

Local Floodplain Policy Influence: Land Holding

Whether landowners acquired their floodplain property before or after a city enrolled in the regular phase of the National Flood Insurance Program seems to have affected motives for holding property. Owners who acquired their property after the city joined the NFIP were much less likely to be holding property for future gain than owners who acquired the property before the city joined the NFIP (see Table 5-4).

A favorable community context also tended to decrease holding floodplain property for investment. As with the earlier finding regarding initial acquisition of floodplain parcels for investment, a favorable community context (measuring political support, amount of available nonfloodplain land, and degree of past flooding) resulted in a decreased likelihood of holding property for investment purposes. Similar to acquisition motives, the most important element here appears to be availability of flood-free land for development. In cities with available land outside the floodplain, the existence of a floodplain program appears to divert investment activity away from the floodplain, as shown in Table 5-5.

Finally, holding for future gain or future residential use is unaffected by specific elements of a floodplain management program, although it is decreased by a program, as we observed earlier.

Property Value Expectations

An expectation of significant property value increases plays an important role in investment activity and, to a lesser degree, holding for future residential use. Expected value in year of sale has the greatest effect on investment decisions in urbanizing floodplains. In this section, we examine the influences of the flood hazard and elements of a floodplain management program on landowners' expectations regarding the value of their property in five years (see Table 5-6). We believe stronger programs should diminish expectation of gain from investment in floodplain land.

Most landowners were optimistic about value increases over the next five years: 61% expected appreciation in value, and 28% expected substantial appreciation (greater than 25%). When we asked property owners what the effect of the flood hazard and floodplain regulations was on the value of the their property, 47% reported substantial adverse effects on property value (25% decline or greater), while 37% indicated their property was affected neither by the hazard nor regulations.

Landowners' expectations about appreciation in value appear to be discounted for the probability of flooding in the future. When the perceived

TABLE 5-4

**MOTIVES FOR HOLDING FLOODPLAIN LAND AND ACQUISITION
OF PROPERTY BEFORE OR AFTER CITY JOINED
NATIONAL FLOOD INSURANCE PROGRAM**

Motive for Holding	Parcel Acquired:*	
	Before City Joined NFIP	After City Joined NFIP
Parcel held for investment	28.8%	6.3%
Parcel held for future residential use	39.0%	28.0%

*Percentage is of all parcels in relevant time period.

TABLE 5-5

**EFFECT OF AVAILABILITY OF FLOOD-FREE SITES ON INVESTMENT
HOLDING FOR PARCELS ACQUIRED AFTER CITY JOINED
NATIONAL FLOOD INSURANCE PROGRAM**

Motive	<u>Developable Land Outside Floodplain</u>		
	25+ Year Supply	10-24 Year Supply	Less than 10 Year Supply
Held for investment	0.0%	16.7%	14.3%
Held for other reasons	100.0%	83.3%	85.7%

flood threat is very severe, property owners saw less chance for substantial appreciation, and they were more likely to believe the value of their property would remain the same or decline in the future. Property owners were also less likely to have very high property value expectations when a parcel was fully within the floodplain.

The amount of money communities had expended on flood control expenditures between 1976 and 1985 appears to have affected landowners' property value expectations. Seventy-two percent of landowners in cities which have spent substantial amounts (\$5 million or more) on flood control expected appreciation of their property value in the next five years, compared to 42% of the landowners in cities with lower flood control expenditures.

Knowledge and Perceptions

Awareness of the flood hazard and perceptions of the possibilities of flooding in the future can effect an owner's plans for use of property and expectations regarding changes in property value. In this section, and in parts of the next two chapters, we compare knowledge and perception of the flood hazard by owners of vacant property, builders and developers, and consumers.

Sixty-three percent of the landowners in the sample were aware that their property was located in a flood-hazard area, although only 37% investigated the potential for flooding prior to purchasing it. As will be discussed later, the proportion of owners who bought vacant land and knew about the flood hazard is actually higher than owners who bought developed property in the floodplain. One explanation is that people with vacant land had owned their property for a longer length of time and were more likely to have had their property flooded. Of the landowners who knew that their property was in a flood hazard area, most (55%) learned about the hazard themselves. A lesser percentage learned about the hazard from a public official (29%) or from a real estate agent (10%). Real estate agents appear to play a minor role in disseminating information about the flood hazard to pre-development landowners.

