. One of the best definitions of “stigma” is found in the International Association of Assessing Officers Standards covering environmental contamination (IAAO, p. 14) which reads,

Stigma is an intangible factor, which may not be measurable in terms of cost to cure, but may affect market value, at least as determined through the sales comparison (market) approach. It may be seen as a blight or perceived blemish or stain on a property resulting from real or perceived risk associated with the property.... Any adverse effect of stigma must be supported by the marketplace.

This explanation contains two types of measurement, and both emphasize the BAAP. The first is the sales comparison approach and relevant market data to prove a loss. The second is an explanation of the direct capitalization approach used to estimate value prior to the event and after the event. Any difference is attributed to the stigma. No illustration is given.

Another explanation is Advisory Opinion 9 issued by the Appraisal Standards Board (Appraisal Standards Board, 2002) which contains a number of definitions and a

number of property characteristics an appraiser should consider in an assignment involving environmental conditions. An environment stigma is,

An adverse effect on property value produced by the market's perception of increased environmental risk due to contamination...The diminution in value is the difference between the unimpaired and impaired value of the property...

In sum, a typical procedure to estimate the amount of the stigma, or diminution of value, is to use a sales comparison approach, to estimate both a before-and-after event. In equation form, the measurement is written as,

$$\begin{aligned} \textit{impaired value} &= \textit{unimpaired value} - \textit{cost effect} - \textit{use effect} \\ &\quad - \textit{stigma effect (risk)} \end{aligned} \qquad \textit{equation (1)}$$

One critical point is that stigma is viewed as a tort amount that may be estimated separately and subtracted.

These definitions and concepts produce a set of *stigma characteristics* that are needed when the analyst must find the appropriate data and measure the alleged impact, *First, stigma is a change in attitude causing a decline in prospective buyers or users measured by a decline in transaction prices.* The national media has presented the image of declining property value from the Gulf oil spill without evidence. The analyst must be careful not to convey this image in gathering data.

Second, stigma is a perceived loss which must be proved by market transactions. The proof of the perception is the sales price. Preliminary reports immediately following the spill by out-of-state consultants using historical models developed in other locations estimated total losses in including real property in Louisiana, Mississippi, Alabama, and Florida as a group. The only methodology reported were rules of thumb developed from

other events in other locations, and then applied to the Gulf Coast. The rationale given was that oil spills in Mexico and Alaska must be similar and applicable to this event. Third, the amount of alleged loss, if any, may be short run or long run and may disappear (Appraisal Institute, 2008). The amount of stigma can vary with the amount of elapsed time from the event.

Fourth, the potential loss is dynamic. A stigma that may vary through time means that it has a dynamic character. The best estimate would be dynamic rather than static.

Fifth, once the dynamic nature is accepted, the task is to track the trend of market transactions through time, and extract measurements at selected points. This project used the complete population of sales prices taken from deeds in the local courthouse.

If the analyst views unimpaired value and impaired value in equation (1) to be an adjusted market value, a sales grid must be constructed for both using recent comparable sales. The first establishes estimates of market value without the diminished value, and the second reflects comparable sales after the event containing the alleged diminished value. Each sales grid represents the best examples of current market trend in the sales price and the resulting values.

The transaction prices in the grid can be approximated also by the income capitalization approach for the subject. Direct capitalization is used to estimate value prior to the spill, and again after the event. The difference is attributed to the external event and serves as an estimate of the magnitude of the final sales price. For one property, it is another application of the BAAP.

The recent Gulf oil spill brings to the forefront several unique characteristics that question the correct application of the BAAP. The purpose of this paper is to highlight

the important issues surrounding the BAAP, review the relevant literature, illustrate the application of control areas, and interpretation of the results that includes the price trending of sales.

The use of the BAAP procedure is emphasized in this study due to one and important characteristic that is not frequently found other environmental incidents. It is an *unseen and has unknown characteristics*. Unlike a flood, earthquake, fire, or explosion where visible damage is seen, a spill is unknown until an external source reports the event. Katrina left a visible disaster, but an oil spill and the impact on property value is a *perceived stigma and diminution in value*. It is similar to a negative message driven by the media that causes the potential user and buyer to think a negative impact exists without any measurement. A marketing analyst would label this impact as a *negative brand effect*.

