



Neighborhood renewal: The decision to renovate or tear down



Henry J. Munneke^{a,1}, Kiplan S. Womack^{b,*}

^a Terry College of Business, University of Georgia, 341 Brooks Hall, Athens, GA 30602, United States

^b Belk College of Business, UNC Charlotte, 9201 University City Blvd, Charlotte, NC 28223, United States

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ABSTRACT

Renewal at the neighborhood level is the culmination of redevelopment decisions made at the property level. This study examines the decisions of whether to partially redevelop (renovate) or fully redevelop (tear down) existing improvements. Results from the study reveal the primary determinants of the decision, particularly highlighting the importance of structural attributes for renovations, land for teardowns, and location and prior redevelopment activity for both. Additionally, as a test of a proposition from prior studies, major renovations are found to be equivalent to teardown sales, where the property is valued only for the underlying land. The level of expected renovations is also shown to decrease the selling price of properties requiring renovations.

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1. Introduction

Rosenthal (2008) and Brueckner and Rosenthal (2009) conclude that neighborhood renewal is largely driven by the deterioration and subsequent redevelopment of the existing housing stock. This finding is important because it incorporates the filtering and housing life cycle models by showing that renewal at the neighborhood level is the culmination of redevelopment decisions made at the property level. These property level decisions include the choice to partially redevelop (renovate) or fully redevelop (tear down) the existing improvements.² Despite the mutually exclusive nature of this decision, prior studies have examined renovations and teardowns as separate phenomena. As a result, the relationship between these processes has largely been unexplored in academic studies.³

This study jointly examines these processes in an effort to provide a better understanding of how and where redevelopment occurs.

* Corresponding author. Tel.: +1 704 687 7584.

E-mail addresses: hmunneke@uga.edu (H.J. Munneke), kwomack4@uncc.edu (K.S. Womack).

¹ Tel.: +1 706 542 0496.

² Note that “renovations” (which are also known as “rehabilitations”) are not synonymous with “repairs”, where only malfunctioning or depreciated structural attributes are restored. See Galster (1983), Fisher and Williams (2011), and Lee et al. (2013) for studies of repairs of single-family dwellings and the price impact of repairs on property value.

³ This discontinuity in the literature is most likely the result of non-trivial difficulties in obtaining and merging the necessary data for both renovations and teardowns with a sample of housing transactions.

Through this approach, it is possible to explore the determinants of the decision to renovate, tear down, or not redevelop, as well as compare and contrast the variation in the determinants’ impact on these decisions, an analysis not possible in studies which examine renovations and teardowns separately. The analysis utilizes a polychotomous choice framework based on a dataset of single-family residential properties in Miami, Florida from 1999–2002 (a time period of relatively stable house prices and the absence of significant hurricane activity). This unified approach, within a single market, should allow the determinants of renovations and teardowns to be easily compared. In addition, the joint examination will provide evidence regarding the spatial distribution of renovations and teardowns relative to each other.

The current study also provides empirical evidence related to the variation in the implicit prices of the structural attributes of properties purchased for redevelopment. Based on Brueckner (1980) and Wheaton (1982), Dye and McMillen (2007) infer that when a home is sold prior to a major renovation, the structural characteristics may have less influence on the sales price than when the home is not renovated subsequent to the sale. In the extreme case, some homes are purchased to undergo such extensive remodeling that they are effectively new or like-new upon completion. Therefore, the implicit prices of structural attributes of properties sold prior to undergoing major renovations should contribute little to sales price. If true, as has been shown to be the case for teardown sales (see Rosenthal and Helsley, 1994), the price of these properties prior to renovation would reflect the price as vacant land. To test for such variation in the implicit prices,

this study estimates conditional price equations for renovations, teardowns, and non-redeveloped properties.

Key results from this study can be summarized as follows. The primary differences in the determinants of the redevelopment decision are that the interior area of the existing structure is central to the renovation decision, while lot area is an important determinant to the tear-down decision. The primary similarities are that the likelihood of both renovations and teardowns is strongly influenced by location, prior redevelopment activity, and the ratio of land value to total property value. The results also provide interesting insights into the spatial aspects of the redevelopment decision. In particular, this study provides some evidence that renovations occur in concentrated spatial clusters, while teardowns occur in separate (non-overlapping) and geographically broader spatial clusters.

Most notably, the study provides strong support for the existence of variation in price based on expected changes to the attributes post-purchase. Specifically, the structural attributes of properties purchased for renovation are found to be less valuable than non-redeveloped properties. Properties purchased that are expected to undergo major renovations are found to be equivalent to teardown sales, where the property is valued only for the land. In addition, the level of renovation expected after the property is purchased is shown to negatively impact its selling price. These results persist even when controlling for selection bias, socio-demographic variables, and neighborhood fixed effects.

