

My Old Indiana Home: A Study of Rising Foreclosure Rates

Hedayeh Samavati – IUPUI Fort Wayne

David A. Dilts – IUPUI Fort Wayne

Lawrence J. Haber – IUPUI Fort Wayne

Farah Gosnell – IUPUI Fort Wayne

Introduction

Indiana is a state which boasts on “family values” and sees itself as a place where one can come to “settle down and raise a family.” The Census Bureau’s Historical Tables on Homeownership Rates for the U.S. and its various regions, Table 14, shows Midwest has the highest rate of homeownership in the nation. Furthermore, Indiana is among those Midwestern states with the highest rate of homeownership. This rate has historically exceeded the national average homeownership rate by at least six percentage points. Home ownership rates for Indiana and the (US) for the years 2003, 2004, and 2005 were 74.4% (68.25%), 75.8% (69%), 75% (68.87%), respectively.

Unfortunately, Indiana has recently suffered an unprecedented rise in the rate of single-family home foreclosure. Every month thousands of homes are added to the pool of houses upon which foreclosure proceedings have begun. For example, in February of 2006, there were 5,909 properties in Indiana in some stage of foreclosure -- a number which was 34 percent higher than the previous month and nearly three times the number of foreclosures reported in the February of 2005. This translated into one foreclosure for every 571 households whereas the nationally there was one foreclosure for every 1,117 households (www.realtytrac.com). In July and August of 2006 Indiana was ranked fourth and fifth, respectively, in the list of top 10 states with the highest rates of foreclosure rates. Regrettably, these statistics were *improvements*, relatively speaking, to Indiana’s previous position in the list. In the third quarter of 2002 Indiana had suffered the highest foreclosure rate in the country when 2.38 percent of mortgage loans were in foreclosure, a rate which was more than double the national rate of 1.15 percent. In the third quarter of 2003, Indiana’s foreclosure rate had climbed to a new high of 2.6 percent (from 2.38) of mortgage loans. This rate is still twice the national rate, but below the rate for the neighboring state of Ohio. During this quarter Ohio unseated Indiana as the state with the highest number of home foreclosures, dropping Indiana to second on the list.

According to the research reported by the Research Division of the National Association of REALTORS (March 2003, and March 2004), historically, Indiana’s rate of foreclosure did not differ significantly from that of the nation. Figures 1 and 2 below indicate that, since the first quarter of 1979, Indiana’s rate of foreclosure had been low both absolutely and relatively considering the fact that the long term historical records suggest a “normal” foreclosure rate of one percent. That is, at any time, if about one percent of mortgage loans are in foreclosure, that number is considered “normal” while higher numbers are considered above average incidents of home foreclosure. Figures 1 and 2 show that rarely did Indiana have a foreclosure rate which had been more than one-half a percentage point above the national average foreclosure rate of one percent. In fact, between the late 1980s and the late 1990s Indiana enjoyed a foreclosure rate which was one-half of one

percentage point *below* the national average rate of foreclosure. Furthermore, the figures below suggest that Indiana's troubles in the housing market seem to have started with the onset of the latest recession experienced by the US economy in 2001.

