

The Impact of a Migration Shock on Tenant Satisfaction: The Case of Hurricane Katrina and Baton Rouge, Louisiana

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Abstract

The damage inflicted by Hurricane Katrina resulted in a massive displacement of residents, in particular from New Orleans, Louisiana. Initially, many of these evacuees moved to Baton Rouge, Louisiana, the closest major town that escaped significant hurricane damage. Using comments posted on the United States' largest consumer comment website for apartment residents, this study tracks the self-reported residential satisfaction of tenants in Baton Rouge before and after the massive migration of refugees from nearby coastal areas. Although this migration resulted in a dramatic drop in residential satisfaction, within nine months satisfaction levels had rebounded substantially.

Keywords: Hurricane Katrina; residential satisfaction; emergency migration.

"Hurricane Katrina has resulted in the largest displacement of Americans in 150 years - if not the largest ever. The scale is monumental. It's as if the entire Dust Bowl migration occurred in 14 days..."
(Peter Grier, *Christian Science Monitor*, 12 September 2005.)

With more than one million people forced to evacuate, Hurricane Katrina caused the largest emergency mass migration in U.S. history. On August 29, 2005, Hurricane Katrina and its after effects devastated the city of New Orleans, Louisiana. The closest city of significant size to escape the hurricane relatively unscathed was Baton Rouge, Louisiana. The

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proximity of Baton Rouge resulted in a dramatic migration of evacuees to the Baton Rouge area. While the precise migration count is unknown, various estimates suggest that the population of 700,000 in Greater Baton Rouge increased by as much as 200,000 during the week following the evacuation of New Orleans (Social Security Administration, 2006). Over time, many families chose to relocate and the enormous increase in population levelled off. From October 1, 2005 through January 1, 2006 the population of East Baton Rouge Parish decreased by .52% while that of West Baton Rouge Parish fell by 2.72% (Claritas, 2006). (Unlike other American states, which are subdivided into counties, Louisiana is subdivided into parishes.) To begin an investigation into how this migration shock affected tenant satisfaction, this paper examines the self-reported residential satisfaction of renters in Baton Rouge, Louisiana before and after Hurricane Katrina struck New Orleans and the surrounding coastal regions.

Theoretical framework

Prior examinations of the relationship between residential crowding and residential satisfaction have found the issue to be more complex than initially expected (Churchman, 1999). Ultimately, the psychological impact of density is driven by perceived crowding rather than objective crowding (Edwards, *et al.*, 1994). Surprisingly, this perception of crowding has relatively little to do with the objective physical circumstances, and more to do with perceived control of the residential environment (Edwards, *et al.*, 1994). The connection between perceived control and satisfaction is not new. Rotter (1966) presented a framework where the degree to which a person feels either in control of or controlled by his or her environment will influence satisfaction. This "locus of control" framework has been successfully employed in a number of contexts including job satisfaction (Spector, 1986), political satisfaction (Frey & Stutzer, 2000), and tenants' residential satisfaction (LeBrassuer, Blackford, & Whissell, 1988). The issue of control is particularly relevant to an emergency

migration resulting from a natural disaster; such disasters are inherently outside of the control of those affected. Thus, in the initial stages of an emergency migration, affected individuals may be more likely to perceive they are being controlled by the environment, while in later months these feelings may subside even without a dramatic change in objective circumstances.

Data and Analysis

The residential satisfaction data for this study comes from ApartmentRatings.com®, a division of Internet Brands, Inc. This website is the nation's largest apartment ratings website. This website allows individuals to make comments about the quality of their living experience in an apartment complex by giving both ratings and written comments concerning the apartment. This analysis includes all 423,065 ratings posted between January 1, 2003 and January 1, 2007, but focuses particularly on those 1,381 ratings provided by residents of Baton Rouge, Louisiana. Although the verification process for posting a comment does require registration and recognition of the posting computer's internet protocol (IP) address, the process may not prevent false postings by those who are not qualified tenants.

Consumer rating sites constitute an increasingly important source of information. These websites allow direct consumer-to-consumer communication about the experience of purchasing a product or, in this case, the experience of living in a particular apartment community. While web-based consumer comment sites are a recent development, the practical value of such direct consumer comment information is not new. For example, in a study from the 1960s, Kelly (1967) found that consumers considered "other consumers" as a more trustworthy source of information than experts. More recent studies have confirmed that internet discussion forum comments have a stronger impact on consumer choices than traditional advertising (Bickart & Schindler, 2001). Businesses are increasingly using such open-source consumer comment sites as an important source of information in judg-

ing customer satisfaction (Finch & Luebbe, 1997; Romano, *et al.* 2003).

