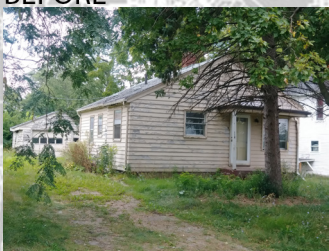


# ECONOMIC IMPACTS OF PROPERTY TAX-FORECLOSURE AUCTIONS IN INGHAM COUNTY, MICHIGAN, 2007-2018

June 27, 2019

A REPORT PREPARED BY THE MSU SCHOOL OF PLANNING, DESIGN, AND CONSTRUCTION FOR THE INGHAM COUNTY TREASURER'S OFFICE, INGHAM COUNTY, MICHIGAN

BEFORE



AFTER



AUCTION POSTER



TAX AUCTION



**MICHIGAN STATE**  
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Construction



## Acknowledgements

The MSU School of Planning, Design, and Construction would like to thank the following individuals and organizations for their support and guidance throughout the course of this project:

- Eric Schertzing, Ingham County treasurer; and chairman, Ingham County Land Bank, Lansing, MI;
- Jenna Casuccio, tax forfeiture/foreclosure coordinator, Ingham County Treasurer's Office, Mason, MI;
- Karen Conroy, property tax coordinator, Ingham County Treasurer's Office, Mason, MI;

- Robert Francis, deputy director, Equalization Department, Ingham County, Mason, MI;
- Ingham County Treasurer's Office
- Ingham County Equalization Department

This project was made possible by funding from the Ingham County Treasurer's Office.

*The cover is designed by Wei Li. The pictures on this cover are provided by the Ingham County Treasurer's Office, with the "After" photo from Zillow.*

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# Executive Summary

THE INGHAM COUNTY TREASURER'S OFFICE COORDINATES VARIOUS EFFORTS THAT ASSIST NEIGHBORHOODS IN RECOVERING FROM THE IMPACTS OF THE HOUSING MARKET CRASH AND NATIONWIDE RECESSION THAT OCCURRED OVER A DECADE AGO. TO ADDRESS TAX FORECLOSURES IN INGHAM COUNTY, THE TREASURER'S OFFICE OPTED IN TO THE ANNUAL PROPERTY TAX-FORECLOSURE AUCTION PROCESS IN 2005. STARTING AROUND 2012, THE TREASURER'S OFFICE BEGAN TO RELY MORE ON INDIVIDUAL OFFERINGS AT THE TAX AUCTION AS A MEANS TO RESTORE NEIGHBORHOOD STABILITY BY IMPROVING HOUSING STOCK AND RETURNING MORE PROPERTIES TO THE TAX ROLL TO HELP FUND PUBLIC SERVICES.

The Ingham County Treasurer's Office coordinates various efforts that assist neighborhoods in recovering from the impacts of the housing market crash and nationwide recession that occurred over a decade ago. The subsequent years saw an influx of tax-foreclosed properties that further contributed to the abandoned homes, blighted streetscapes, and declining property values already prevalent in many communities. To address these foreclosures in Ingham County, in 2005 the Treasurer opted in to the statutory tax collection process in place of the State of Michigan and took over the annual property tax-foreclosure auction. At that time, in comparison to foreclosures passed to the Ingham County Land Bank for rehabilitation or demolition, the tax auction was used for a small amount of properties. The first transaction with the Treasurer as the foreclosing governmental unit was in 2006, and the first individual property that was sold through the auction process occurred in 2007. During this period when the housing market was entering its lowest point, these distressed properties were extremely limited in the amount of investment and interest they could draw from private buyers. However, as the nation's economy gradually recovered and began to strengthen local housing markets once again, tax-auction sales grew to play a key role in foreclosure disposition.

Starting around 2012, the Treasurer's Office

began to rely more on individual offerings at the tax auction as a means to restore neighborhood stability by improving housing stock and returning more properties to the tax roll to help fund public services. Coinciding with this increase in tax-auctioned properties, the Treasurer's Office implemented stipulations such as a reverter clause on a majority of properties and owner-occupied covenants on selected homes. These requirements were put in place with the intent to help guide the market in a way that filters out irresponsible buyers unable to make necessary investments to the property, while establishing some level of accountability for the new owner. Such efforts also improve the chances of attracting buyers who are capable of rehabilitating the home and returning a quality option to the market. Figure I illustrates an example of a tax-auctioned property before and after it was renovated and resold on the conventional market.