Figure 1

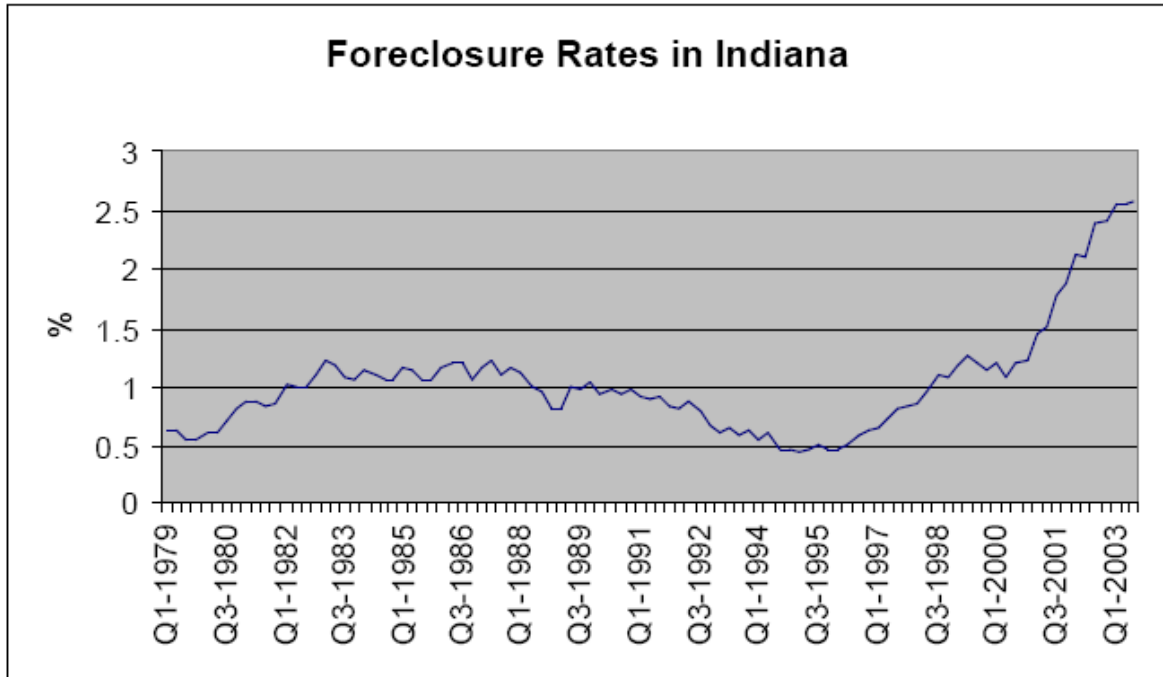
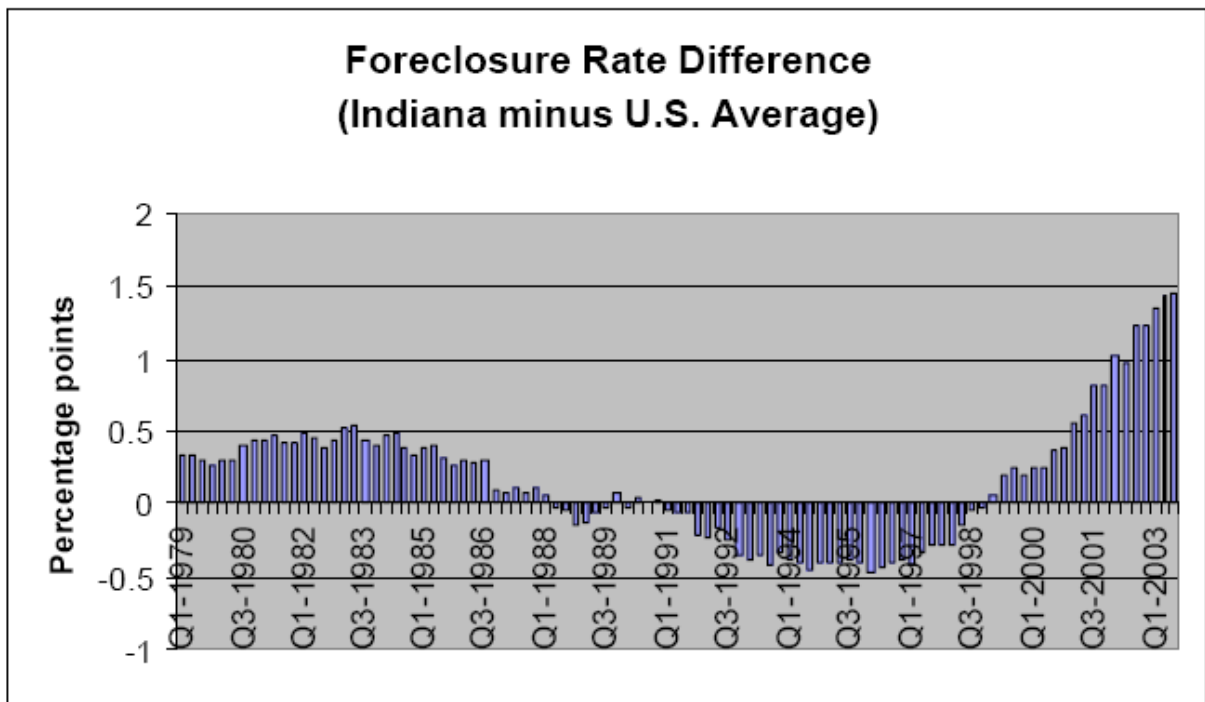


Figure 2



Source: Research Division-National Association of REALTORS, "Rising Foreclosure Rates in Indiana: An Explanatory Analysis of Contributing Factors, March 2004, pg. 4.

The recent data do not paint a rosy picture for housing markets in Indiana. Homeownership is still the center piece of the "American Dream," yet is apparent that increasing numbers of Hoosiers are unable to meet their mortgage obligations and are losing this center piece of the American Dream to foreclosure. This paper examines the possible causes of the American Dream of homeownership slipping into the nightmare of mortgage foreclosure in the State of Indiana.

