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## The effect of foreclosures on nearby housing prices: Supply or dis-amenity? $\stackrel{\text{therefore}}{\rightarrow}$



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# A R T I C L E I N F O A B S T R A C T Article history: A number of studies have measured negative price effects of foreclosed residential properties on nearby property sales. However, only one other study addresses which mechanism is responsible for these effects. I measure separate effects for different types of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclosed properties and use these estimates to decompose the effects of foreclos

Available online 10 September 2014 Keywords: Foreclosure Housing prices A number of studies have measured negative price effects of foreclosed residential properties on nearby property sales. However, only one other study addresses which mechanism is responsible for these effects. I measure separate effects for different types of foreclosed properties and use these estimates to decompose the effects of foreclosures on nearby home prices into a component that is due to additional available housing supply and a component that is due to dis-amenity stemming from deferred maintenance or vacancy. I estimate that each extra unit of supply decreases prices within 0.05 miles by about 1.2% while the dis-amenity stemming from a foreclosed property is near zero.

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### 1. Introduction

Spillover

As housing prices fell and foreclosure rates rose in the late 2000s, lenders were put in the position of having to liquidate ever larger inventories of foreclosed homes. A number of articles in the popular press cited a "shadow inventory" of homes, part of which was made up of homes that had been repossessed by lenders but had not been listed for sale. In a July 7, 2009 segment on National Public Radio, Yuki Noguchi reported,

"I do know that banks are holding onto inventory, and what they're doing is they're metering them out at an appropriate level to what the market will bear," says Pat Lashinsky, chief executive of online brokerage site ZipRealty.<sup>1</sup>

This strategy may have implications for the property values of homes that are near the bank-owned properties. As an owner of a nearby property or as a local public official concerned about tax revenue from properties near foreclosed homes would one rather have the bank

<sup>1</sup> The full segment can be found at http://www.npr.org/templates/story/story.php? storyld=106113137.

"meter out" the properties to meet demand or sell them quickly to minimize the time that they sit vacant?

The answer to this question hinges upon the mechanisms through which foreclosures decrease nearby property values and the relative size of each effect. There are two primary mechanisms which are theoretically plausible ways by which a foreclosure may lower the value of other properties nearby. The first mechanism is by way of increasing the supply of homes on the market.<sup>2</sup> The second mechanism operates through the dis-amenity imposed on nearby properties if a foreclosed property is not properly maintained or if it falls victim to crime or vandalism, possibly while vacant.<sup>3</sup> This paper attempts to measure the effect of foreclosure on nearby property values and to decompose this effect into portions attributable to the aforementioned supply and dis-amenity mechanisms.

I pursue an empirical strategy under which identification of separate supply and dis-amenity effects depends upon the degree of segmentation between the single-family and multi-family housing markets. Specifically, I consider two cases: segmentation and integration. In the segmentation case, I assume that foreclosure of a nearby single-family home affects the property values of single-family homes through both the supply and dis-amenity mechanisms. This is because foreclosure of a single-family home adds a unit of supply to the single-family market and creates the potential for a poorly maintained or vacant property. However, foreclosure of a nearby renter-occupied multi-family building affects the property values of single-family homes only through the dis-

<sup>&</sup>lt;sup>†</sup> I am indebted to my adviser, Enrico Moretti and my committee members: David Card, Steven Raphael, and John Quigley. Funding to purchase foreclosure data was provided by the University of California, Berkeley Fisher Center for Real Estate and Urban Economics. Many helpful comments were provided by Tim Dunne, participants at the 2010 Western Regional Science Association Annual Meeting, and several anonymous referees. The views stated herein are those of the author and are not necessarily those of the Federal Reserve Bank of Cleveland or of the Board of Governors of the Federal Reserve System.

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 $<sup>^{2}\,</sup>$  Wheaton (1990) shows that prices fall as vacancies rise in a housing market search and matching model.

