Journal of Urban Economics 87 (2015) 42–56

Contents lists available at ScienceDirect

Journal of Urban Economics

www.elsevier.com/locate/jue

Foreclosure externalities: New evidence ☆

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ARTICLE INFO

Article history:
Received 28 April 2014
Revised 27 February 2015
Available online 12 March 2015

Keywords:
Foreclosure
Mortgage
Externalities

ABSTRACT

Policy makers have used externalities to justify government intervention in the foreclosure process. Using a new dataset that covers 15 of the largest metropolitan statistical areas in the U.S. and a novel identification strategy, this paper provides new evidence on the size and source of these externalities. Our results show that a property in distress affects the value of neighboring properties from the time when the borrower becomes seriously delinquent on the mortgage until well after the bank sells the property to a new owner. Properties with seriously delinquent loans within 0.1 miles are found to decrease transaction prices of non-distressed properties by approximately one percent on average. The spillovers are found to dissipate rapidly with distance and completely disappear one year after the bank sells the property to a new homeowner. Importantly, we find that the size of the externality is sensitive to the condition of foreclosed properties, as bank-owned properties in poor condition lower nearby transaction prices by 2.6% on average while those in good condition marginally raise prices. We argue that the measured price spillovers are physical externalities caused by a lack of property maintenance and not pecuniary externalities that reflect local supply or demand shocks.

1. Introduction

The existence of foreclosure externalities underpins either explicitly or implicitly many arguments for government intervention in the foreclosure process. For example, in a 2010 white paper, Federal Reserve Board economists wrote that:

> . . .foreclosures can be a costly and inefficient way to resolve the inability of households to meet their mortgage payment obligations because they can result in "deadweight losses," or costs that do not benefit anyone, including the neglect and deterioration of properties that often sit vacant for months (or even years) and the associated negative effects on neighborhoods.

The financial crisis period was characterized by extremely high rates of mortgage delinquency and foreclosure: Fig. 1 shows that between 2008 and 2012 millions of homes were in some stage of mortgage delinquency or foreclosure. While some areas were hit harder than others, foreclosures cut a wide swath and we show below that in 2010 almost 80% of residential sales occurred with at least one distressed property nearby. Given the huge number of foreclosures that characterized this time period, even small externalities could have significant economic impacts.

Foreclosures can affect the well-being of residents of neighboring properties in many ways but in this paper we measure only those that affect the sale price of the property.[1] A growing body of evidence has emerged showing that foreclosures decrease the market values of nearby, non-distressed properties. Estimates of the magnitude of the spillovers range widely. For example, Leonard and Tammy (2009) finds that an additional foreclosure within 250 feet lowers transaction prices by approximately 0.5% in

☆ The authors thank Chris Cunningham, Chris Foote, Scott Frame, Lauren Lambie-Hanson, Sam Kruger, Steve Ross, Joe Tracy, seminar participants at Hamilton College, the Furman Center at New York University, the Kansas City Fed, and the University of Connecticut for helpful comments and to Stefano Giglio and Susan Wachter for excellent discussions at the 2012 Spring HULM and 2012 Mid-year AREUEA meetings respectively. The views expressed in this paper are those of the authors and not the official position of Fannie Mae or any part of the Federal Reserve System.

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[1] Other externalities that have been documented in the literature include increased neighborhood crime rates (Ellen et al., 2013) as well as foreclosure contagion (Towe and Charles, 2013). See U.S. (2010) for a detailed discussion of the various costs imposed on borrowers and lenders during the foreclosure process as well as a literature review of the empirical estimates of various types of foreclosure externalities. Frame (2010) provides a review of the empirical literature that tries to measure the negative price spillovers associated with the foreclosure process.

http://dx.doi.org/10.1016/j.jue.2015.02.004
0094-1190/

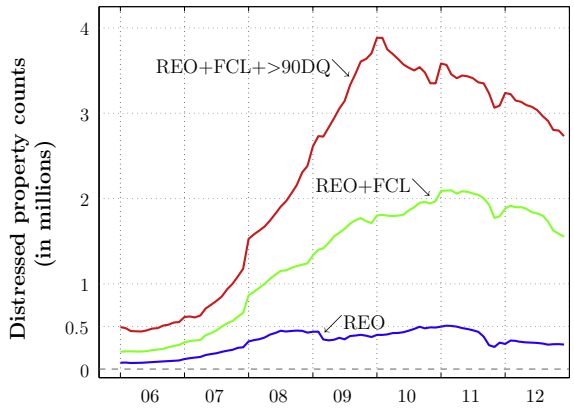

Fig. 1. The stock of distressed properties by stage of distress. *Notes:* The data behind panel A come from Lender Processing Services, which is a servicer-based loan-level dataset that covers approximately 75–80% of the U.S. mortgage market. "REO" corresponds to the outstanding inventory of properties that are owned by the lender, "FCL" refers to the number of loans that are in the foreclosure process, and "90DQ" refers to the inventory of loans that are at least 3 mortgage payments behind.

a sample of housing transactions in Dallas County, while Lin et al. (2009), using a sample of property transactions in Chicago in the early-to-mid 2000s, finds that an additional foreclosure within five blocks reduced prices by almost 9%. Other studies including (Immergluck and Smith, 2006; Rogers and Winter, 2009; Campbell et al., 2011; Harding et al., 2009) have found negative price spillovers of nearby foreclosures in the neighborhood of 1%.[2]