Is the impact on property value permanent? The answer is “not necessarily.” Will the impact vary over time? The answer is “yes, it is possible.” Once the well was capped, the passage of time and the return of normalcy to local markets could mitigate any value impact from the buyers’ sense of reduced risk.

This paper has three goals. The first is to review the relevant parts of the literature searching for applications of the BAAP that produce accurate interpretations of the marketplace data. The results have important implications for all market analysts who constantly apply the BAAP and face data restrictions regularly. The second is to illustrate a method to apply the BAAP and the sales comparison approach to reveal the influence of a potential stigma as shown by *real-time* market data. It introduces a dynamic version of the BAAP recently applied to eight classes of land use on the Gulf Coast potentially

influenced by the oil spill. The third illustrates the use of market trends in the whole population of deeds to estimate the average market price prior to the event and to update these estimates periodically. The results will be useful to all professional analysts of external events on property values.

2. The Relevant Professional Literature and Local Sources

The paper emphasizes *real-time* measurement. A review of several measurement issues is needed to establish a framework for the research design. The **link of property value to damages** first happened in 1908 with the *Salstrom* case where damages were calculated as the lesser of cost to repair or the value prior to the event. It was used later in *Masseti* (1977) and became known as the “lesser of rule” which limited damages to the cost to repair the property back to original condition, or the less of property value (Sanders, 2000).

Seely v. White Motor Company is considered as the source of the “economic loss doctrine” (Sanders, 1999) It included the failure of a housing unit to meet economic expectations which were measured against the market. Further, Sanders concluded that the best measure of economic loss is value diminution, and that cost does not equal value for measuring loss in value to real property (Sanders, 1999, p. 10).

The BAAP is market based relying on deductive reasoning because it uses the sales approach to estimate market values (Lusvardi, 1999). It presumes that the consumer is aware of the risk associated with the event, and has already included individual evaluations in the transaction prices of comparables.

The sales comparison approach is appropriate as it relies on market prices instead of cost data, and includes deductive reasoning from the comparables to the subject and

marketplace (Lusvardi, 1999). This means that transaction prices are appropriate for estimating market trends. The time trending and central tendency shown in this paper does not use matched pairs as it would be extremely time consuming and difficult to interpret, Kinnard (1992) recognized the difficulties in using paid sales in contamination cases.

The sales comparison approach requires the construction of a sales grid composed of comparable properties for both unimpaired and another for the impaired properties at a subsequent date. However, the estimate is from the grid only and does not always satisfy the full requirements for market value. The result is an estimate of adjusted market price rather than market value. The final estimate should be within a reasonable range of market value as the sales approach most likely constitutes the major component the actual market value.

For a large number of alleged impaired properties, market trending is an appropriate method of analysis to examine time trending and central tendency analysis (Sanders, 2000). It is particularly useful when the complete population of deed recordings is available such as this project.

Control areas are appropriate to serve as a comparable neighborhood for comparison to the subject location influenced by the event (Kilpatrick and Mundy, 2003). This project uses control locations in Florida that were not subject to the same impacts as the Alabama Coast.

All of these have been included in the analysis in this project and three more were added here. The measurement should be dynamic and measured at various points