This is the second study conducted that examines the impacts of Ingham County tax-auction activities. The first report in 2015 looked at tax-auction sales for a seven-year time frame from 2007-2014, during a period when housing market conditions were slowly improving from the recession. Also, the distribution of foreclosures going to auction at that time had only recently grown to match the properties sent to land bank starting in 2013. Given that the previous study







Figure 1: Before and After Images for Tax-Auctioned Property Sold on Conventional Market, 118 Haze Street, Lansing, MI  
 (Source: Before pictures from Ingham County Treasurer's Office; After pictures from property listing on Zillow)

period began when distressed housing markets county-wide were most prevalent, tangible impacts of tax auction activities were more challenging to see with market conditions overwhelming the other factors that impact neighborhood stability. In comparison, the current study now has an additional four years of tax-auction sales to evaluate which provides more opportunities to observe the long-term intended and unintended consequences of the tax auction over an eleven-year span. In addition, housing markets locally and nationwide have experienced a resurgence in recent years as the economy gradually recovered, allowing for a more robust analysis that encompasses market conditions at their lowest point as well as during years when home values continue to climb back to levels they were at pre-recession.

This study examines tax-foreclosure auction impacts through three components. First, a

hedonic property price analysis was conducted that explored relationships between tax-auctioned property sales and surrounding home values. The impacts that home improvements and maintenance to the tax-auctioned property have on surrounding home sale prices was also examined in this analysis. While tax-auctioned properties still show to have negative impacts on surrounding home values, this analysis indicated a positive impact on home sale prices of properties within 500 feet of the auctioned home when its owner invests in property maintenance and improvements, with an increase of \$1,387 on average when the nearby home sale occurs after such investments are made.

An economic impact analysis was then utilized to determine the effects of expenditures made by Ingham County for administrative and property maintenance costs related to tax-foreclosure auction properties, as well as investments made by

the new owner of the auctioned property to repair, maintain, or improve their purchase. This analysis utilized IMPLAN to assess the direct, indirect and induced economic impacts on employment, labor income and value of output for the region as a result of these tax-auction expenditures. For the study period of 2007 to March 2019, the overall tax-auction expenditures by both the county and auctioned property owners totalled to \$15,719,806. Of this total spending, \$12,599,250 was found to be captured within the county, leading to a total output of \$19,865,504, when accounting for direct, indirect and induced effects. From this output about 123 jobs were generated in Ingham County with \$6,409,660 in labor income. Results also indicated \$10,105,038 in value-added to the gross regional product during this time period as a result of auction-related expenditures.

Finally, the outcomes of tax-auctioned properties were examined to provide insight into the distribution of foreclosure dispositions over time, and how the use of the auction has grown since its inception to match improved market conditions. Reversion rates and the effects stipulations such as the reverter clause and owner-occupied covenant have on keeping the property from returning to tax-delinquency were also analyzed. Compared to findings in similar studies of tax-auction programs in places such as Genesee County and Wayne County (Dewar, 2015; Kirtner, 2016), results indicate Ingham County's tax-auction program and policies have much more success in preventing reversion to foreclosure, as properties with a reverter clause attached return to delinquency on average only 8% of the time, while owner-occupied covenants have similar effects with only a 7% reversion rate. This component also researched tax-auctioned properties that have been rehabilitated and returned to market, and found the average price change from winning bid amount to sale price on the conventional market has remained relatively

stable over the past 5 years, with the amount of time the auction purchase takes to be sold significantly decreasing in that same time frame.

Results of these analyses illustrate the important role the Ingham County tax auction plays in processing foreclosed properties and addressing the distressed housing market over the past decade. With the Treasurer's Office working in coordination with the Ingham County Land Bank to manage these distressed properties, the results of this study indicate the effectiveness of this partnership in balancing the use of these tools to match market conditions.

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# Table of Contents

Executive Summary.....	v
Introduction.....	1
Literature Review.....	3
Distressed Housing Markets and Their Impacts on Communities.....	3
Solutions for Tax-Foreclosure Properties.....	5
Evaluating Effectiveness of Solutions Through Hedonic Analysis.....	7
Ingham County Tax-Foreclosure Auctions.....	9
Study Objectives, Study Area and Data.....	15
Study Objectives.....	15
Study Area.....	15
Data.....	16
Hedonic Property Price Analysis.....	19
Method.....	19
Results.....	30
Regional Economic Impact Analysis.....	33
Method.....	33
Model Input.....	34
Results.....	35
Outcomes of Tax-Auction Sold Properties.....	39
Conclusion.....	43
References.....	47



# List of Tables

Table 1: Distribution of Total Properties Sold at Tax Auction from 2007-2018 .....	11
Table 2: Distribution of Tax-Auctioned Properties with Reverter Clauses and Owner-Occupied Covenants .....	13
Table 3: Distribution of Tax-Auctioned Properties for Ingham County by Year and Municipality .....	17
Table 4: Data and Variables Adopted in the Hedonic Analysis .....	20
Table 5: List of Variables Used in Hedonic Analysis .....	24
Table 6: Hedonic Analysis Results .....	27
Table 7: Distribution of Expenditure (\$) Data by Ingham County Tax Auction Activities – 2007 – March 2019 .....	36
Table 8: Tax Auction-Related Expenditure Cross Reference to IMPLAN Industry .....	37
Table 9: Economic Impacts of Ingham County Tax Auction Activities .....	37
Table 10: Distribution of Tax-Foreclosed Properties by Types of Disposition and Year .....	40
Table 11: Distribution of Tax-Foreclosed Properties with Reverter Clauses and Owner-Occupied Covenants .....	41
Table 12: Distribution of Tax-Auctioned Properties Sold on Conventional Market .....	42

