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EFFECTS OF THE ACCIDENT AT THREE MILE ISLAND ON RESIDENTIAL PROPERTY VALUES AND SALES

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ABSTRACT

An analysis of all valid single family house sales over a four-year period before the March, 1979, TMI accident and over the 9 months following the accident, and within a 25-mile radius of the plant and in two control areas, disclosed no evidence that the accident had measurable lasting effects on residential property values. Shortly following the accident there was a sharp decline in the volume of residential sales within 10 miles of the plant, but the real estate market returned to normal within a month, considering the financial market conditions at that time.

INTRODUCTION

Following the accident at the Three Mile Island (TMI) nuclear power plant near Harrisburg, PA on March 29, 1979, one of many concerns of residents in the area was the possible effects on property values.[1] At least one class action suit, presently in the courts, addresses this concern.

It appears logical to expect that if many people hold genuine concerns or fears over the safety of nuclear power, then they would not choose to live in close proximity to such a power plant unless they expected to receive some form of compensation. Compensation could arise when the negative externalities associated with such plants are capitalized into lower property values.[2]

People, when choosing their homes and residential location, reveal their preferences for the various associated attributes and characteristics by their willingness to pay. If people value quiet, nearness to employment, or relief from a potential hazard, the real estate market should reveal these preferences.

An economic relationship must therefore exist between market price and the quality and quantity of housing service that any given dwelling provides the occupant. Location is one attribute that can provide a number of such services: nearness (accessibility) to employment, schools, and shopping, as well as distance or remoteness from undesirable environmental variables such as noise, congestion, odors, or perceived hazards from a nuclear power plant. This relationship implies that for consumer equilibrium in the housing market, price differentials must arise among various locations which compensate consumers for the differences in housing services associated with specific locations. Otherwise, consumers would not remain at particular locations and locational choice for new entrants would be restricted. Because of mobility and the ability to buy and sell in the housing market consumer equilibrium requires that for identical housing in all respects at two different locations, except that location 1 is near a nuclear plant and location 2 is well removed, the price of housing at location 1 must be less than that at location 2 by an amount which will just compensate buyers for the additional hazards they perceive at location 1. Otherwise, the consumer would be better off at location 2. We feel that in the TMI area there are few or no constraints in mobility and that there has been sufficient time following the accident for consumers of housing to make their preferences felt in the market, as evidenced by the number of sales.

This paper reports a time series comparison of mean annual, quarterly, and monthly residential sale prices from 1975 through 1979 for the TMI and two control areas. The data base comprises all single family house sales as obtained from the State Tax Equalization Board (STEB), screened for invalid sales.[3] The TMI area includes three distance zones around the plant: 0-5 miles, 5-10 miles, and 10-25 miles.[4] An area near Williamsport in Lycoming County, PA, and all of Lehigh County, PA, are the control areas.[5]

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1 Several studies have examined some of the health and economic effects of the accident. See, for example, Flynn, Flynn and Chalmers, President's Commission on the accident at Three Mile Island, and Governor's Office of Policy and Planning. None, however, has examined in depth the possible effects on property values.

2 Economists have recognized for years that negative impacts are capitalized into property values. Adverse effects such as noise and air pollutants from highways have received the most attention, and a number of studies have empirically verified the negative influence on property values (for example, see Ridker and Henning, Nelson [1978], Vaughan and Huckins, Walther, and Gamble, et al.).

3 The mean sale prices reported here are time corrected for an approximate two month lag between actual date of sale and date of recording in a court house.

4 The STEB data show the municipality in which the property sold was located. Population centroids of the various municipalities were used to compute distances from the TMI plant. Consequently, the three distance zone boundaries are not concentric circles around TMI, but rather are quite irregular since they conform to municipal boundaries.

Part 2 of this paper reports the mean annual and quarterly sale price trends, part 3 the mean monthly price trends for 1979 and a statistical comparison of the predicted and actual monthly prices, part 4 analyzes monthly trends during 1979 in volume of sales, and part 5 presents the conclusions and a discussion of the findings.

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5 These control areas, about 70 and 100 miles from TMI respectively, were selected because of their remoteness from any nuclear power plants and because of their similarity in terms of growth, land use, per capita income, and other characteristics to the TMI area.