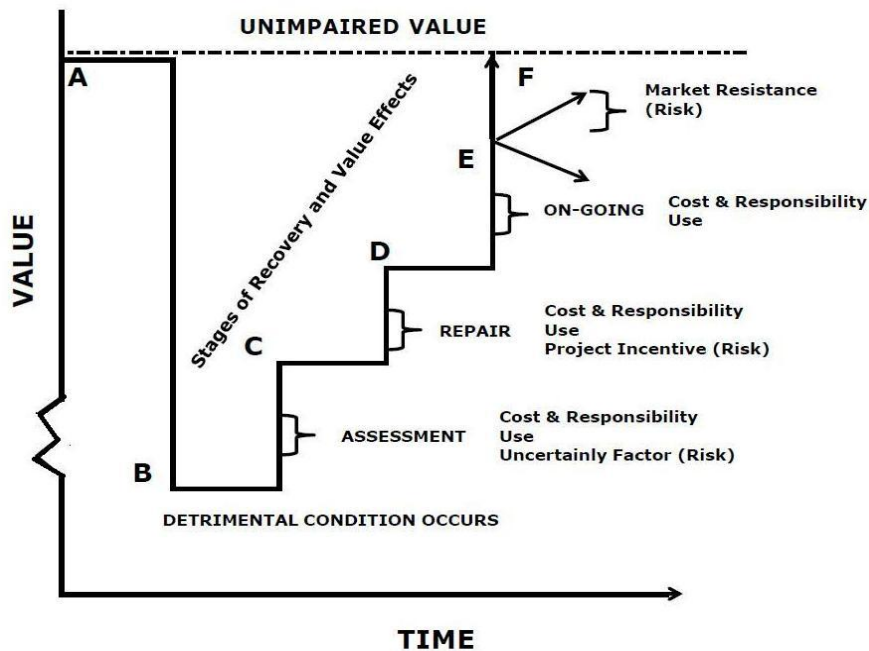
subsequent to the event as opposed to a one-time only static estimate. This is consistent with common appraisal knowledge that views the damages as variable (AI, 2008, p.226).

Also, court house deeds should be used when available as the whole population and central tendencies are available as opposed to matched pair analysis. Further, the phrase adjusted market price is used as the best estimate of value due to the central tendency available in the deed records (Epley, 2011)

3. Methodology

The characteristics above incorporate the well-known Bell Chart that shows the typical path of an economic impact over time. Developed by Neustein and Bell (1998), the beginning step is to classify detrimental conditions. Time period A is the value prior to the event, a potential decline in value occurs at time B, and the value after the event at times C through E may increase to normal depending on the situation. This chart contains several characteristics of the BAAP:

EXHIBIT 1: DETRIMENTAL CONDITION



The BAAR may be written as a residual amount to estimate economic loss,³

$$V_{loss} = V_{prior\ to\ event} - V_{after\ event} \quad \text{equation (2)}$$

The post-stigma amount found in equation 2 is a residual between the before and after estimates of value. A subtraction must occur between the two value estimates as opposed to a separate estimate done in equation 1.

The desired market data used in this procedure should reflect the true meeting-of-the-minds between buyers and sellers such as the actual sales price.⁴ A sale of the subject property in question, or if unavailable, a grid of comparable sales in a similar location is acceptable. Further, an approximation of the true sales price could be a capitalized loss in net operating income attributed to the loss. Popular among financial analysts, this capitalized loss in income should be viewed as an estimate only of the true market price as measured through comparable sales. Actual independent sales among buyers and sellers determine the true value.

For example, for an income property, the $V_{prior\ to\ event}$ is estimated by, (noi / r_o) , and the $V_{after\ event}$ could be found by $(noi\ after\ event / terminal\ r_o)$. The difference would be labeled as the loss from the event that should be seen in a subsequent sale price for the same property.

To estimate both the *before* and the *after* values, the analyst will use two samples of 3-5 comparable sales from the population of all sales. The critical point is that common procedure drives the appraiser to select a *sample* of market sales from the complete population of market sales to determine the final market value. The step-by-step valuation process (Appraisal Foundation, 2010, Standard 1) is based on a subset of the

population of all possible sales to estimate the final value. This procedure represents common knowledge in the appraisal profession.

Using common knowledge on the sales grid, equation 1 was re-written as,

$$V_{loss} = \text{median} \sum sp_{prior\ to\ event} - \text{median} \sum sp_{after\ event} \quad \text{equation (3)}$$

where, $sp_{prior\ to\ event}$, represents all of the transaction prices recorded in the courthouse for (a) the type of land use in question, and (b) one location. A median is used to eliminate the outliers. Thus, the result is the complete population of sales similar to the subject. The $sp_{after\ event}$ is the median for all sales in the same two categories at the effective date of the estimate. The difference between the two medians represents any loss.