Literature Review

The literature concerning mortgage defaults is bifurcated. That is there are two specific classes of economic studies. There are studies which focus on identifying those factors which predict individual household's inability to meet their mortgage obligations. These studies are predominately microeconomic in nature. The second group of papers relies on economic aggregates to predict variations in foreclosures or foreclosure rates.

There are few microeconomic studies which examine the risk associated with risk management of mortgages. Those studies focus on the factors associated with loan resolutions. Edward and Arshadi (1995) examine problem loan resolutions but also explain why so few studies of this nature have been undertaken (Edward and Arshadi, 1995, p. 202), *"Surprisingly, there is a dearth of empirical research in the literature on problem loan resolutions, perhaps due to the lack of easily accessible data. Given the sensitive nature of credit files and the existence of strict federal confidentiality laws, banks have been generally reluctant to supply detailed data for empirical research on problem loan resolutions."* In addition to confidentiality concerns, one might speculate that the banks may have an interest in not disclosing the information that could bring scrutiny to bear on the bank's business. Lending credit to this conjecture is the mounting evidence that at least part of the blame can be laid at the banks' doors for their increasingly "predatory" banking practices (Pyle, 2003).

On the other hand, there are far more macroeconomic studies which focus on identifying determinates of variations in mortgage foreclosure rates at the national level, and in some cases, regional levels (Lambrech, Perradin and Stachell, 2003; and Case, Glaeser and Parker, 2000). This latter category of studies overcomes the problem of confidential financial information concerning individual clients of the bank. However, the determinants identified in these studies are macroeconomic factors which are used to explain variations in either total number of foreclosures or foreclosure rates. The variables utilized to explain variations in foreclosures include standard business cycle measures including unemployment rate and per capita income which are used here. The study reported here falls into this latter category of studies, with one significant difference. This study uses macroeconomic information to explain variations across counties in the State of Indiana for mortgage foreclosures.

Data and Method

The data used in this study are cross-sectional data for the 92 counties in the State of Indiana for calendar year 2005. The number of foreclosures by county, per capita income,

unemployment rates, change in the number of manufacturing jobs, and net migration were obtained from the Indiana Business Research Website.

Ordinary Least Squares was applied to the data to estimate the statistical relationship between each of the explanatory variables and the number of foreclosures in each of the counties. The following equation was estimated:

$$1) FC = \alpha + \beta_1 Y + \beta_2 UR + \beta_3 \Delta MJ + \beta_4 NM + \epsilon$$

Where: FC is the number of foreclosures by county, Y is the per capita income in the county, UR is unemployment rate by county, ΔMJ is the change in the number of manufacturing jobs by county, and NM is the net migration into or out of the county.

The standard macroeconomic aggregates of unemployment rate and per capita income are included in this study in keeping with previous macroeconomic studies. Change in manufacturing jobs within the county (ΔMJ) is included because Indiana has experienced significant job losses from the closing of automobile plants in Anderson, Indianapolis and elsewhere. There has also been a significant loss of other manufacturing firms in Indiana, including Tokheim, Dana Corporation, Olin Brass, and several other firms. These events are expected to have a significant impact on household abilities to service long-term debt. There is also significant variation in migration between counties and from outside of Indiana. It is also possible that this migration will have a significant impact on the housing markets in Indiana.

The expected sign of the coefficient for per capita income (Y) is positive – indicating that as income declines across counties, fewer people qualify for mortgages, and as a result there will be fewer foreclosures. The expected sign of the estimated coefficient of unemployment rate is positive. In other words, unemployment rate and the number of foreclosures in a county are expected to be positively correlated, as the unemployment rate (UR) goes up so too do foreclosures. The expected sign of change in manufacturing jobs (ΔMJ) is negative, which suggests that as manufacturing jobs decline in a county, foreclosures increase. The sign of the coefficient for net migration (NM) is expected to be negative. As people move into a county, the real estate markets become more liquid, and as people leave, housing becomes a less liquid asset, suggesting that sales of houses by financially distressed households are less likely, hence foreclosures are more likely.

Empirical Results

Table 1 below reports the results for the estimated regression model.