MEAN ANNUAL AND QUARTERLY PRICES AND NUMBER OF SALES

Figure 1 shows the mean annual prices for single family homes from 1975 through 1979 for the three zones around TMI and the two control areas. Prices in the 0-5 mile zone around TMI have traditionally been lower than prices in the more distant zones. Because these means were lower before the plant became operational, they cannot be considered plant related. We are most concerned over the change in prices and the trend in number of sales for 1979. Table 1 presents these for the 5 areas. Prices were up in all areas and number of sales down during 1979, the

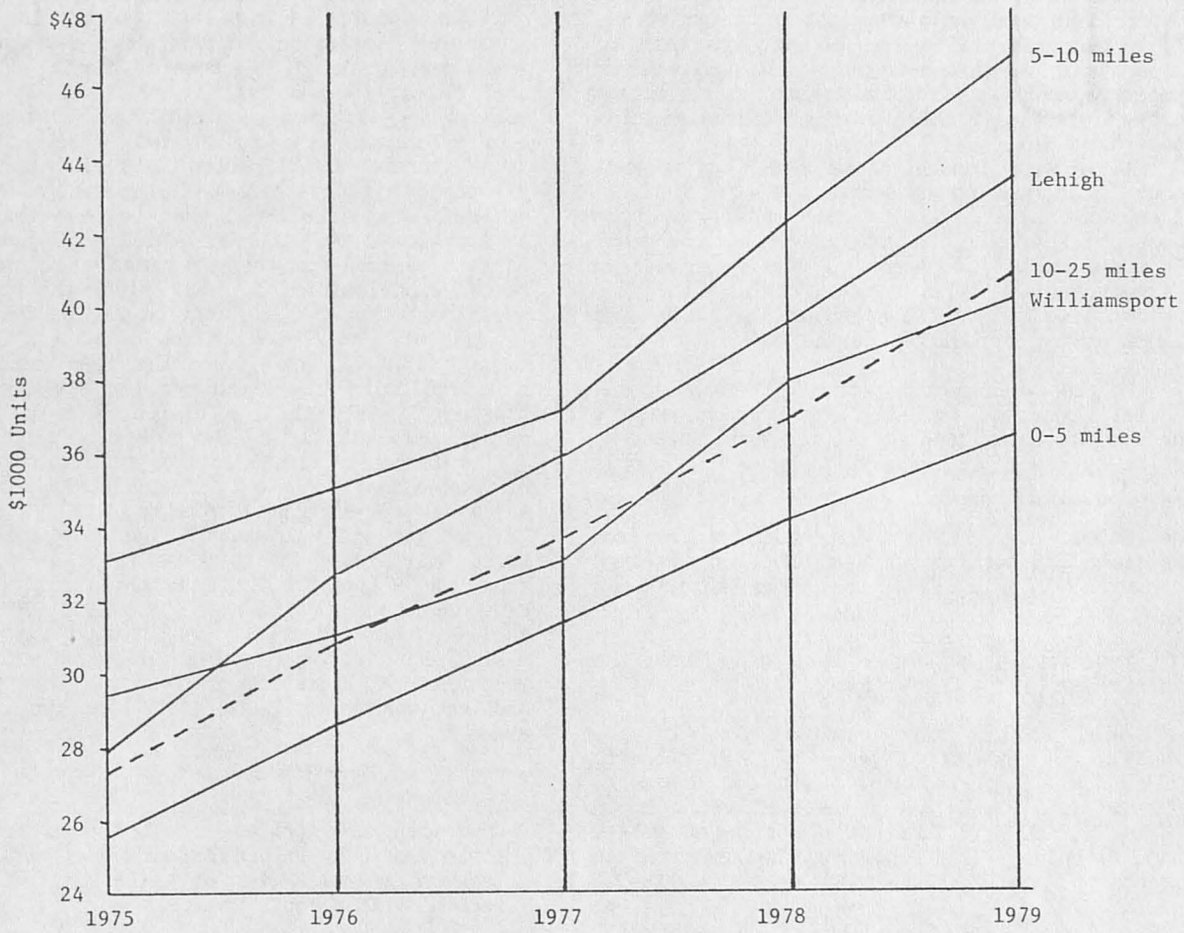

Figure 1. Mean annual residential sales prices, 1975-1979.

Table 1. Percent change in mean annual prices and number of sales, 1978 to 1979.

Area	Mean Prices	Number of Sales
TMI Area	%	%
0-5 miles	+6.6	-2.2
5-10 miles	+10.7	-14.0
10-25 miles	+10.9	-9.9
Control Areas		
Williamsport	+6.1	-26.1
Lehigh County	+10.0	-4.3

drop in sales reflecting the effects of rapidly escalating mortgage interest rates and the increased scarcity of mortgage funds. There is no strong evidence that the accident adversely affected the market in the TMI area.