The remainder of this paper is organized as follows. The next section provides a review of the relevant literature. In the third and fourth sections, a theoretical model of the redevelopment decision is presented and the empirical modeling is discussed, respectively. The data are described in the fifth section. An analysis of the study's results is presented in the sixth section and the last section offers concluding thoughts.

2. Literature review

The current study draws from both the renovation and teardown literature. Therefore, this literature review will focus on each type of redevelopment separately, with special emphasis on the data utilized, significant explanatory variables, and key conclusions from the prior studies. To our knowledge, there are no prior studies that jointly examine renovations and teardowns within the same study.⁴

2.1. Renovation literature

The earliest redevelopment studies analyze data obtained from the U.S. Census Bureau's *Survey of Residential Alterations and Repairs* (SORAR) or the decennial census.⁵ Mendelsohn (1977) utilizes SORAR data to conduct the first empirical examination of renovations and shows that income, owner age, and race are important determinants in the renovation decision. Melchert and Naroff (1987) use block-level data from the 1970 census to provide the first geographic-focused (Boston, MA) renovation analysis. The authors conclude that changes in the number of family members and neighborhood quality may be more important than the levels of these variables in explaining renovations.

The subsequent creation of the American Housing Survey (AHS) by the U.S. Department of Housing and Urban Development (HUD) in 1973, which contains more detailed data regarding renovation activity, led to these data becoming the basis for a number of renovation studies. Shear (1983) uses these data to examine the decision to move, to stay and renovate, or to do nothing within a multinomial logit

⁴ However, there are several studies that have examined redevelopment from a generic perspective, concentrating neither on renovations nor teardowns. See for example, Capozza and Li (1994), Childs et al. (1996), and Williams (1997).

⁵ SORAR data is available back to 1962. However, the Census Bureau discontinued the survey in 2007.

framework and finds that households who do not move value their housing services differently within rehabilitation decisions than do households who renovate and then move. Boehm and Ihlanfeldt (1986) extend Mendelsohn's (1977) analysis and find that housing construction prices and neighborhood quality are statistically significant in the renovation decision. To better isolate renovations from maintenance expenditures, Ziegert (1988) uses a two-step model to analyze housing additions. Results indicate that unmet housing consumption needs (the difference between the subject property's number of rooms and that of similar units with similar demographic and locational characteristics) and neighborhood racial characteristics increase both the probability and value of an addition.

Montgomery (1992) uses AHS data to provide evidence that properties undergoing renovations are found to exhibit selection bias. Baker and Kaul (2002) use changes in the AHS surveys to show that renovation projects are undertaken to modify the home to the evolving composition of the household. Plaut and Plaut (2010) extend the move or renovate analysis by focusing only on major renovations. The study finds that households that neither move nor renovate appear to be on average those with lower socioeconomic status, while households that both move and renovate have higher incomes, are younger, and have somewhat larger households. Households who move without renovating, or renovate without moving, on average tend to fall in between those two groups.

Li (2014) constructs a panel of data from AHS surveys to re-examine the renovate or move decision within a dynamic probit model while controlling for unobserved heterogeneity in homeowner attributes. Results from the study show that prior renovation activity leads to a 10% higher probability of future renovation, which is much lower than the 73% increase estimated in Baker and Kaul (2002).

In contrast, many other renovation studies have utilized property-level transaction data. The first such study, Mayer (1981), provides a theoretical housing renovation model and focuses on the structural and locational determinants of rental housing renovations. Results indicate that older, smaller, owner-occupied units that are structurally sound and had not been recently renovated are most likely to be renovated. Helms (2003) proposes a housing renovation model based on Mayer (1981) and analyzes a detailed parcel-level dataset of residential renovation activity in Chicago. The paper establishes that older, lower-density housing in older, moderate-density neighborhoods with high median housing value are most likely to be renovated. Renovations are also more likely in areas where the population is well-educated and in neighborhoods with high populations of blacks and other minorities, but less likely in areas with a high proportion of young adults and neighborhoods of high median incomes.

More recently, Culp (2010) construct an index of environmental attributes (e.g.: proximity to parks, scenic views, etc.) which is found to have significant explanatory power in the renovate or move decision. Helms (2012) explores issues pertaining to the possible endogenous feedback between renovations and neighborhood quality. The study uses a spatial lag model and a rich dataset of building-level renovations to demonstrate that neighborhood effects influence the spatial clustering of renovation activity.

2.2. Teardown literature

In their theoretical studies of urban spatial growth, Brueckner (1980) and Wheaton (1982) conclude that redevelopment will occur when the price of land for new development exceeds the price of land in its current use by the cost of demolition. Rosenthal and Helsley (1994) note that this implies that properties purchased for redevelopment can be used to estimate the value of vacant urban land, which has made possible land value studies where there number of vacant lots is limited. The authors provide evidence that the price of a property to be demolished upon sale is equivalent to that of vacant land. Munneke (1996) extends this research based on commercial and

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