# List of Figures

Figure I: Before and After Images for Tax-Auctioned Property Sold on Conventional Market, 118 Haze Street, Lansing, MI .....	vi
Figure 1: Advertisement for Tax-Auction Property in 2015 .....	10
Figure 2: Social Media Post for 2015 Tax Auction on Facebook .....	10
Figure 3: Communities and Townships in Ingham County .....	16
Figure 4: Distribution of Tax-Auctioned Properties in Ingham County (2007 - 2018) .....	18
Figure 5: Map of Property Price Assessment Using 500-Foot Buffer .....	23
Figure 6: Urbanization Variable Distribution in Ingham County by Census Tracts .....	31
Figure 7: Community Variable Distribution in Ingham County by Census Tracts .....	32
Figure 8: Zillow Listing for Tax-Auctioned Property Resold on Conventional Market .....	42



# Introduction

TO HELP COMBAT THE DISTRESSED HOUSING MARKET AFTER THE GREAT RECESSION, THE INGHAM COUNTY TREASURER'S OFFICE PLAYS MANY ROLES IN PROGRAMS DESIGNED TO ENCOURAGE REINVESTMENT IN TAX-FORECLOSED PROPERTIES AND IMPROVE NEIGHBORHOOD CONDITIONS. ANNUAL TAX AUCTIONS AND THE LAND BANK FAST TRACK AUTHORITY ARE THE TWO PRIMARY METHODS UTILIZED BY THE TREASURER'S OFFICE TO MANAGE TAX-FORECLOSED PROPERTIES. THEY ADJUST THE DISTRIBUTION OF PROPERTIES PROCESSED THROUGH THE TAX AUCTION AND LAND BANK EACH YEAR TO ALIGN WITH THE CURRENT ECONOMIC CONDITIONS AND MARKET DEMAND. IN 2012, THE AMOUNT OF TAX-FORECLOSED PROPERTIES INCREASED DRASTICALLY AND INDIVIDUAL TAX AUCTION SALES BECAME MORE RELIED UPON IN THE YEARS FOLLOWING.

Similar to many other Michigan communities in the wake of the Great Recession, Ingham County experienced drastic changes to its housing market, with diminished home values and widespread property foreclosures. To help combat this distressed housing market, the Ingham County Treasurer's Office plays many roles in programs designed to encourage reinvestment in tax-foreclosed properties and improve neighborhood conditions. Through the use of federal grants such as the Hardest Hit Funds, along with state community development block grant (CDBG) funds, the Treasurer's Office coordinates strategic demolitions of vacant or abandoned properties to reduce blight, improve public safety, create neighborhood greenspace and enhance streetscape aesthetics. Their office also works with state and local agencies to offer homeowner mortgage assistance programs such as the Step Forward Michigan Program, designed to provide homeowners with education and financial assistance and in turn reduce the number of mortgage and tax foreclosures. The Ingham County Land Bank, chaired by the Treasurer, also manages and rehabilitates selected tax-foreclosed properties and returns them to market at an affordable price.

The required method used by the Treasurer's Office to process tax-foreclosed properties is the

annual tax auction. In the years leading up to the Great Recession in 2008 and shortly thereafter, most tax-foreclosed properties in Ingham County were deposited and managed through land bank activities or other efforts requiring state and federal dollars, rather than through the tax auction. With many of these foreclosed homes in need of drastic repairs, and with property values at their lowest during this period, most buyers and investors were not willing to take on such commitments. Yet starting in 2012, this distribution between tax auction and land bank dispositions slowly evened out as the amount of tax-foreclosed properties increased drastically and individual sales became more prevalent. With a strengthening economy and improved housing market conditions, more tax foreclosures became desirable to private sector investors and individual buyers, and the amount of tax-auction sales outgrew land bank transfers for the first time in 2014. Since then, this distribution remained stable before fluctuating the past two years, as the Ingham County Treasurer's Office strives to maintain a balance of tax foreclosure

A hedonic property price analysis, regional economic impacts estimates, and an evaluation of the outcomes of tax-auctioned properties are addressed in this study using eleven years of auction sales data (2007-2018).



transfers between public sector entities such as the land bank and private sector actors like investment groups or individual buyers.