Quarterly data may show trends or effects not apparent in annual data, particularly since the accident occurred almost precisely at the end of the first quarter in 1979. Most likely, then, effects would become apparent in the second quarter, 1979, data. Second quarter data for the 5 years of the study in all areas is presented in Table 2. Traditionally, second quarter prices in the real estate markets pick up noticeably over first quarter prices, and 1979 was no exception, despite the constraints of the financial markets at that time. These constraints, however, are reflected in sales volumes which decreased in 1979 from 1978 in all 5 areas. If the accident had lasting negative effects on prices, they should be revealed in the 1979 second quarter means for the 0-5 mile zone around TMI. The mean price for 127 sales in that quarter and zone ($37,919), however, was a 16 percent increase over the 1979 first quarter sales mean, the largest such increase in all 5 areas, clearly not what one would expect if adverse effects had occurred.

ACTUAL AND PREDICTED MONTHLY MEAN RESIDENTIAL PRICES

Although the analysis of quarterly data showed no lasting effects on housing prices, there might be negative effects of short duration, perhaps of only a few weeks or a month. To explore this possibility, we predicted what the monthly mean prices by distance zones should have been in 1979 had they followed the trends of past years, and statistically compared them to the actual monthly means.

All the evidence to date indicates that there were no price effects from the accident in the 10-25 mile zone around TMI.[6] Therefore, 1975-79 mean prices in this zone were used as the historic base upon which the 1979 monthly predicted means in the 0-5 and 5-10 mile zones were computed.[7] To predict the mean sale prices in the 0-5 and 5-10 mile zones around TMI, we assumed that the 1979 annual means for those zones should have the same price ratios to the 10-25 mile zone mean as the ratios for the 1975-1978 base years' means. The following equation expresses this relationship:

(1) $1979\ \text{predicted mean}_{0\text{-}5} = \left[1979\ \text{mean}_{10\text{-}25}\right] \times \left[\frac{1975\text{-}78\ \text{mean}_{0\text{-}5}}{1975\text{-}78\ \text{mean}_{10\text{-}25}}\right]$

Substituting values in equation (1) we get:[8]

$$40{,}496 \times \frac{29{,}958}{32{,}204} = 40{,}496 \times .9303 = \$37{,}673$$

The 1979 predicted mean for the 0-5 mile zone, $37,673, is $1,200 higher than the actual 1979 mean ($36,473), or about 3.3 percent. Using the same formula, the 1979 predicted annual mean for the 5-10 mile zone is $46,279, or only $478 lower than the actual yearly mean. Thus it appears that there were no significant differences in the 1979 market in the two zones close to the plant relative to the greater Harrisburg market areas based on the previous trends over 4 years.

To predict the 1979 monthly means for each of the distance zones, the following equation was used:

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6 Regression analyses, not reported here, were done on over 500 actual property sales in the 0-25 mile area around TMI. Many house, lot, and locational descriptors comprised the independent variables, with actual selling price being the dependent variable. Details of these analyses, contained in the final research report to the Nuclear Regulatory Commission (not yet published), disclosed no adverse price effects from the accident in the 10-25 mile zone.

7 An added advantage in using the 10-25 mile zone is that any unusual effects in the greater Harrisburg real estate market area due to the general economic conditions prevalent in 1979 (high interest rates and availability of mortgage funds) would be accounted for.

8 Simple means are used for the 1975-78 base years rather than means weighted by number of sales in each year. This reduces the magnitude of the effects that variation in the number of yearly sales would have. Simple means were also used to predict the monthly means.

Table 2. Second quarter mean sale prices, number of sales, standard deviation, and percent changes in means, by years and areas.

Area	Years 1975	1976	1977	1978	1979
TMI AREA:					
0-5 miles	$25,771 (105)* (12,460)** +1.2%*** 	$30,272 (141) (13,252) +14.9% +17.5%****	$33,496 (252) (12,858) +20.5% +10.7%	$35,087 (162) (15,515) +11.4% +4.7%	$37,919 (127) (14,909) +16.1% +8.1%
5-10 miles	33,751 (296) (15,261) +3.7%	35,837 (458) (16,286) +7.9% +6.2%	38,090 (589) (17,741) +12.6% +6.3%	42,539 (456) (18,429) +7.0% +11.7%	47,582 (375) (19,888) +7.9% +11.9%
10-25 miles	29,053 (2262) (15,029) +13.3%	30,602 (2641) (15,520) +7.6% +5.3%	34,230 (3974) (16,769) +8.0% +11.9%	37,452 (3625) (18,725) +8.0% +9.4%	42,062 (3367) (20,657) +11.2% +12.3%
Control Area					
Williamsport	28,183 (131) (12,789) -10.1%	32,358 (40) (10,915) +6.1% +14.8%	34,267 (156) (14,688) +14.7% +5.9%	38,086 (252) (15,732) +6.4% +11.1%	39,252 (177) (16,989) -3.4% +3.1%
Lehigh County	28,498 (872) (15,857) +14.0%	33,076 (1037) (16,411) +9.1% +14.9%	36,727 (1246) (16,908) +8.6% +11.0%	40,585 (1425) (20,120) +10.5% +10.5%	44,461 (1418) (20,824) +12.4% +9.6%