In addition to disagreement over quantitative magnitudes, there is also no consensus yet regarding the causal mechanisms that generate the estimated spillovers. Most papers estimating foreclosure price spillovers have used some variant of a hedonic pricing regression in which property transaction prices are regressed on a count of nearby foreclosures and a vector of controls for property and/or neighborhood characteristics (see Eq. (1) below), and have interpreted a negative correlation between prices and the number of nearby foreclosures as evidence of a highly localized, spillover externality. Yet, there has been little evidence on the cause of the foreclosure externality. There is some empirical evidence that the likely mechanism is a physical externality due to a lack of property maintenance.[3] However, there is also evidence that suggests the mechanism is a supply effect in which a nearby foreclosure increases competition in a market resulting in lower transaction prices for non-distressed properties.[4] Determining both the causal mechanism that leads to foreclosure price spillovers, and pinning down the quantitative magnitudes of spillovers is necessary for policy makers to be able to develop effective policy responses to future foreclosure crises. This paper uses a new, more nationally representative dataset that includes previously unavailable information on delinquent mortgages and on the physical condition of bank-owned (REO) properties, and an identification strategy that addresses many of the severe econometric issues that have plagued the literature, to shed light on both the nature and magnitude of foreclosure price spillovers.

Our identification strategy builds off of previous studies in the literature. Like Harding et al. (2009) we use the repeat-sales methodology to control for time invariant, unobserved, property-specific and neighborhood-specific factors that could cause omitted variable bias.[5] However, the repeat-sales specification does not account for *time-varying* unobserved local shocks that might be correlated with house price dynamics and the number of nearby distressed properties. As we will see below, these unobserved, local supply and demand shocks are the primary threat to the identification of foreclosure price spillovers. To address this issue we include an innovative triple-interaction fixed effect in the repeat-sales specification that groups properties in the same small geographical area (a census block group) that transact in the same two quarters. This differences out all time-varying factors that are common to properties that transact in the same two quarters in the same small geography.

We then follow the literature and measure nearby distressed properties using rings drawn around individual homes. The rings are smaller than the geography associated with the fixed effects to ensure that within a given fixed effect group, there is enough variation in the number of nearby distressed properties to estimate the model. Thus, our identification strategy compares house price growth for houses that are purchased in the same quarter and sold in the same quarter in the same small geography but with different numbers of nearby distressed properties. We argue that this identification strategy leaves us with a clean estimate of local price spillovers from distressed properties.[6]

We apply the methodology using a dataset that is unique in this literature. Previous researchers have linked sale prices of houses to nearby foreclosures but our data also include nearby properties where the borrower is delinquent on the mortgage but for which the lender has not yet pursued (and may never pursue) legal action. As we discuss in more detail below, delinquent borrowers are less likely to invest in their properties either because they anticipate losing the property eventually to foreclosure or because of the financial distress that is leading to the delinquency.

The results point to a statistically significant, negative price spillover of nearby distressed properties. According to our estimates, an additional property within 0.1 miles of a non-distressed property transaction (approximately 528 feet) in which the homeowner has been behind by at least three mortgage payments for less than one year decreases the transaction price by an average of 0.6%. The negative spillover peaks when the borrower has been seriously delinquent for a significant length of time. An additional property in which the homeowner has been behind by at least three mortgage payments for more than one year decreases the

[2] Immergluck and Smith (2006) considers property transactions in the city of Chicago in the late 1990s, (Rogers and Winter, 2009) focuses on transactions in St. Louis, Missouri from 1998 to 2007, (Campbell et al., 2011) uses the universe of transactions in the state of Massachusetts from 1989 to 2007, and (Harding et al., 2009) uses a more nationally representative sample comprised of transactions from seven metropolitan statistical areas.

[3] For example, Fisher et al. (Forthcoming), examines a sample of condominiums in Massachusetts. They focus on condominiums in an association and divide them up between those that are at the same address and those that are in the same association but at a different address. They find that only foreclosures at the same address exert an effect on the price and conclude that the large effects of condo foreclosures on the prices of nearby properties are due to a physical externality.

[4] For example, Anenberg and Eliot (2014) focus on sales of single-family properties in the San Francisco, Washington D.C., Chicago, and Phoenix metropolitan statistical areas over the period 2007–2009 and augments the typical hedonic pricing regression with property listings. The authors find that sellers decrease their listing prices in the same week that nearby bank-owned (REO) properties are listed, which they interpret as evidence of a supply effect.

[5] The repeat-sales specification uses a sample of properties that transact at least twice during the sample period and involves taking differences in the dependent and independent variables across the multiple sale dates so that time-invariant property and neighborhood characteristics are eliminated from the estimation equation.

[6] Previous studies in the literature have tried to control for endogeneity bias in a number of different ways. Harding et al. (2009) attempts to explicitly control for reverse causality bias by including a local market price index in their covariate set. Schuetz et al. (2008) and Campbell et al., 2011 include relatively disaggregated, geographic fixed effects in their hedonic specifications. Campbell et al. (2011) include census tract-by-year fixed effects in a hedonic specification, and is thus the closest analysis to ours in terms of econometric methodology. However, there are significant differences between the two studies, which we document in detail in On-Line appendix (Section A.2).