In 2014, the Land Policy Institute (LPI) at Michigan State University (MSU) conducted a study that attempted to understand the intended and unintended impacts of Ingham County tax-foreclosure auction activities over the course of seven years (2007-2014) (Graebert et al., 2015). With an additional four years of auction sales data now available for analysis, this current study aims to further examine Ingham County tax-foreclosure auction efforts over an 11-year period (2007-2018) using a variety of means, starting with a hedonic property price analysis to determine impacts of tax-auctioned properties on surrounding home values. An economic impact analysis is also conducted that looks at tax-auction expenditures made by both the county and auction buyers themselves and the effects these efforts have on the local and regional economy. Lastly, an evaluation of tax-auction outcomes examines the role stipulations like the reverter clause and owner-occupied covenant have on preventing reversion to tax foreclosure, while also examining economic results of tax-auctioned homes that were returned to the conventional market. These analyses provide various perspectives from which to view the role tax auctions play in restoring housing stock to the tax roll, improving neighborhood conditions and streetscape appearance and preventing properties from reverting to foreclosure.

# Literature Review

FOR THIS STUDY, WE FIRST EXAMINED RESEARCH FOCUSING ON THE NEGATIVE IMPACTS AND SPILLOVER EFFECTS FORECLOSED PROPERTIES HAVE ON COMMUNITIES. A DISCUSSION OF THE SOLUTIONS USED IN DISPOSING OF TAX-FORECLOSED PROPERTIES FOLLOWS, ALONG WITH THE IMPACTS THESE METHODS HAVE ON LOCAL HOUSING MARKETS AND NEIGHBORHOOD STABILIZATION. WE THEN REVIEWED THE USE OF HEDONIC PROPERTY PRICE ANALYSIS IN EVALUATING THE EFFECTIVENESS OF THESE SOLUTIONS FOR ADDRESSING DISTRESSED HOUSING MARKETS.

The previous LPI Ingham County tax auction study published in 2015 included a literature review on the effects of foreclosure, a research topic that became prevalent in the past decade as a result of the Great Recession and its impacts on housing markets nationwide (Graebert et al, 2015). The two general types of foreclosure were identified as mortgage foreclosure and tax foreclosure, and it was noted that most studies researching any economic or social impacts focused on the former. More specifically, there were even fewer studies found that analyzed the local community impacts of auction sales of tax-foreclosed properties. This section will add to the discussion of foreclosure impacts on neighborhoods before highlighting solutions used by communities to address distressed housing markets, and the methods used to evaluate their effectiveness.

## **DISTRESSED HOUSING MARKETS AND THEIR IMPACTS ON COMMUNITIES**

Research conducted particularly in the years following the recession has suggested that foreclosures are associated with a variety of negative impacts on communities. The large amounts of foreclosure and abandonment that occurred nationwide have provided scholars with ample data to analyze effects on homes, businesses and other properties nearby vacant or abandoned structures. One relationship most commonly examined in the literature involves property value

effects that foreclosed homes, vacant lots and blighted conditions have on neighboring parcels, typically evidenced by declining sale prices with more supply added to the local market (Alm et al., 2016; Harding, 2009; Whitaker and Fitzpatrick, 2013). Foreclosures also increase vacancy rates, which is exacerbated by the fact that even when they are acquired by another owner, the foreclosed home still experiences high vacancy rates for more than a year and even then are more likely to be vacant up to 60 months following foreclosure (Whitaker, 2011). In his analysis of foreclosures in Chicago, Hartley (2014) calculated that with each foreclosure added to the local supply, nearby home prices within 0.05 miles decreased by 1.2 percent. Han (2019) found a similar relationship between abandoned properties and home sales in Baltimore over a twenty-year period, with negative impacts to home values increasing significantly when more than two abandoned parcels became present within 250 feet.

Foreclosed properties also have negative impacts on neighborhood stabilization efforts that seek to increase home ownership and improve streetscape appearance. Increasing home ownership rates equates to longer lengths of residence, along with more responsible maintenance of the property that helps stabilize neighborhood character and reduce opportunity areas for crime (Rohe and Stewart, 1996; Hipp, 2010). Mallach (2012) discusses the supply and demand paradigm created

Foreclosed properties have negative impacts on surrounding home sale prices as well as create spillover effects on the neighborhood with social impacts tied to crime, public health and quality of life. The longer these foreclosed or vacant homes remain off the tax roll, the greater the strain will be on local government budgets to provide public services that contribute to neighborhood health and safety.

by these properties, as their low prices seem to make homeownership more affordable to a larger audience. Yet when homes are sold for less than their replacement cost with minimal likelihood

of appreciating over time, homebuyers and investors have little motivation to rehabilitate and make improvements to the property, and developers have no incentive to construct new builds on foreclosed vacant lots. In markets overwhelmed with foreclosures such as Detroit, tax auctions may divert properties in stronger neighborhoods away from disadvantaged buyers seeking to become owner-occupants, instead allowing investors to snatch up the property at a low price (Dewar, Seymour, and Druta, 2015). When these investors then make little effort to maintain or restore the property to owner-occupancy status, it further suppresses the neighborhood character with additional blight and

turnover. Similar consequences were observed in foreclosure acquisitions in Fulton County, Georgia, as rapid turnover of low-value foreclosed homes during the years immediately following the recession enabled low-value sales to investors with limited capacity to maintain or improve the home (Immergluck, 2012). The properties then either remain vacant and forgotten until near-term values improve enough for the investor to recoup some form of profit, or they become low-quality rental units which continue to deteriorate until eventually reverting back to tax delinquency.