*Number of sales
**Standard Deviation
***Percent change first to second quarter means, same year
****Percent change second quarter means, year to year

(2) predicted monthly 1979 mean 0-5 =

$$\left[\frac{\text{1975-78 monthly mean 0-5}}{\text{1975-78 annual mean 0-5}}\right] \times \left[\text{predicted 1979 yearly mean 0-5}\right]$$

Because fewer observations occur in any one month, an unusually high or low value sale could affect the mean for that month.[9] Therefore, the sales data were further screened to eliminate extraordinarily high and low sales values. Individual sales that were below 14 percent or over 300 percent of the yearly mean for the respective distance zone were eliminated.[10] For example, in 1979 the following sales were eliminated in each of the distance zones:

		Percent of Properties Eliminated
0-5 miles	< $5,000 and > $109,500	2.2%
5-10 miles	< 6,500 and > 138,600	1.8

Substituting values in equation (2) to get the predicted mean for April, 1979, in the 0-5 mile zone, we have:

$$\frac{32,098}{29,958} \times 37,673 = 40,738$$

Tables 3 and 4 compare the predicted and actual means by months for 1979 in the 0-5 and 5-10 mile zones, respectively. In figure 2 these means are plotted to make interpretation easier. As is expected, the differences between the predicted and actual means are greater for the 0-5 mile zone than they are for the 5-10 mile zone, due to the fewer number of monthly sales in the area closest to the plant resulting in a larger standard error for the actual mean.

The important months to examine are April, May, and June, the months immediately following the accident in which one would logically expect price effects to become apparent. In the 0-5 mile zone around TMI, the April mean price was predicted to rise from $36,479 in March to $40,738, based on historic trends over the past 4 years. Instead, the actual mean was $35,963; $4,775 less than predicted. The price was predicted then to drop in May and rise again in June to $38,577. The actual mean in May was almost

9 Unusually low valued properties generally were for dwellings that were so deteriorated as to be uninhabitable. The sale of an unusually high valued property generally is infrequent, thus likely to distort the mean for that particular month.

10 Properties that sold in 1979 in the 0-5 mile zone for under $5,000 were found, upon field observation, to be dilapidated. This value is about 14 percent of the 1979 mean of this zone. We arbitrarily selected a value three times the 1979 mean for each zone as the cut-off value for unusually expensive properties.

Table 3. Predicted and actual monthly mean residential prices, 1979, 0-5 mile zone.

Month	No. Sales	Mean Prices		Standard error of actual mean	Value difference	Percent	t Value	Critical t*
		Predicted	Actual					
	n	$	$	$	$	%		
Jan	31	34,166	26,279	2,444	-7,887	-23.1	-3.227	2.750
Feb	37	34,200	32,520	2,074	-1,680	- 4.9	- .810	2.720
March	43	36,479	37,410	2,676	+ 931	+ 2.6	+ .348	2.698
April	49	40,738	35,963	1,977	-4,775	-11.7	-2.415	2.680
May	16	37,982	35,992	3,650	-1,990	- 5.2	- .545	2.947
June	62	38,577	39,980	1,999	+1,403	+ 3.6	+ .702	2.658
July	29	36,256	32,241	2,842	-4,015	-11.1	-1.413	2.763
Aug	39	38,008	35,282	2,255	-2,726	- 7.2	-1.209	2.712
Sept	40	41,689	44,309	3,144	+2,620	+ 6.3	+ .833	2.699
Oct	34	38,705	41,826	2,773	+3,121	+ 8.1	+1.125	2.734
Nov	8	36,064	32,519	7,611	-3,545	- 9.8	- .466	3.499
Dec	18	37,481	33,339	2,725	-4,142	-11.1	-1.52	2.898

* With n-1 degrees of freedom at the 99 percent confidence level.

Table 4. Predicted and actual monthly mean residential prices, 1979, 5-10 mile zone.