Table 1				
Regression Results				
	Coefficient	Standard Error	t-statistic	Significance
Constant	-2318.518	374.834	-6.185	.0000
Y	.094	.014	6.886	.0000
UR	-.636	.634	-1.003	.3188
ΔMJ	-.479	.141	-3.401	.0010
NM	-.298	.042	-6.954	.0000
Adj. R-square = .569; F Statistic (4, 88) 31.26 (.000) n = 93				
FC Mean 331.16, Standard Deviation 743.72				

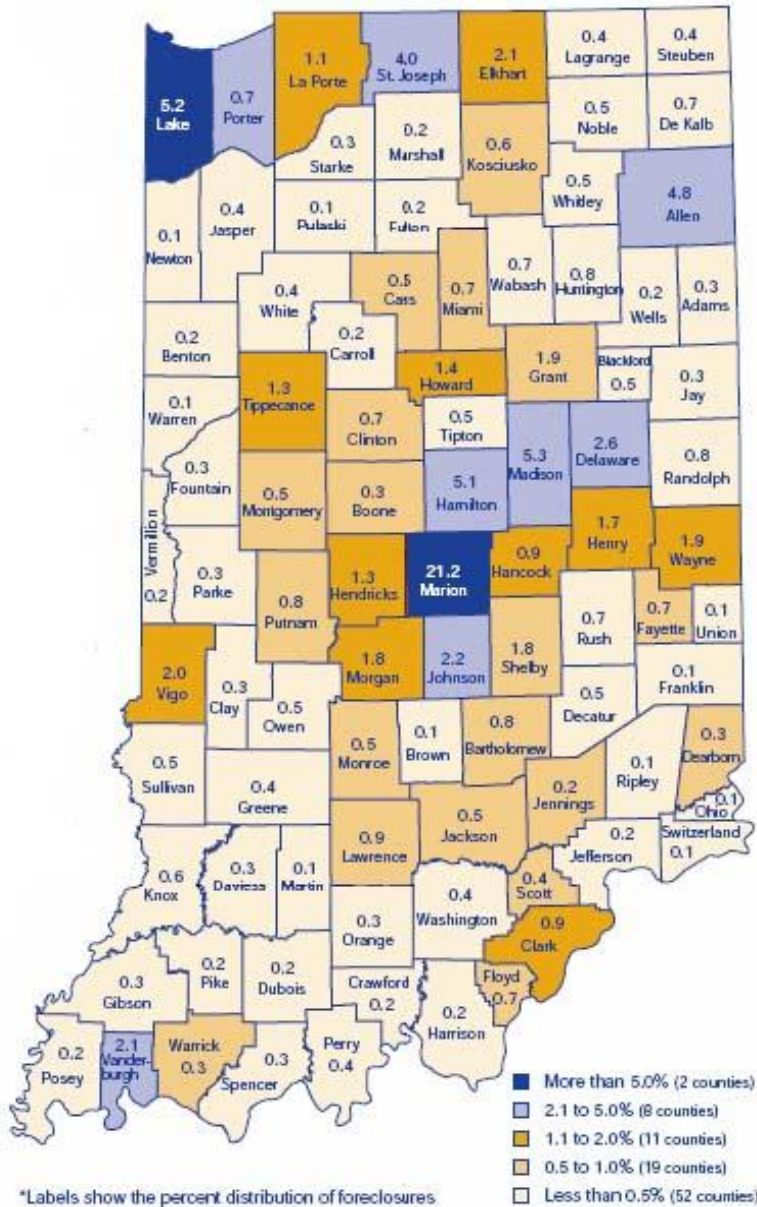
The statistical evidence reported in Table 1 shows that the model significantly explains the variations in the foreclosures by county in Indiana in 2005. The expected signs for each of the coefficients were obtained and each of the estimated coefficients is statistically significant at the .001 level, except for the unemployment rate (UR), which was not significant.

ΔMJ, change in manufacturing jobs, and net migration (NM) is negatively correlated with mortgage foreclosures as expected. With the decline in manufacturing jobs people are forced into lower paying service sector jobs, or into unemployment, in either event those people will have less ability to service long-term debt, particularly loans for which they qualified at higher income levels. The result is that those areas in which manufacturing jobs were lost experience greater mortgage foreclosures.

In counties which experience net in-migration, the housing market becomes more liquid. That is, houses are on the market for a shorter period, and there is often more excess demand, than excess supply for housing. The result is that families in financial distress will be more likely to be able to sell their houses in a more liquid housing market. Hence, there will be fewer foreclosures because the sale of housing properties provides a safety valve for financially distressed households. In the case of areas experiencing out-migration, an excess supply of housing results in a less liquid housing market. When houses are difficult to sell there is a downward pressure on price, and houses may be on the market for months before they can be sold. The result is that there will be no safety valve to foreclosure that a liquid housing market provides. The insignificant sign for unemployment rate (UR) may mean that

the effect of unemployment is lost to the variations in manufacturing jobs and the migration of people to and from Indiana counties.