This treatment of foreclosed properties creates

spillover effects on the neighborhood and its residents, such as social impacts tied to crime and public safety. In examining the largest demolition effort in the nation, Larson et al. (2019) used the 9,398 properties demolished in Detroit from 2010-2014 as an opportunity to measure impacts that conversion of foreclosed homes into vacant lots had on crime levels. Analysis indicated that block groups with the highest amount of demolitions over the study period experienced the greatest reduction of total crime, violent crime, and property crime. Also, foreclosures that remain standing vacant indefinitely also create more opportunities for crime (Ellen et al., 2013; Roth, 2019), with impacts increasing significantly with each year after the foreclosed home becomes vacant (Cui and Walsh, 2015; Chamberlain et al., 2018).

To add to the problem, the longer that these foreclosed or vacant homes remain off the tax roll, the greater the strain will be on local government budgets to provide public services that contribute to neighborhood health and safety (Kingsely, Smith and Price, 2009). Dilapidated home exteriors, overgrown vacant lots, and lack of residential activity not only create breeding grounds for criminal or negligent behavior, but also impact the health and happiness of local residents (Ross and Mirowsky, 2001; Raleigh and Galster, 2015). Families and residents surrounded by these distressed neighborhood conditions may also be struggling with food security, unemployment, and other economic hardships that limit their options to move out of the neighborhood or seek outside help from private safety nets (Kingsley, Smith and Price, 2009; Mykyta, 2018). Foreclosures also disrupt child development when families must perpetually change neighborhoods and switch school districts, creating more challenges and barriers to building friendships or graduating high school (Cohen and Wardrip, 2011; Pettit and Comey, 2012).



The daily stressors of living in and around foreclosed properties are also associated with depression and other health concerns (Ross, 2000; Pollack and Lynch, 2009), while correlations to homelessness in areas with high foreclosure rates further emphasizes how these properties sabotage efforts to improve neighborhood stability and quality of life (Goodman, Messeri, and O’Flaherty, 2016; Faber, 2019).

## **SOLUTIONS FOR TAX-FORECLOSURE PROPERTIES**

Local governments have relied upon a variety of programs, policies and partnerships to address these distressed housing markets in their communities. A combination of federal and state grant funding, initiatives conducted by local authorities such as land banks, as well as investments from both the private sector and non-profit organizations all play a role in revitalizing housing options and stabilizing neighborhoods.

In the years following the recession when the housing market reached its lowest point, federal grant funding was crucial in providing communities the assistance necessary to initiate plans to address conditions in their own neighborhoods. The Neighborhood Stabilization Program (NSP) was created by the U.S. Department of Housing and Urban Development (HUD) and involved three rounds of funding from 2008-2010 for communities to invest in neighborhood revitalization. Relevant NSP activities involved removal and demolition of blighted properties, but also included other efforts to improve local housing markets, such as the rehabilitation and resale of foreclosed homes, or the creation of local land banks to coordinate and manage foreclosed properties. The Hardest Hit Fund® (HHF) program was established in 2010 and administered by the U.S. Department of Treasury to provide aid to states most impacted, as

evidenced by their unemployment rates and home price declines at or below the national average. Michigan received over \$761 million to operate its HHF program, with efforts focused on removing blight and rehabilitating homes to improve neighborhood conditions and housing stock. HHF funds made possible the demolition and removal of abandoned or foreclosed homes in numerous Michigan cities, helping to reduce blight, enhance neighborhood aesthetics, and improve public safety. The Step Forward Michigan program also utilized HHF funds to provide forgivable loans to homeowners having trouble keeping up with mortgage payments and property taxes, with the goal of preventing avoidable foreclosures and stabilizing homeownership. Local governments also rely on community development block grants (CDBG), HUD-allocated funds that are distributed to distressed communities for use in neighborhood stabilization efforts as well as infrastructure improvements, economic development opportunities, and local job creation.

In addition, local governments have other tools such as building maintenance codes and zoning ordinances to address the vacant or abandoned properties proliferating in their communities and ensure minimum safety standards (Accordino and Johnson, 2000). Local land bank authorities also play an integral role in the processing of tax-foreclosed properties, whether by rehabilitating and returning homes to market, or by demolishing existing structures and creating new opportunities for residential construction, public green space, or community gardens and urban agriculture on the

**A combination of federal and state grant funding, initiatives conducted by local authorities such as land banks, as well as investments from both the private sector and non-profit organizations all play a role in revitalizing housing options and stabilizing neighborhoods.**



vacant lots. In cases of demolition, even vacant lands can be an improvement over a blighted structure, with less negative impact on surrounding property values along with the removal of a health and safety hazard to nearby residents (Griswold and Norris, 2007; Paredes and Skidmore, 2017; Whitaker and Fitzpatrick, 2013). While some oppose land banks as government overreach or market interference (Hackworth, 2014), land bank activities are evidenced to have positive impacts on factors such as neighborhood stabilization, home rehabilitation, property values, and streetscape appearance (Alexander, 2015; Borowy et al, 2013; Fujii, 2016; Samsa 2008; Wyckoff et al., 2017).