Month	No. Sales	Mean Prices		Standard error of actual mean	Value difference	Percent	t Value	Critical t*
		Predicted	Actual					
	n	$	$	$	$	%		
Jan	79	40,068	46,176	2,080	+6,108	+15.2	+2.937	2.642
Feb	93	45,756	41,266	2,031	-4,490	- 9.8	-2.211	2.629
March	105	44,349	45,035	1,646	+ 686	+ 1.5	+ .417	2.625
April	149	47,154	47,060	1,486	- 94	- 0.2	- .063	2.576
May	69	45,663	45,783	2,432	+ 120	+ 0.3	+ .049	2.647
June	157	48,329	48,865	1,701	+ 539	+ 1.1	+ .317	2.576
July	80	46,038	47,065	2,035	+1,027	+ 2.2	+ .505	2.640
Aug	102	46,293	43,769	2,005	-2,524	- 5.5	-1.259	2.625
Sept	101	50,041	51,425	2,051	+1,384	+ 2.8	+ .675	2.625
Oct	82	47,797	49,057	2,453	+1,260	+ 2.6	+ .514	2.637
Nov	42	50,128	49,719	3,463	- 409	- 0.8	- .118	2.701
Dec	56	46,441	45,388	2,516	-1,053	- 2.3	- .419	2.669

* With n-1 degrees of freedom at the 99 percent confidence level.

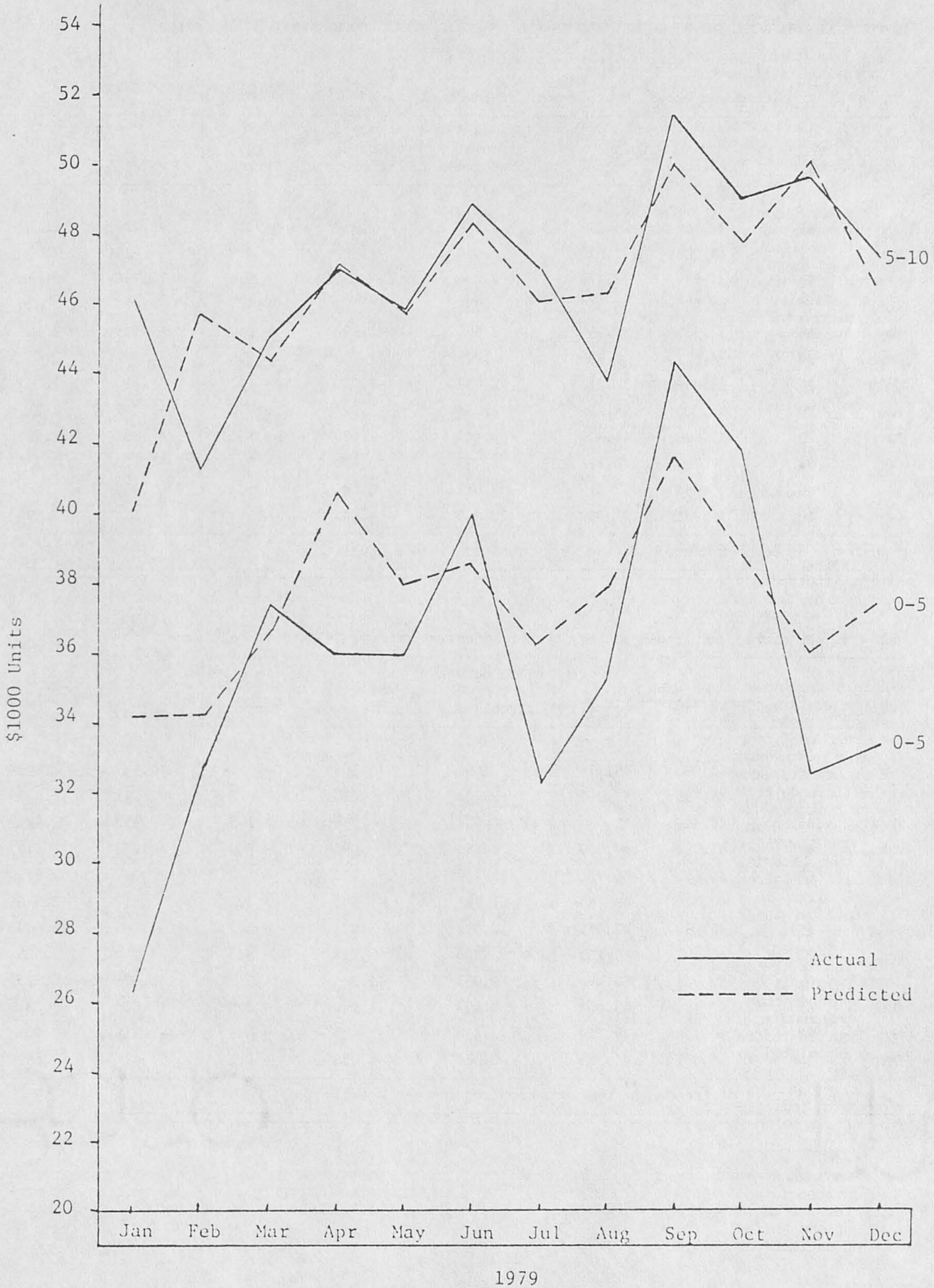

Figure 2. Actual and predicted monthly mean residential prices, 1979.