This method reiterates the need for the analyst to be a market researcher first, and second, apply these market trends to an individual property. The extracted medians above can be applied to the subject to produce one estimate of value that is certainly market justified.

Necessary Due Diligence. This application of the BAAP uses the “cover all bases” scope of work approach with respect to residual transaction prices (Bell, 2001). By using all recorded deeds, the complete population of subsequent transaction prices was used as opposed to the “limited scope” approach that limits the residual estimates of value to those selected by the analyst for the sales comparison approach. This allows the analyst to practice complete due diligence and uncover the complete truth with respect to trends in market prices by land use and location.

Research Design. All deed recordings in Baldwin and Mobile Alabama counties touching the Gulf were accumulated monthly from April 20, 2009, through April, 20,

2010, were gathered⁵. Using the complete population of all similar market sales incorporates current technology into the valuation process. Epley (2011) recommends the use of the total population of deed recordings as it represents the entire market of transactions and moves the analysis away from the use of selected small samples which has dominated the profession since the early 1930s.

Second, the use and interpretation of population parameters will provide a much needed examination of the current real-time market trends of sales prices. The population's parameters will be calculated on the market prices recorded in the courthouses and replace the traditional decisions that must be made regarding sample size, accurate identification of the best comparables, and sales grid adjustments. The total set of population transactions and the resulting descriptive measures of central tendency and dispersion will become a good indication of final value (Epley, 2011).

Third, estimated values of eight types of land uses and four locations will be generated from courthouse transactions. The value prior to the spill will be generated for the prior twelve months to include a fair and just value estimate. All subsequent updates of value will be compared to these figures.

Fourth, three control areas on the Florida Gulf Coast unaffected by the oil spill will be used as control areas (Sanders, 2002). They will be used to determine the impact of the recession without the oil spill impact.

Fifth, an update of the market will be calculated from deed recordings every six weeks over a period of at least sixteen weeks. The dynamic nature of the stigma can be examined through time using these dates.

Sixth, calculation of oil spill effect as a residual after the impact of the ongoing recession is determined using the following,

$$\text{oil spill effect} = a - b = c \quad \text{equation (4)}$$

where a = percent change in the median price per square foot, or unit price, for the
control property

b = percent change in the median price per square foot, or unit price, for the
impacted property

c = residual change in the median price per square foot, or the unit price, due to
stigma impact

The value for the residual change for the subject, *c*, must then be compared to the comparable control change,

if unimpaired % Δ median price > impaired % Δ median price => 0 stigma present or implied *equation (5)*

The amount of the stigma is zero.

Should the percent change in price for the control areas be larger than the percent change for the subject area, this result implies or leads to the conclusion that no stigma impact is present.

if unimpaired % Δ median price < impaired % Δ median price => stigma exists or implied

The amount of the stigma is the net difference.

Should the percent change in price for the control areas be larger than the percent change for the subject area, this result implies or leads to the conclusion that a stigma does exist in an amount equal to the net difference.

The stigma impact is a residual market effect caused by market influences other than the recession, such as the oil spill.

4. The Data and Results

Seven types of land uses and four locations in Baldwin County Alabama were selected as the areas that would experience the most impact from the oil spill. These were,

location by distance from water

coastal waterfront
behind waterfront to international waterway
international waterway to Foley
Foley to highway I-10

types of land use

condo
single family residential multifamily
residential vacant land retail
office industrial

All transactions recorded in the Baldwin court house were used to find the median price-per-square-foot was calculated for each location and class if possible, or a median sale price per unit should a price-per-square foot was not available⁶.

The median unimpaired sales price was calculated for all transactions in each case for the period April 19, 2009, through the date of the event, April 20, 2010. A full 12 months group of transactions was used in each case of land use and location to account for the recession. The median was considered to be the most representative statistic.

Two updates for the same cases were done approximately June 15, or about eight weeks after the event. Another was done about August 15, or about 16 weeks.. Two updates were considered to be representative of the dynamic nature of the event. More updates could be drawn and examined as needed and budget funds became available.