FIGURE 3: PERCENT OF BANKRUPTCIES AND FORECLOSURES, 2005



Source: InContext, "Bankruptcies and Foreclosures in Indiana," pg. 7.

Per capita income has the hypothesized positive sign. In counties such as, Marion, Lake, Allen, and Madison, there are higher per capita incomes, but as the above map shows they also have higher rates of foreclosure. Although this may seem counter-intuitive, at first glance, one must remember that home ownership is not universal, and requires certain levels

of income to qualify for a mortgage. In the counties with high foreclosure rates there were more people who qualified, proportionately, for mortgages than in lower income counties. The results reported here indicate that there is a prerequisite to mortgage foreclosure, that prerequisite is sufficient financial resources to qualify for the mortgage. The higher qualification rate for mortgages, in turn, means that more foreclosures are possible, hence if loss of jobs, or people trigger less liquidity in the housing market in one of the counties with higher incomes, there are more mortgages upon which to default. Not surprisingly, Indiana's problems with the population growth and the loss of manufacturing jobs are among the most significant explanatory variables for the recent increases in the number of single family foreclosures.

Conclusions

This paper is the first academic study focused on cross sectional data for a particular state examining foreclosure on mortgages. This paper examined a single year, for the State of Indiana, and found that a significant proportion of the variation, by county, is explained by the hypothesized variables. It was somewhat surprising that unemployment rate was not statistically significant, but the estimates for the remaining three variables were of the hypothesized sign. Net migration, and change in the number of manufacturing jobs are negatively associated with foreclosures, while per capita income is positively associated with foreclosures.

The positive sign for the per capita income variable suggests the greatest problems with foreclosures are in the richer counties. This result is not inconsistent with suspect lending practices by banks in those areas. Many of the predatory lending practices identified in the literature (Pyle, 2003) focus on loans to middle and upper middle income people. Clearly more research into these issues must be forthcoming if the country is to avoid a repeat of the savings and loan crisis of the late 1970s, or the foreclosure crises in rural America in the 1980s.

There is also the human tragedy involved in the loss of a home through financial distress resulting in foreclosure. This study also suggests that areas experiencing out migration and the loss of manufacturing jobs are overly exposed to the potential for increased foreclosures. The business cycle has a human dimension, and unemployment is not the only form of misery associated with these difficulties. Clearly more research is necessary concerning the issues which trigger increasing mortgage foreclosures.

References

- Case, Karl E., Edward L. Glaeser and Jonathan A. Parker, "Real Estate and the Macroeconomy," *Brookings Papers on Economic Activity*. Vol. 2000, No. 2 (2000): 119-162.
- Edward, Lawrence C., and Nasser Arshadi, "A Multinomial Logit Analysis of Problem Loan Resolution Choices in Banking," *Journal of Money, Credit and Banking*, Vol. 27, No. 1 (February 1995): 202-216.
- In Context, "Bankruptcies and Foreclosures in Indiana," Vo. 6, No. 8, (November 2005): 6-15. www.incontext.indiana.edu.

Indiana Business Research Website. www.stats.indiana.edu for 2005.

Lambrecht, Bart M., William R. M. Perraudin, and Steven Satchell, "Mortgage Default and Possession Under Recourse: A Competing Hazards Approach," *Journal of Money, Credit and Banking*, Vol. 35, No. 3 (June 2003) pp. 426-442.

Pyle, Michael J., "A 'Flip' Look at Predatory Lending: Will the Fed's Revised Regulation Z End Abusive Refinancing Practices?" *The Yale Law Journal*, Vol. 112, No. 7 (May 2003):1919-1926.

Realty Trac, various dates, www.realtytrac.com

Research Division-National Association of REALTORS, "Rising Foreclosure Rates in Indiana: An Explanatory Analysis of Contributing Factors, March 2003.
<http://www.indianamba.org/Downloads/Realtors%20research.pdf>

Research Division-National Association of REALTORS, "Rising Foreclosure Rates in Indiana: An Explanatory Analysis of Contributing Factors, March 2004.
<http://www.mibor.com/pdfs/ForeclosureStudy2004.pdf>

U.S. Census Bureau, Housing Vacancies and Homeownership (CPS/HVS) Historical Tables, Table 14.
<http://www.census.gov/hhes/www/housing/hvs/historic/hist14.html>