$2,500 less than that predicted, while in June the actual mean was about $1,400 above the prediction.

In the 5-10 mile zone, the actual means for April, May, and June were quite similar to the predicted means, the differences being only -$94, $120, and $539 respectively.

It is important to know if the -$4,775 difference in the predicted and actual means in April in the 0-5 mile zone is a significant difference, which would imply some effect from the accident, or if it is simply a statistical artifact due to normal random variation in prices.

The null hypothesis (H_O) is that there is no statistically significant difference between the predicted and actual mean values. The alternative hypothesis (H_A) is that there is a statistically significant difference. To test the differences in the mean values for significance, a two tailed t-test is used. The statistic is given by (with n-1 degree of freedom):

$$(3) \quad t = \frac{\bar{X} - \mu}{S/\sqrt{n}}$$

where $\bar{X}$ is the actual mean, μ is the predicted mean, S is the standard deviation of the actual sales, and n is the sample size (number of observations).[11] The denominator of the equation is also known as the standard error of the mean.

To illustrate the calculations, the calculated t value for April in the 0-5 mile zone is:

$$t = \frac{40{,}738-35{,}963}{1{,}977} = \frac{-4{,}775}{1{,}977} = -2.415$$

This t statistic in absolute value is less than the critical t value of 2.680 (with 48 degrees of freedom) for the two tailed test at the 99 percent confidence level. Therefore, the alternative hypothesis must be rejected and the null hypothesis accepted: there is no significant difference between the actual and predicted mean sale prices for April in the 0-5 mile zone based on 1975-78 market trends in the 10-25 mile zone. The $4,775 difference is apparently due to normal variation in the market. The remaining t statistics are given in Tables 3 and 4. There is only one month in which there is a significant difference in the predicted and actual monthly means, and this is January for both the 0-5 and 5-10 mile zones. In the 0-5 mile zone, the actual mean price was significantly lower, while in the 5-10 mile zone the actual mean was significantly higher than the predicted means. We know of no explanation for these differences. Since they occurred before the TMI accident, they cannot be associated in any way with it.

From the analysis of monthly mean residential prices within 10 miles of TMI, we find no evidence to indicate that the accident had an adverse effect on the price of housing during the 9 months following the accident.

POSSIBLE EFFECTS ON SALES VOLUME

Using the same data base and the same procedure as was used to predict monthly mean sale prices, monthly sales volumes for 1979 were predicted for the three distance zones around TMI: 0-5, 5-10, and 10-25 miles. Figure 3 shows the actual and predicted sales by months for 1979 in these zones. Because of the effects that rapidly rising interest rates and tightness in the supply of mortgage funds were having on the demand for housing during the latter part of 1979, it was felt necessary in this part of the study to include a much broader based control area than the Williamsport or Lehigh County areas.[12] Therefore we used STEB data for the entire State of Pennsylvania, less the City of Philadelphia. The percent by which the actual number of sales in each month exceeded or fell short of the predicted number for each of the areas is shown in Table 5. For all areas, the predictions are based on the monthly trends in sales volumes over the four years previous to the accident, 1975-1978.

In April, the first month after the accident, the number of actual sales was very close to the number predicted in the three zones around TMI. Only in the all Pennsylvania control area was there a large divergency, where the actual number of sales exceeded the predicted by 47 percent. In May, however, in the 0-5 and 5-10 mile zones the number of sales plummeted, falling 76 and 53 percent, respectively, below the predicted number. In the 10-25 mile zone and all Pennsylvania, actual sales volumes were 8 and 9 percent below predicted, respectively. We believe that this is quite firm evidence that the accident had an adverse effect on sales volumes within 10 miles of the plant.[13]

A relevant question is why the adverse effect is showing up in May rather than in April, the month immediately following the accident? Two explanations might be advanced. First, our data show the month in which the sale was completed or became legal; that is, when final settlement takes place. But legal commitments to purchase real property often are made weeks or even months in advance, when "earnest money" is put down at the time an agreement of sale is negotiated. Such purchasers, not willing to relinquish their down payment by backing out of a sales agreement, consumated their sales in April despite the accident. The number of prospective buyers--those actively looking over the potential housing market--dropped off drastically right

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[11] We recognize that there is some sampling error associated with the predicted mean, μ, but because of the quite large number of observations we feel that it is a very reliable point estimate of the mean.

[12] The supply of mortgage funds at that time varied considerably among local real estate and banking market areas, according to several bank officials with whom we discussed it.

[13] A portion of the main study was directed towards ascertaining if there were any differential effects in sales volumes among high, medium, and low value properties. We found no evidence of such effects.