The most important update to examine the dynamic nature and the impact of the event is the last one on August 15 which is approximately eight weeks later. This is the one used to estimate the final stigma impact, only the condos, single-family residential, and vacant residential land located on the water is shown as these uses are receiving the most attention. Properties located further from the waterfront should exhibit a lesser impact, and are shown in other reports.

Exhibit 2: BAAP Stigma Calculation Without Control Areas For Properties on the Waterfront

Baldwin County	Condos	SF Res	Vac Res Land
Unimpaired: Base on April 20	\$248,900 median 1629 sales	\$154 median s.f. 405 sales	\$170,000 median 127 sales
Impaired: Update 1 on June 15 % from Base to June 15	\$236,250 median 186 sales -5.08%	\$133 median s.f. 56 sales -13.60%	\$157,750 median 20 sales -7.20%
Impaired: Update 2 on August 15 % from June 15 to August 15	\$240,000 median 147 sales 1.59%	\$153 median s.f. 44 sales 15.03%	\$97,500 median 12 sales -38.10%
Stigma from Base to Aug 15	-3.58%	-0.65%	-42.65%
	1776 sales	505 sales	159 total sales
			2440 total sales

A total of 2440 transactions recorded in the Baldwin courthouse were separated into the three types of land use. An unimpaired value was estimated using the median transaction price for the twelve months prior to April 20, 2010, which included 1776 sales. Two subsequent medians were calculated on June 15 and August 15 which included 505 sales and 159 sales, respectively.

Any current stigma influence would be shown in the last row showing the percent change from the unimpaired price, called the base, to the median price shown for August

15. For condos, the amount was -3.58%, -0.65% for single-family residential, and -42.65% for residential vacant land. These numbers were compared to the percent changes shown in the Florida control groups.

Dynamic nature of stigma. The percent change in price-per-square foot or the unit price between the base date of the spill of April 20 and June 15 and from June 15 to August 15 reveals the dynamic nature of any stigma influence. For example, between the event date and June 15, the 186 transactions shown in Exhibit 2 for Baldwin waterfront condos declined 5.06%, and subsequently increased 1.59 percent for the second update period ending August 15. The overall change from the event date to August 15 showed a decline of 3.56 percent.

The same pattern of decline followed by an increase and overall decline was shown by the single-family waterfront properties. The third category of vacant residential waterfront land declined throughout.

The date of the measurement is critical. For the first two categories of condos and single-family dwelling, the decline in prices slowed significantly as time passed. The third category of land declined continually.

Florida control groups. Three competitive resorts facing the Gulf were used as comparable control groups. Deeds were used to identify all transactions in the same three categories, location, and time periods shown in Exhibits 3, 4, and 5.

Exhibit 3: Florida Waterfront Condos

	Location A	Location B	Location C	Median across 3 locations	% change vs. prev period	% change vs. base
Unimpaired: Base of April 20	\$241,950 median 238 sales	\$245,000 median 557 sales	\$195,000 median 1182 sales	\$241,950 median		
Impaired: Update 1 on June 15	\$247,500 median 40 sales	\$228,000 median 90 sales	\$193,000 median 160 sales	\$228,000 median	-5.76%	-5.77%
Impaired: Update 2 on Aug 15	\$224,500 median 20 sales	\$190,000 median 63 sales	\$174,000 median 145 sales	\$190,000 median	-16.66%	-21.47%
Base to update 2 percent	-7.21%	-22.45%	-10.77%			-21.47%
						mrkt conditions
	298 total sales	710 total sales	1487 total sales			2495 total sales

Exhibit 4: Florida Waterfront SF Residential

	Location A	Location B	Location C	Median across 3 locations	% change vs. prev period	% change vs. base
Unimpaired: Base of April 20	\$142,000 median 497 sales	\$130,000 median 99sales	\$120,000 median 116 sales	\$130,000 median		
Impaired: Update 1 on June 15	\$262,500 median 468 sales	\$302,000 median 86 sales	\$358,000 median 62 sales	\$320,000 median	132.31%	132.31%
Impaired: Update 2 on Aug 15	\$170,000 median 743 sales	\$165,000 median 122 sales	\$175,000 median 117 sales	\$170,000 median	-43.71%	30.76%
Base to update 2 percent	19.72%	26.92%	45.83%			30.76%
						mrkt conditions
	1708 total sales	307 total sales	295 total sales			2310 total sales