Tax auctions also provide opportunities for returning foreclosures to the tax base, but by means of market-based disposition rather than a government-managed acquisition process (Bollwahn, 2019). Private buyers (both individuals and investment groups) are permitted to bid on tax-foreclosed properties during an annual auction process with the goal of reactivating the property as quickly as possible and restoring tax dollars to the municipality. However, this process has faced its share of criticism as well, with concerns over whether the tax auction actually improves housing stock and renews the tax base, or simply allows the property to continue in a cycle of disrepair (Akers, 2013; Dewar, Seymour, and Druta, 2015). Without incentive to invest and rehabilitate the auctioned home, speculators may purchase properties with the sole intent of reselling for profit at the first opportunity or renting it out indefinitely with minimal efforts made to maintain or improve housing conditions (Hackworth, 2014). In this sense, when market-only systems like the auction fail to return enough properties to productive use, it does not reduce blight and restore tax dollars but rather adds to the problem (Dewar 2015; Fujii, 2016; Hackworth and Nowakowski, 2014). Despite concerns over land banks and other government

entities handling property transfer, market-based dispositions also have the potential to cause further disinvestment and damage to community revitalization efforts.

So, while tax auctions provide individual buyers and private investors a chance to return distressed homes to market, there is no guarantee they will maintain, improve or restore value to the property. In an attempt to curb this trend, some local governments work directly with private sector investors to form agreements that establish standards for rehabilitating the home before they attempt to resell it on the conventional market (Daniel, 2016). Compared to tax-auctioned properties, these managed sales tend to create more owner-occupied homes, improve housing stock and neighborhood appearance, as well as reduce the amount of property flipping (Dewar, 2015). These partnerships between the public and private sectors ensure that tax-foreclosed homes are returned to market at a higher value and with improved appearance, which can also positively impact home sale prices in the surrounding area while contributing to neighborhood stabilization (Cui et al., 2019).

Nonprofit organizations and community development corporations are other actors beyond the private sector that work with local governments in acquiring and rehabilitating foreclosed properties (Dewar, 2009). In addition to returning homes to market at a low price, some nonprofit efforts include homeownership education to assist new buyers in purchasing and maintaining their home, and counseling on how to contribute positively to their neighborhoods as local residents (Smith and Hevener, 2011).

## EVALUATING EFFECTIVENESS OF SOLUTIONS THROUGH HEDONIC ANALYSIS

To examine foreclosure impacts and measure the effectiveness of community efforts that address distressed housing markets, many studies utilize hedonic analysis (Carroll and Goodman, 2017; Hong, 2018; Senick, 2019; Hodge, 2019). The hedonic regression pricing model utilizes a home's sale price as the dependant variable, with spatial and temporal factors that potentially impact the home's value used as independent variables, while a binary variable is included to isolate factors before and after the property status change (Schuetz et al, 2008; Zabel and Guignet, 2012; Huang et al., 2019).

Tax-delinquent, foreclosed and blighted parcels tend to decrease the value of surrounding properties and create a spillover effect (Alm et al., 2016; Hartley, 2014; Han, 2019). The longer these properties remain untouched and neglected, the greater the negative impacts they can have on nearby residences (Cui and Walsh, 2015; Chamberlain et al., 2018). Many scholars attempt to analyze the range and potency of these spillover effects by developing a buffer zone around the foreclosed or abandoned property, with variations in the buffer distance used based on the research design and study area location. Many hedonic models incorporate a buffer distance of 500 feet (Fisher et al., 2015; Paredes and Skidmore, 2017), while others have found that negative effects such as decreased home values are evident within 250 feet of a foreclosed property (Hartley, 2014; Zhang et al., 2016). Some studies also establish multiple buffer rings of increasing distances to help identify the breadth of impact at various levels moving outward from the foreclosed property (Bak and Hewings, 2019). Like the previous research conducted for Ingham County, this study utilizes a 500-foot buffer distance for analysis.

Many factors can affect the home sale price, so hedonic analysis models assist in isolating the impact each variable has on

the property's value. Building structure variables such as home age, square footage and number of bedrooms are incorporated into the regression, while social demographic information at the census block group level informs neighborhood characteristics such as population, race, income and owner-renter ratios (Raymond et al., 2016; Howell and Korver-Glenn, 2018; Bak and Hewings, 2019;). Vacancy levels and crime rates are also featured prominently in hedonic models to observe foreclosure impacts on these conditions (Ellen et al., 2013; Roth, 2019; Larson et al, 2019). Proximity to amenities such as parks or water bodies is another common variable used in evaluating property value impacts through regression analysis (Poudyal et al., 2009; Gnagey and Grijalva, 2018).