Landowners varied in their perceptions of the odds on their property being flooded in the future. Fifty-nine percent viewed the odds as slight (less than 10% chance), while 18% rated them as almost certain. We found that perceived flood threat is a function of both flood experience in the past and the portion of the parcel within the regulatory floodplain. Furthermore, flood experience (encountered by 43% of the landowners) magnifies the influence of parcel location (portion of parcel in the floodplain) on perceived flood threat. Past studies (such as Laska, 1986) have found experience--not anticipation of future flooding--to be the key motivating factor in leading property owners to

TABLE 5-6

**FACTORS ASSOCIATED WITH PROPERTY VALUE
EXPECTATIONS OVER THE NEXT FIVE YEARS**

Factors	Gamma Measure of Association with Property Value Expectations
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Community Context

Acres of floodfree developable land in the community	.23
Community context (index of flood- free land, lack of political op- position to pro- gram, past floods)	.29
Recent flooding	-.27

Parcel Characteristics

Road frontage	.13
Distance to major road	-.22
Frontage on major road	.31
Distance to downtown	.08*
Distance to regional shopping center	.19
Intensity of develop- ment allowed	-.08
Percent of parcel within floodplain	-.24

Owner Characteristics

Awareness of hazard	.00
Perceived flood threat	-.32*
Flood experience	-.27

TABLE 5-6 - continued

FACTORS ASSOCIATED WITH PROPERTY VALUE
EXPECTATIONS OVER NEXT FIVE YEARS

Factors	Gamma Measure of Association with Property Value Expectations
Concerned about flood threat	.02
<u>Floodplain Program</u>	
Land purchased after city enrolled in NFIP	-.10
Overall program index	-.03
Construction index	.06
Location index	.15
Enforcement index	.00
Implementation index	.11
Flood control expen- ditures, 1976-85	.51*

*Chi-square statistically significant at .05 level of confidence.

^aThese motives include: "to obtain profit from future sales (i.e., an investment)" and "to obtain profit from subdivision or development of property."

^b"To live on property."

take steps to mitigate the hazard. Results here show that experience and perceived risk are tightly linked and that an interaction between experience and parcel location affects the perceived threat of future flooding.

Only 22% of the landowners considered selling their land because of flooding problems. Thus, perceived flood danger has a minimal effect on turnover of land because most landowners (67%) are not concerned about flooding.

Attitudes Toward Floodplain Management Policy

We queried landowners, developers and builders, and consumers about their attitudes toward individual responsibility for dealing with flood hazards and toward government role in that regard. We also asked them to evaluate a number of specific nonstructural and structural measures for dealing with flood hazards. Landowners' attitudes are summarized in Tables 5-7 and 5-8.

Landowners tended to believe that people have a right to occupy flood hazard areas and to develop floodplain property. However, their attitudes toward who should be responsible for dealing with resultant flood problems were not well-formed. For the most part, landowners appear to feel that there is technology for dealing with flood problems, and responsibility for employing that technology should be shared between property owners and government. Thus, very few--only 13%--agreed with the statement, "Individuals, rather than government, should be responsible for solving flood problems," and only slightly more--25%--agreed that "People who live in floodprone areas should pay whatever costs are required to solve their problems." However, less than a majority (33%) felt that the federal government should pay the major portion of the costs of protecting people from flooding. In addition--33%--agreed with the statement, "Even though they restrict some uses of floodplain property, local land use regulations are fair to property owners."

In keeping with their faith in technology to solve flood problems, a majority of the landowners we queried in the ten cities rated 11 different hazard mitigation measures as potentially useful in reducing flood threats to their own property. Three stormwater management measures--improving upland storm drainage, clearing debris and obstructions from streams, and deepening, widening and lining streams--were viewed as useful by more than eight of every ten owners. That suggests that floodplain owners attribute flood threats in part to the actions of others--upland development (which increases runoff) and local governments (which fail to maintain stream channels properly). In addition, however, they viewed a number of other measures as potentially useful, as shown in Table 5-8. In fact, only three measures--relocation of

structures from the floodplain (at either public or private expense) and large lot zoning--were supported by less than half of the owners.