Exhibit 5: Florida Waterfront Vac Res Land

	Location A	Location B	Location C	Median across 3 locations	% change vs. prev period	% change vs. base
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Unimpaired: Base of April 20	\$68,000 median 21 sales	N/A median 1 sales	\$75,000 median 6 sales	\$68,000 median		
Impaired: Update 1 on June 15	\$126,500 median 95 sales	\$111,000 median 17 sales	\$135,000 median 22 sales	\$126,500 median	86.03%	86.03%
Impaired: Update 2 on Aug 15	\$50,000 median 145 sales	\$47,750 median 32 sales	\$62,500 median 22 sales	\$50,000 median	-60.47%	-26.47%
Base to update 2 percent	-26.47%	-56.98%	-16.66%			-26.47%
						mrkt conditions
	261 total sales	50 total sales	50 total sales			361 total sales

Exhibit 6: Final Baldwin County Stigma Estimate

Rules	Condos	SF Res	Vac Res Land
If unimpaired > impaired subject => 0 stigma			
If unimpaired < impaired subject => stigma			
Unimpaired Florida mrkt conditions	-21.47%	30.75%	-26.47%
Impaired Baldwin stigma estimate	-3.58%	-0.65%	-42.65%
Final stigma calculation	17.89%	30.10%	-16.18%
Result using equation 5	0 stigma	0 stigma	Stigma of -16.18%

The changes in transactions prices reflect an influence from market *conditions other than the oil spill which*, most likely, would be the continuing influence of the recession. For condos, this impact in Exhibit 3 was -21.47%, 30.76% for single-family residences in Exhibit 4, and -26.47% for residential vacant land in Exhibit 5.

Comparing the price changes to those shown for similar land uses in Exhibit 2 reveals that the recession along without the oil spill areas is much larger than the change in prices for similar properties in Baldwin. The expectation from these Florida numbers on the continuing recession is that once applied in Exhibit 6 to the Baldwin changes will

not leave much change attributable to the oil spill alone except for the vacant residential property.

Stigma. The final Baldwin stigma impact using equations 4 and 5 in Exhibit 6 shows that no negative impact from the oil spill was indicated on the waterfront with condos or single family properties. In fact, single-family transactions showed a thirty percent increase in this time period. In contrast, vacant residential land showed a difference of negative 16.18 percent which implies a stigma of that amount.

5. Restrictions and Interpretation

These estimates of stigma should be interpreted correctly as trends in market prices without regard to individual properties. A precise examination of one property only should be done with an appraiser who will estimate market value.

Market sales prices. The population of recorded deeds should be described as the current market of **market sales prices**. Although these numbers will influence significantly the final estimate of market value for the subject property, they are not the actual market as they have not been subject to the traditional valuation process known to all analysts.

Sufficient volume of sales. This measurement is applicable only with a sufficient volume of sales. It suffers from the same restrictions applied to the traditional sales comparison approach. All subject and control areas contained a sufficient number for this project.

Complete population of sales. The analyst is working with the complete population of transactions as opposed to a normal selection of comparable properties in a traditional sales grid. The result is not a market value although the trend in sales prices has a very

strong influence on the final value estimate. The reason is that any subsequent comparables selected by an analyst for the market value of the subject must use properties already included in the deed recordings.

Not a true market value. The transactions in this analysis are not subject to the typical editing of the comparables by using the elements of comparison which select comparables and make necessary adjusts for legal rights, financing terms, expenditures following the sale, time trends, location, and physical characteristics. The rationale here is that the oil spill will impact all types of property equally without regard to the legal rights or financing terms. One percent calculation will cover all regardless of the cost of the property. A \$1 million property will be influenced by the same percent decline as a \$100,000 property in a similar location.