The hedonic regression pricing model utilizes a home's sale price as the dependant variable, with spatial and temporal factors that potentially impact the home's value used as independent variables, while a binary variable is included to isolate factors before and after the property status change.



# Ingham County Tax-Foreclosure Auctions

IN 2006, THE TREASURER'S OFFICE TOOK OVER THE ANNUAL TAX AUCTION FOR TAX-FORECLOSED PROPERTIES IN INGHAM COUNTY. EACH SUMMER THEIR OFFICE COORDINATES THE AUCTIONS, WHICH ARE HELD IN COMPLIANCE WITH THE MICHIGAN GENERAL PROPERTY TAX ACT (SPECIFICALLY MCL 211.78M) FOR TAX-FORECLOSED PROPERTIES. LEADING UP TO THE AUCTION, THEY OFFER VARIOUS EVENTS AND RESOURCES TO BETTER INFORM POTENTIAL BUYERS AND SET EXPECTATIONS. AFTER THE AUCTION SALE, THEY ALSO FEATURE PROGRAMS THAT PROVIDE NEW HOMEOWNERS WITH FINANCIAL PLANNING, BUDGETING, AND LEGAL ASSISTANCE TO HELP PREVENT A RETURN TO DELINQUENCY. THE TREASURER'S OFFICE ALSO BEGAN INCLUDING STIPULATIONS SUCH AS THE REVERTER CLAUSE AND OWNER-OCCUPIED COVENANT TO ENCOURAGE MORE RESPONSIBLE AND COMMITTED AUCTION PARTICIPANTS WHO ARE WILLING AND ABLE TO INVEST IN THE PROPERTY.

In 2006, the Treasurer's Office took over the annual tax auction for tax-foreclosed properties in Ingham County. Each summer their office coordinates the auctions, which are held in compliance with the Michigan General Property Tax Act (specifically MCL 211.78m) for tax-foreclosed properties. Auction transactions provide opportunities for private owners to purchase, rehabilitate and return tax-foreclosed homes to market. The minimum bid price at the first auction for each listing is statutorily defined as including all the delinquent taxes, interest and fees due on the property. The Treasurer also adds a 15% fee to each property to recover administrative costs. At the second auction there is no statutory minimum bid; instead a reasonable opening bid is established by the Treasurer with the goal of recovering the cost of the parcel sales.

The auctions are held each summer, with public notices listed online and in local publications, and signs placed in the front yards of pending auction listings. In some instances, open houses are also conducted by the Treasurer's Office to allow interested buyers the opportunity to preview more desirable properties in advance of the auction date. Social media posts are also used to advertise the upcoming auction and highlight auction successes

with photo updates. Figure 1 and Figure 2 show examples of the marketing methods used by the Treasurer's Office in 2014 and 2015 to promote tax-auction properties and encourage attendance on the auction date.

Q & A sessions are also held regularly leading up to the auction date to better inform interested buyers who are new to the auction process, and also increase the number of knowledgeable, responsible participants at the auction. These educational efforts also help establish proper expectations for auction buyers as to the types of properties they are investing in and the additional work that will be necessary to return them to productive use. This understanding helps prevent an auction participant from going over their established bid limit just to secure a desired property which they would then have no remaining funds to maintain or improve. This array of educational tools and outreach helps develop relationships with community members and local investors which in turn creates more positive auction outcomes. The Treasurer's Office intent is that the more prepared, experienced and educated the auction participants are, the more likely they are to make responsible, informed purchases on the day of the sale.





Figure 1: Advertisement for Tax-Auction Property in 2015  
(Source: Ingham County Treasurer's Office)

Figure 2: Social Media Post for 2015 Tax Auction on Facebook  
(Source: Ingham County Treasurer's Office Facebook page)

In terms of the auction process, bidders may register in advance or on the day of the auction itself and bring with them \$2,000 cash or certified funds to be eligible to place any bids. This serves as the

minimum deposit for any property purchased, due on the day of sale. If the winning bid for a property is over \$20,000, the buyer must pay 10% of the full purchase price as deposit that day. The remainder of the purchase price must then be paid within 14 days of the auction date. As of 2019, for sales over \$40,000, the buyer has 14 days to pay 20% of the full purchase price as a deposit, and is then given 30 days to pay the purchase price in full. Also, statute dictates that all auction buyers must pay the summer taxes for the auction property within 21 days of the sale.

In the time leading up to the annual auction, the Treasurer's Office takes responsibility for the maintenance and upkeep of tax-foreclosed parcels under their possession until the property is sold. This entails investments in mowing lawns and landscaping, performing cleanouts to present homes for marketing purposes, removing trees in the interest of public safety and in some cases minor repairs or renovations to the home to prevent further deterioration. These maintenance efforts provide an expectation and model for the incoming buyer to follow, with the hope of securing responsive, mindful property owners who will continue to maintain the home and invest in its upkeep, thereby maximizing sale price while contributing to neighborhood stabilization.