<sup>&</sup>lt;sup>3</sup> Ellen et al. (2013) and Immergluck and Smith (2006b) investigate the connection between foreclosures and crime. See also Apgar et al. (2005).

amenity mechanism. This is because, in the segmentation case, potential buyers of single-family homes do not view multi-family buildings as substitutes, so no supply is added to the single-family home market. In this case, renter-occupied multi-family building foreclosures may still affect single-family home prices but only through potential lack of up-keep and vacancy. In the integration case, the foreclosure of a nearby multi-family building will also affect property values of single-family homes through the supply mechanism. Under either assumption, identification of separate supply and dis-amenity effects hinges upon estimation of both the effect of single-family home foreclosures and the effect of renter-occupied multi-family building foreclosures on nearby single-family home prices.

I estimate the effects of single-family home and renter-occupied multi-family foreclosures on the universe of single-family home sales in Chicago between January of 2000 and May of 2011. Using a hedonic framework, I estimate the effect of single-family and multi-family foreclosures that occurred during the prior year on the log price of single-family homes within 0.05 miles. In addition to the universe of other residential foreclosures, I control for a large number of property characteristics that could affect home prices. I include month of year effects to control for seasonality of the real estate market. I also include census block \* year effects to control for extremely local shocks and for spatial and temporal variation in housing prices.

I find that each foreclosure filing occurring in the previous year and within a 0.05 mile radius is associated with a reduction in the price of a single-family home of about 0.3%. However, I focus on comparing the effects of single-family foreclosures and multi-family renter-occupied foreclosures on nearby property values. I find that each single-family home foreclosure filing within a 0.05 mile radius occurring in the past year is associated with a reduction in the price of a single-family home of about 1.3%.<sup>4</sup> Multi-family foreclosure filings in the past year within a 0.05 mile radius are not associated with a reduction in the price of a single-family home. Subtracting the multi-family effect from the single-family effect I estimate that the supply effect is around -1.2%, whereas the dis-amenity effect is about zero.

The other study that attempts to separate the supply and disamenity effect of foreclosures is Anenberg and Kung (2014). Anenberg and Kung (2014) look at the effect of foreclosures in multiple listing service (MLS) data on nearby asking prices for homes. They find that each additional foreclosure listed is associated with a 1.5% drop in sales price for homes within 0.1 miles. The authors use MLS data from the Chicago, Phoenix, San Francisco, and Washington, DC metropolitan areas. They interpret the fact that they find an effect around the foreclosure listing date and a disappearance of the effect 3 to 6 months after the foreclosed home sells as evidence that the negative price effect stems from competitive pressure driving prices down rather than a dis-amenity effect. It is reassuring that although our studies use very different empirical approaches, we find quite similar results.

#### 2. Data

I use data from several sources. Residential property sales and foreclosure data for the city of Chicago are from a private data provision company named Record Information Services. Property characteristic data and homeowner tax exemption claim data come from the Cook County Tax Assessor's Office.

Property identification numbers allow the foreclosure and sales data to be linked to the property characteristic and tax exemption data. After geocoding the addresses, I calculate the distance between every sale and every foreclosure. Since I am interested in the effect of foreclosures on nearby properties but not on the foreclosed properties themselves, I drop any sale that is for a property identification number that appears in the foreclosure file. Table 1 presents descriptive statistics for singlefamily residential property transactions in the City of Chicago from January 2000 through May 2011.<sup>5</sup> The first four sections (in the top panel) present data regarding the number of single-family (SF), units of renter-occupied multi-family (UMFRO), units of owner-occupied multi-family (UMFOO), and condominium foreclosure filings that occurred within the past year within 5 mutually exclusive rings around each single-family property transaction: 0–0.05 miles, 0.05–0.10 miles, 0.10-0.15 miles, 0.15-0.20 miles, and 0.20-0.25 miles. In order to limit the influence of outliers, all foreclosure count variables are winsorized at their 99th percentile values. All regression specifications use winsorized foreclosure counts and include dummy variables indicating whether the value of the original variable exceeded the 99th percentile level. The middle panel presents data regarding the sales price and structure characteristics of these properties.<sup>6</sup> The bottom panel presents data regarding the year 2000 demographics of the census tracts in which the properties are located.