While the use of this emerging form of customer satisfaction data has become increasingly common in academic research in fields such as business management (Finch & Luebbe, 1997; Romano, *et al.*, 2003) and marketing (Bailey, 2004; Bickart & Schindler, 2001), it is now also beginning to emerge as a relevant source of data in social science fields such as economics (Resnick & Zeckhouser, 2002) and psychology (Huang & Chen, 2001).

In analyzing data from consumer comment sites such as ApartmentRatings.com®, it is important to understand its limitations. All information posted on the website is voluntary. Consequently, one might expect the prevalence of more negative ratings as an unhappy resident may be more motivated to express his or her feelings. Due to the inherent self-selection and limitations of this kind of information, the most instructive comparisons are likely to be between different sets of responses being posted on the same website, e.g., examining changes over time in responses on the same website, or analyzing differences within the same website based upon the geographical location of the rated apartment community.

The ApartmentRatings.com® website includes two questions that relate to the resident's overall residential satisfaction. The first asks, "Overall (Compared to other apartments, how does this community rate in general?)" Corresponding to this question, respondents choose a rating of one to five stars with the accompanying evaluative statements:

- 1) *Rates poorly on basically all levels.*
- 2) *Below average. Not the greatest place, but not the worst.*
- 3) *Average compared to others.*
- 4) *Superior to most others.*
- 5) *An excellent community in all regards.*

In addition, respondents indicate whether they would recommend the apartment community to a friend. Unlike feedback ratings on Internet sites such as eBay.com where

the ratings are 99% positive (Resnick & Zeckhauser, 2002), most ratings on the apartment ratings website are negative. As Table 1 indicates, nationally, most respondents would not recommend their apartment complex to a friend. These generally negative ratings are consistent with findings that tenant satisfaction usually falls below that of similarly situated homeowners (Rohe & Stegman, 1994; Rossi & Weber, 1996). This satisfaction deficiency for renters persists across many different nations such as Spain, Italy, Ireland, United Kingdom, United States, Netherlands, Denmark, and Greece, and continues even when controlling for the characteristics of the physical structures and the residents (Elsinga & Hoekstra, 2005). Previous research has found a variety of issues to be important to residential satisfaction including: population density, traffic, safety, neighborhood friendliness, maintenance of nearby structures, income, race, gender, ethnic segregation, and quietness (Björklund & Klingborg, 2005; Chapman & Lombard, 2006; Galster and Hesser, 1981; McCrea, *et al.*, 2005; Spain, 1988). Clearly, a dramatic emergency migration of evacuees has the potential to affect many of the core issues relevant to residential satisfaction.

Further, apartment renters are likely to be more sensitive to the immediate effects of rapid migrations. Such migrations would typically cause an immediate impact on the rental market since incoming migrants are more likely to rent a home than purchase one. Even for those few migrants desiring to purchase a home, such transactions often take a much longer time to complete than rental agreements. Consequently, the impact of such migration is much more likely to affect the residential environment of apartment tenants immediately, including such issues as crowding, apartment price and availability. Thus, an investigation of the residential satisfaction of apartment tenants is more likely to uncover the immediate impact of a rapid migration of evacuees on residential satisfaction.

To investigate the impact of such a migration on tenant satisfaction, Table 1 reports the totals from posted ratings, grouped on a quarterly basis, between January 1, 2003 and

IMPACT OF A MIGRATION SHOCK

January 1, 2007. The quarterly grouping is used to provide a sufficiently large number of observations in each subgroup for the Baton Rouge data. The occurrence of Hurricane Katrina corresponds to an apparent drop in self-reported residential satisfaction in Baton Rouge. In the third quarter