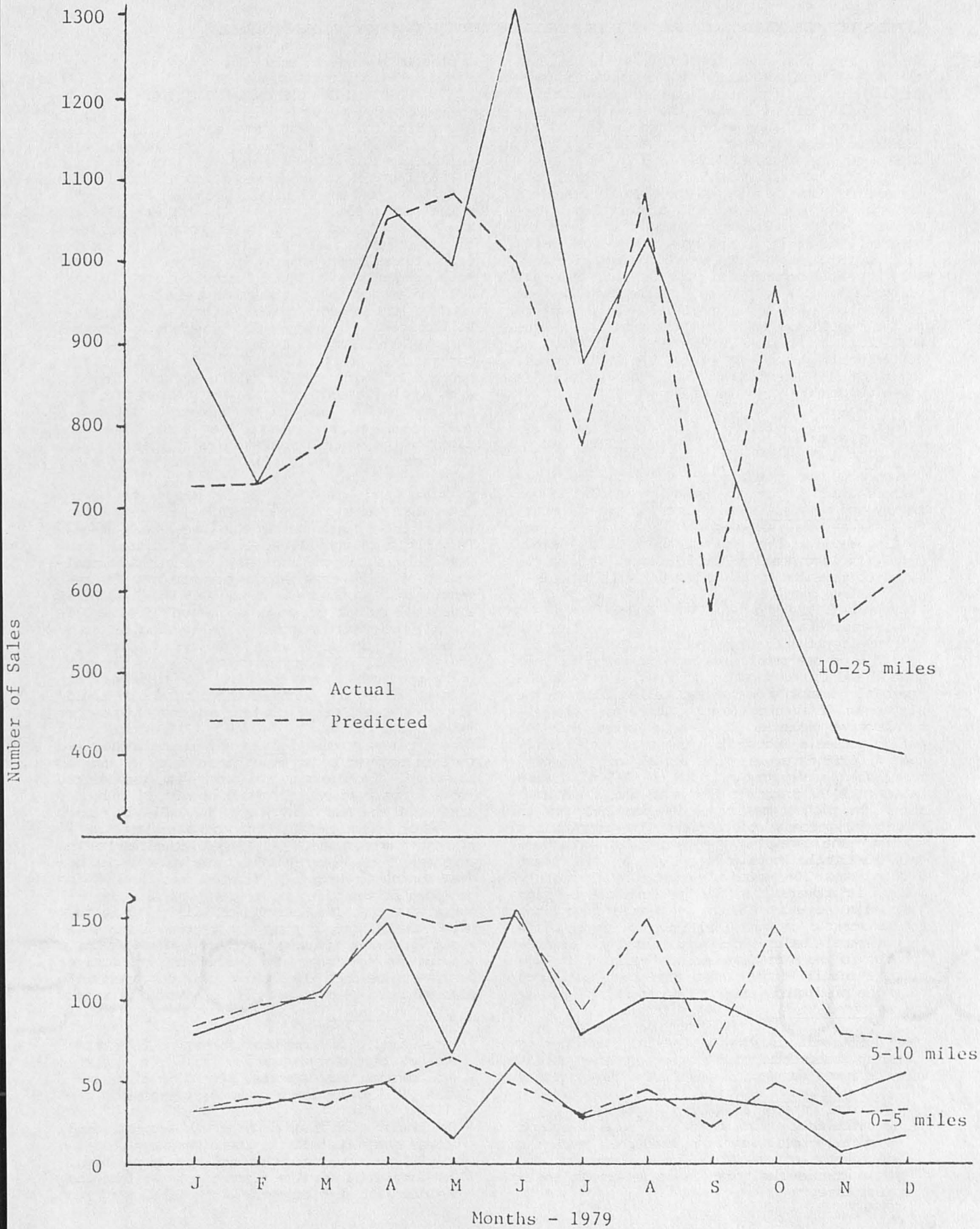

Figure 3. Actual and predicted number of sales by months, 1979.

Table 5. Percent difference between predicted and actual number of sales by areas and months, 1979.

Month	Areas			
	0-5 miles	5-10 miles	10-25 miles	All PA less Phila.
	%	%	%	%
January	- 3.1	- 6.0	+21.8	- 2.5
February	- 7.5	- 4.1	+ 0.5	-10.6
March	+19.4	+ 2.9	+13.1	- 0.4
April	- 2.0	- 3.2	+ 1.3	+47.2
May	-76.1	-53.1	- 8.0	- 9.1
June	+29.2	+ 4.7	+30.5	- 0.7
July	- 3.3	-14.0	+12.9	-16.7
August	-17.0	-32.0	- 5.7	- 5.8
September	+81.8	+46.4	+42.2	-11.3
October	-29.2	-43.8	-38.3	+43.4
November	-74.2	-47.5	-25.6	-40.9
December	-43.8	-26.3	-39.4	-39.8

after the accident in April, but this phenomenon was not revealed by the data until May when April purchasing commitments would have been finally consumated. Second, virtually all businesses in the Harrisburg area were quite severely disrupted right after the accident, with a significant proportion of the population temporarily leaving the area, and it took time for things to return to normal. Possibly many realtors and lawyers delayed in delivering new sales documents to the respective Recorder of Deeds' offices in the court houses. Such delays could not be discerned in the STEB data.