Policy Implications

Each factor examined in this chapter--floodplain land use management program, community context, property characteristics, and landowner characteristics--affected landowners' decisions regarding floodplain property.

After cities initiated stringent floodplain management programs by enrolling in the regular phase of the National Flood Insurance Program, their floodplains became less attractive to investors and persons looking for residential property for future building. Buying and holding property for personal residence, and holding for investment purposes, decreased significantly after the initiation of a floodplain management program. Therefore, public intervention in the land conversion process prior to the active consideration of floodplain property by builders and developers appears to be an effective point at which pressure for encroachment on flood-hazard areas can be lessened.

Community context, in particular the amount of flood-free developable land within a jurisdiction, plays an important role in the ability of local floodplain programs to influence market decisions. Floodplain management programs decreased the likelihood that land would be purchased for investment purposes in cities with ample flood-free property available for future development; however, where flood-free sites were limited, floodplain management programs had minimal effects on investment activity and buying property in the floodplain for personal homesites.

Property characteristics are important in the acquisition decision, with accessibility factors most important to investors and zoning most important to landowners interested in homesites. Local government would best be able to deter floodplain investment through the location of public facilities and infrastructure away from flood hazard areas, and would lessen people's interest in the floodplain as a residential location by zoning the floodplain for nonresidential uses.

Landowners' expectations of future appreciation in land values appear to be discounted to account for the probability of future flooding. Thus, local government may be able to diminish investment activity within a city's floodplains by increasing the dissemination of public information regarding the flood threat.

A floodplain land use management program can alleviate some of the investment pressure on the floodplain when there is adequate flood-free land available for development in a community. Flood control expenditures by

TABLE 5-7

LANDOWNERS' ATTITUDES ABOUT RESPONSIBILITY FOR
DEALING WITH FLOOD HAZARDS

Attitude	Percent of Land- owners Who Agree with Statement
<u>Individual Freedom to Use Flood-Hazard Areas</u>	
A person has the right to live wherever he chooses regardless of the risks.	52%
A person has the right to develop land that he owns. It is up to the buyer to be aware of any problems.	46%
<u>Individual Responsibility for Dealing with Flooding</u>	
Individuals, rather than government, should be responsible for solving flooding problems.	13%
People who live in floodprone areas should pay whatever costs are required to solve their problems.	25%
After a flood, property owners who benefit from roads and other public facilities located in flood hazard areas should pay the costs of reconstructing those facilities.	19%

TABLE 5-7 - continued

LANDOWNERS' ATTITUDES ABOUT RESPONSIBILITY FOR
DEALING WITH FLOOD HAZARDS

Attitude	Percent of Land- owners Who Agree with Statement
Requiring people to buy flood insurance is a fair way of distributing the costs of recovering from flood disasters.	37%
<u>Government Responsibility for Dealing with Flooding</u>	
The technology exists to overcome most flood problems.	60%
Federal agencies should pay the major portion of the costs of protecting people from flooding.	33%
Even though they restrict some uses of floodplain property, local land use regulations are fair to property owners.	33%
Local elected officials are doing what they can to relieve flooding problems.	27%

TABLE 5-8**LANDOWNERS' EVALUATIONS OF SPECIFIC MEASURES
TO DEAL WITH FLOOD PROBLEMS**

Measure	Percent of Landowners Who Rate Measure Useful
Improve upland storm drainage	86%
Clear obstructions and debris in streams	84%
Deepen, widen or line streams	82%
Build flood control dams on main streams	73%
Limit building in flood hazard areas	71%
Government purchase of vacant floodplain land for open space	71%
Build floodwalls and levees along streams	66%
Addition of fill by individuals to raise elevations	66%
Elevate existing buildings	62%
Require new buildings to be elevated	60%
Require flood insurance for new buildings	58%
Build floodwalls or levees around individual parcels	50%

government, however, tend to increase investment within the floodplain. Efforts by local government to combat the flood problem through flood control works lead to heightened property value expectations on the part of landowners. Localities should be aware that where flood control expenditures are made, pressure from investors for additional floodplain encroachment is likely to follow.