According to Emerson (2010), in Chicago the foreclosure process typically takes about 9 to 12 months from filing date to eviction. The foreclosure process begins when a complaint to foreclose mortgage is filed in the Chancery Division of the Circuit Court of Cook County. Foreclosure complaint filings are part of the public record. The owner is then served with foreclosure case court papers. If not challenged, a judgment of foreclosure is entered. The owner then has about 3 months to reinstate or redeem. If this does not happen, the property is sold at auction (called a judicial) sale. Public notice of the sale is given prior to the auction. The title is then transferred and an eviction order can be entered. The eviction can then occur 30 days later. At this point the owner is either the winner of the auction or the lender if the lender's reservation price was not met at the auction. When the reservation price is not met, the lender will subsequently list the property for sale using the MLS (Emerson (2010)). I do not have access to the MLS data, and thus cannot observe which foreclosures result in lenderownership and when they are listed in the MLS.

The foreclosure data that I use contain entries for the two foreclosure-related events that are public record. These events are the initial filing of the foreclosure and the auction date of the foreclosure, if an auction is ever scheduled. Among the properties for which an auction is observed the mean time from filing to auction is eleven months, the median is about nine months, the 5th percentile is 5.5 months, and the 95th percentile is about two years. Throughout this paper, I focus on the foreclosure filing date, since this is the date when the foreclosure becomes public knowledge.<sup>7</sup>

The sample that I use for estimation includes all single-family residential property transactions in the city of Chicago from January

<sup>&</sup>lt;sup>4</sup> This finding is in line with the findings of several other recent studies. Immergluck and Smith (2006a) find about a 1 percent reduction in the price of single-family homes in Chicago in 1999 for each foreclosure within one eighth of a mile. Schuetz et al. (2008) find a smaller effect, about a 0.2 percent reduction in price, in New York City between 2000 and 2005 in a 250 ft radius. It is not surprising that I find a larger effect. The New York City housing market was booming during their sample, whereas my sample includes the subsequent bust as well. As opposed to the hedonic framework used by the two aforementioned studies, Harding et al. (2009) and Gerardi et al. (2012) use a repeat sales approach. Harding et al. (2009) measure a discount of 1% per foreclosure at a distance of 300 ft (about 0.57 miles). In terms, of timing, they find that the effect peaks around the time of the foreclosure sale (when the property transfers from the owner in default to the lender or to another owner). Their sample is obtained by combining a large proprietary mortgage database which contains approximately half of all national mortgage transactions from 1989 to 2007 with other data and only using zip codes with high coverage rates (over 80%). Gerardi et al. (2012) use a larger and richer sample and still find an effect of -0.9% per foreclosure within 0.1 miles. The authors find that the negative effects peak before the properties complete the foreclosure process. Using data from Massachusetts, Campbell et al. (2011) also find a spillover effect of about -1% per foreclosure at a distance of 0.05 miles.

<sup>&</sup>lt;sup>5</sup> While I use transaction data that go back to January 2000, the foreclosure data go back to January 1998, providing enough data to estimate the effect of foreclosures that occurred in the year or two years prior to a transaction that occurred in January 2000. The last full month of foreclosure data is June of 2011.

<sup>&</sup>lt;sup>6</sup> Throughout this paper all prices are real, expressed in terms of year 2010 dollars.

<sup>&</sup>lt;sup>7</sup> However, my empirical specifications are not sensitive to the addition of foreclosure auctions as controls. Section 4.3 presents robustness specifications including foreclosure auction counts as controls.

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