In the 0-5 mile zone the number of sales shot back up dramatically in June of 1979, setting the highest monthly total for the year and being 29 percent above the predicted number of sales. The same trend also occurred in the 5-10 and 10-25 mile zones. In the latter zone, sales volume was 30 percent higher than predicted. Thus, it appears that the adverse effect in May lasted but a short time, the market recovering in a few weeks.[14]

Actual sales volumes in the last three months in the Harrisburg area and in the last two months in all Pennsylvania were dramatically below the predicted volumes. We believe these decreases reflect the influence of financial conditions at that time. Apparently the high interest rates and tight supply of mortgage funds was felt somewhat earlier in the Harrisburg real estate market area than in the rest of the State.

CONCLUSIONS AND DISCUSSION

Based on the foregoing analysis of all valid single family housing sales over a four-year period before the March, 1979, TMI accident and over the 9 months following the accident, and within a 25-mile radius of the plant, we find no evidence that the accident had measurable lasting effects on residential property values. Shortly following the accident there was a sharp decline in the number of residential sales within 10 miles of the plant, but the real estate market returned within a month to near normal conditions, considering the financial market situation at that time.

There may be an occasional buyer who may not choose a particular property because of its proximity to TMI. Apparently there were too few such buyers in the market in 1979 at any one time to affect measurably the demand for and consequently the price of housing in the TMI area. However, this means that some properties may have remained on the market longer than usual, thus increasing the holding costs for some sellers. This condition was not investigated.

Shortly after the accident the utility employed a large number of clean-up workers and nuclear technicians. These people would have little aversion to living near a nuclear plant, and they may have had a positive effect on the real estate market, counteracting an actual negative effect and thus resulting in a net effect of near zero. It is the net effect, of course, that

[14] The trends in the data reported here support statements by most realtors who were interviewed as part of the study. The realtors claimed that immediately after the accident the real estate market in the Harrisburg area, particularly in areas close to the TMI plant, virtually collapsed for a few weeks after the accident, but then rebounded rapidly to normal, considering the financial conditions at that time.

our data measured. In terms of the concern of current property owners over the effects of the accident on property values, it is the net effects that are relevant, not the individual effects.

There is a possibility that shortly after the accident most people realized that the nuclear contaminants were contained and that there was no imminent danger of a massive spill or release of radioactive materials; therefore, no capitalization effect occurred once the market returned to normal within a few weeks. However, as the immense difficulties associated with the clean up become known, and the longer the plant remains shut down with the contaminants still contained therein, there may appear long term capitalization effects. In addition, sharply rising electric power costs for the utility's customers, due to clean-up costs for TMI and to the cost of purchasing replacement power, may over time inhibit growth and development in the region, thus indirectly affecting property values.

Another possible explanation for the lack of capitalization effects in the 9 months following the accident is that buyers anticipate federal or state compensation for any possible losses that may be identified, and that the expected value of such compensation is positively capitalized into property values. If it turns out that the seller receives the compensation (assistance tied to the property and not the owner) then the seller receives a windfall gain.[15] If the buyer receives the compensation, then he or she is no better off, since the compensation will be equal to the premium paid for the property. In such a case there remains the very difficult task of estimating from market sales data only the negative effects of the accident.

One may speculate why, if the volume of sales within 10 miles of the plant dropped so drastically after the accident (short term leftward shift of the demand curve), prices did not also decline. One explanation is that the drop in demand was of too short a duration for a market such as is characterized by real estate. Housing characteristics vary widely (physical characteristics of the house and lot plus locational attributes), and thus there is a wide range of prices. In most markets buyers have a reasonably wide latitude of choice, and sellers are usually not compelled to dispose of a property immediately. Most sellers can wait out temporary perturbations in the market, or hold on to their property within reasonable time limits, until a buyer comes along who is willing to negotiate a price. Because of these characteristics peculiar to the real estate market, there can be short periods of time in which mean housing prices change little but the volume of sales shows much greater variation.

[15] If the buyer knows in advance that compensation would be paid to the seller, no capitalization of the accident would occur. There could be capitalization of anticipated future accidents. For a more detailed discussion of these points, including the "transitional gains trap" elaborated by Tullock, see Nelson.

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