Table 1. Residential Satisfaction from an Apartment Ratings Website

Quarter	Baton Rouge			National Average			Difference	
	Avg. overall rating of the unit (1-5)	% who would recommend their apartment to a friend	ratings posted	Avg. overall rating of the unit (1-5)	% who would recommend their apartment to a friend	ratings posted	Avg. overall rating of the unit (1-5)	% who would recommend their apartment to a friend
03 Q1	3.39	59.6%	69	2.84	45.8%	14832	.55**	13.8%
03 Q2	2.91	48.2%	57	2.78	44.7%	15815	.13	3.5%
03 Q3	2.92	52.6%	37	2.76	43.3%	16704	.16	9.3%
03 Q4	2.92	48.0%	50	2.78	44.2%	17818	.14	3.8%
04 Q1	2.59	39.1%	85	2.78	44.8%	27161	-.00	-5.7%
04 Q2	3.30	67.9%	79	2.80	45.4%	31757	.51**	22.5%***
04 Q3	2.39	33.3%	87	2.75	44.0%	25632	-.36	-10.7%
04 Q4	2.71	45.8%	48	2.76	44.3%	522	-.06	1.5%
05 Q1	2.42	31.4%	145	2.79	45.0%	23254	-.37**	-13.6%***
05 Q2	3.01	50.4%	115	2.73	43.5%	24363	.28	6.9%
05 Q3†	2.00	27.4%	126	2.64	40.6%	29039	-.44***	-13.2%**
05 Q4	2.34	26.8%	50	2.66	41.0%	23655	-.32	-14.1%
06 Q1	2.19	25.5%	144	2.67	41.7%	34224	-.49***	-16.2%***
06 Q2	2.64	38.9%	124	2.66	41.0%	43653	-.02	-2.1%
06 Q3	2.62	37.4%	100	2.63	39.9%	43058	-.01	-2.6%
06 Q4	2.54	36.9%	65	2.69	41.6%	30197	-.15	-4.6%

† Hurricane Katrina struck in late August of 2005.

t-test (two-tailed) indicates difference is significant at the $p < .01$ level, * $p < .001$ level.

Note: Because of the self-selection inherent in an open-comment website, these responses do not constitute a representative random sample. Thus, the t-test results are provided only as a general descriptor of the magnitude of the difference between the national ratings and Baton Rouge ratings and should not be interpreted as conclusive.

of 2005, during which the initial migration occurred, both the average overall rating of apartments and the percentage of residents who would recommend their apartment complex to a friend dropped to all-time lows. As compared to the previous quarter, the average overall rating dropped from just over three stars to only two stars. Similarly, the percentage of residents who would recommend their apartment dropped 23 percentage points from 50.4% to 27.4%. Over the following two quarters, while the percentage of residents who would recommend their apartment to a friend contin-

ued to drop, the average overall rating edged up slightly. Nevertheless, in all three quarters including and following Hurricane Katrina, the ratings were lower than at any time prior to the migration of evacuees. The negative trends in residential satisfaction did not see substantial improvement until the second quarter of 2006, approximately nine months after the initial migration. From this point, the ratings posted, while by no means extraordinarily positive, appeared to be more similar to those found prior to Hurricane Katrina.

Columns 5-7 show the results of the same examination for the rest of the nation during this period. The comparison with national results helps to control for factors that may have been influencing either residential satisfaction as a whole or the consumer comment website itself during this same time. When compared with the rest of the nation, the change in satisfaction in reports from Baton Rouge still appear significant, especially in the three quarters including and following Hurricane Katrina.

One possibility is that part of the drop in satisfaction could have been due to the increased occupancy of low-quality apartment complexes, rather than any change in satisfaction within particular apartment complexes. This increased occupancy may not have changed the average satisfaction level, but may have simply increased the number of respondents coming from undesirable apartments. To consider this possibility, we also examine the average ratings of individual apartment complexes for the one-year periods immediately before and after Hurricane Katrina. Among the 58 apartment complexes included in this analysis, 40% experienced an improvement in self-reported satisfaction, 3% experienced no change, and 57% reflected a drop. This would suggest that the drop in satisfaction is not entirely driven by changes in population among different apartment complexes, but that the average satisfaction within the same apartment complex was more likely to drop than to rise.

Conclusion

While the desire to reach out and help immediate neighbors affected by a natural disaster may be quite common, it appears that the daily realities of a rapid increase in population density brought about by the migration of evacuees still has a depressive effect on residential satisfaction among apartment dwellers. This initial drop in residential satisfaction may also relate to the residents' perceived lack of control over their environment driven by the natural disaster itself. Over time, however, there may be a possible acclimation to the new circumstances and a gradually renewed sense of environmental control. This acclimation, combined with gradual reduction in population pressure appears to reduce the initial negative impact after a period of about three quarters. While, given the data limitations, this study can be viewed only as introductory, it points to an important reality of emergency migration, that although short-term residential satisfaction can be expected to suffer initially as population density swells, satisfaction levels do gradually return to normal ranges. Future research on other natural disaster related migrations might help to clarify the extent to which the results seen here are unique to this particular emergency migration, possibly tied in with special factors related to the race and class characteristics of the evacuees, or if they are consistent across other circumstances.

Acknowledgements: The results and views expressed are those of the authors and do not reflect the views of ApartmentRatings.com, a division of Internet Brands, Inc. Only publicly available data were made available to the researchers.

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IMPACT OF A MIGRATION SHOCK

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