Need for real-time trends. These sales prices trends from deed recordings cannot be ignored in post-disaster analysis of property value as they are the best indication of buyer resistance and future acceptance. For a project involving the huge amount of impacted properties as oil spill case, this procedure and analysis will become a requirement.

Not regression analysis. The BAAP can be the basis of a regression analysis where sales serve as the basis for the before-event analysis which is then compared to a second analysis using sales for the after-value. One equation using both sets of sales is possible with correct specification and identification.

This approach is not recommended here for several reasons. It would be difficult to make the analysis real-time due to data restrictions and cost. A period of time must elapse to measure the dynamic characteristics of a potential stigma. These studies would

be more appropriate at some point in the future to examine the interrelationships after the buyers of these properties had time to react.

Decline in potential buyers. The most frequent question posed has to do with the potential impact on property value from a sudden decline in interested buyers. Once the spill occurred, local owners reported immediately the sudden decline in buying activity.

A decline in potential buyers is not factored into the BAAP. The use of this approach in the references cited includes **sales prices only**. No adjustment process has been presented to support any adjustment in the final sales price for any decline of x buyers.

6. Conclusion and Recommendations

The Gulf oil spill continues to provide a unique opportunity to apply and improve the tools an analyst uses to estimate alleged negative impacts. This project examines the popular before-and-after procedure which is recommended by the IRS and used frequently by professional appraisers, and offers several important conclusions to landowners along the Gulf Coast. In addition, several unique applications were illustrated to make the results more accurate.

Using a dynamic version of the BAAP, no impact from the oil spill was found through 16 weeks after the event for condos and single-family homes on the beach waterfront. A positive impact was found for vacant residential land in the same location. Over 4100 sales were examined from April 20, 2009, through August 15, 2010.

It is important to use comparable locations for control to illustrate the unimpaired market transaction prices. These are critical to adjust the impaired prices for the subject

area. Sales from three comparable resort areas on the Florida Coast that are not impacted from the spill were selected and used.

Recorded deeds are excellent indicators of current market prices as they represent the complete population and show current trends. An appraisal for one property only will include a sales comparison approach which by necessity will include 3-5 comparables from the same deeds used to measure the price trend.

Using the deeds emphasizes the use of the sales comparison approach. It becomes the final tool of analysis. Other techniques, such as regression, direct capitalization, and surveys are approximations to the final meeting-of-the-minds which is the transaction price.

Any negative effects of the oil spill are dependent on the date of the estimate. The perceived risk and loss in value has a dynamic component. This project illustrated that the elapsed time subsequent to the event is critical. By 16 weeks following the spill, no economic loss from property value could be found in two of the three categories of land use.

For a disaster as large as the oil spill, the use of deed recordings at various points in time is the best indication of buyer acceptance and resistance. This technique will become a requirement for future investigations of stigma impact and its duration.

Endnotes

¹ Bell (1998) and Kilpatrick and Mundy (1992) identify a number of approaches that can be used to determine the amount of change in market value from an external shock to the local market from an environmental factor. The professional literature cited here illustrates the popularity of the before-and-after procedure, and is the approach used in

this project and recommended to analysts. See also discussions by Chan (2001) and Kilpatrick (2003).

² Stigma is characterized as a potential perceived impact that can change through time (Appraisal Institute, 2008). Typical proof resides in comparable sales.

³ Stigma has been identified by Lusvardi (1999) as a separate add-on amount used in tort analysis, or as an economic loss which is measured as a residual using the BAAP. This project uses the economic loss as measured from market sales.

⁴ Bell (2008) stated that potential contamination of a property may not automatically mean a decline in value. Clear, objective, and relevant market data must exist to prove the value decline. The best data is the complete population of deed recordings as used in this project.

⁵ The deeds were edited to eliminate all foreclosure sales made to a government agency such as FNMA, FHLMC, and FHA. The reason is that the foreclosed price as identified at \$50 on each.

⁶ Only medians were used as there are not influenced by outliers.

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