The total number of Ingham County tax-auctioned properties are listed by year in Table 1 below:

To further promote these efforts of responsible ownership through the tax auction, the Treasurer's Office implemented two new policies starting in 2013 as part of their auction rules and regulations: a 5-year reverter clause, and a Declaration of Restrictive Covenant (DRC) that acts as an owner-occupied covenant. The reverter clause stipulates that the buyer must not allow the property to return to forfeiture for delinquent property taxes at any time within a period of five years from the auction



date, otherwise the property will automatically return to the Treasurer. The clause was initially used selectively, and only applied to the purchaser at the auction, which meant it was not enforceable in the event the property was later resold. But in 2015, the Treasurer's Office modified these terms to apply to any owner of the property within the course of five years from its auction sale date. Despite the increased workload for office staff, the reverter clause has grown in use through the years and is now attached to almost all of the tax auction properties. Ideally, stipulations like the reverter clause would improve the audience of investors, elevating the stakes of the purchase and targeting buyers with potentially more financial stability and understanding of the investment they're making. Cultivating a pool of auction buyers who recognize this commitment increases the chances of them maintaining and improving the quality of

the property, therefore returning a valuable home to the market rather than allowing a reversion to foreclosure.

The number of DRCs, or owner-occupied covenants, used for tax auction properties has also grown through the years since its creation in 2012, but are only attached to select residential tax auction properties as determined by the Treasurer's Office. As the housing market gradually strengthened in the years following the recession and demand started to increase, they were able to add more DRCs to tax auction properties. As a condition of the sell, the DRC maintains that the buyer must not lease the property as a rental unit and must sell the home as an owner-occupied unit or otherwise reside on the premises themselves. These conditions run with the property for a minimum of twenty years, and in some cases may be extended at

**Table 1: Distribution of Total Properties Sold at Tax Auction from 2007-2018**

Auction Year	Number of Properties	
	#	%
2007	4	0.4%
2008	10	1.1%
2009	12	1.3%
2010	19	2.1%
2011	46	5.2%
2012	130	14.6%
2013	131	14.7%
2014	212	23.7%
2015	74	8.3%
2016	102	11.4%
2017	70	7.8%
2018	83	9.3%
<b>Total</b>	<b>893</b>	<b>100.0%</b>

(Source: Ingham County Treasurer's Office and MSU)



the end of the term for an additional twenty years. Tax auction properties with DRCs are often located in neighborhoods that are already predominantly filled with owner-occupied homes. In some cases, a nicer, higher-quality auction property located near a mix of rental/owner-occupied homes will receive a DRC in order to preserve its value and character, while also influencing surrounding properties. For neighborhoods made up primarily of rental housing, or in an area where property values are already low, a tax auction property would have more difficulty selling at value with a DRC attached. Therefore, the inclusion of a DRC on a tax auction property is most dependent on location, quality of the home and other neighborhood factors. The Treasurer has generally received positive feedback from neighborhood representatives and organizations through the years regarding the use of the DRC and its ability to improve and stabilize homeownership.

While policies like the reverter clause and owner-occupied covenant may at first appear simply as attempts to prevent further tax delinquency and revenue loss for the municipality, they also seek to use the tax auction as a tool for building responsible ownership and community reinvestment. Not only are the tax auction properties removed from a cycle of disrepair, but they also encourage neighborhood stability and improved streetscape appearance. Once again, these restrictions also carry over to any new property owner in the event of sale post-auction, further ensuring the intended goals and expectations of these policies are met by any subsequent owners as well. Another result of the reverter clause is the leverage it provides the Treasurer to inspect renovated properties up for sale when the seller requests removal or modification of the clause for mortgage financing. This allows the Treasurer to see firsthand the time and money people are putting back into their auction purchase and confirm whether the process is achieving its desired results. While any rules or

restrictions placed on tax auction sales run the risk of further limiting the pool of willing buyers for such properties, a balance must be found to ensure auction guidelines are in place that create positive impacts for neighborhoods and the community as a whole. Table 2 below shows the percentages of tax auction properties through the years with these stipulations attached to them.

Table 2: Distribution of Tax-Auctioned Properties with Reverter Clauses and Owner-Occupied Covenants

Auction Year	Number and Percentage of Properties <sup>1</sup>		
	Reverter Clause	Owner-Occupied Covenant	Total
2007	0 (0%)	0 (0%)	4 (100%)
2008	0 (0%)	0 (0%)	10 (100%)
2009	0 (0%)	0 (0%)	12 (100%)
2010	0 (0%)	0 (0%)	19 (100%)
2011	0 (0%)	0 (0%)	46 (100%)
2012	0 (0%)	8 (6%)	130 (100%)
2013	114 (87%)	6 (5%)	131 (100%)
2014	168 (79%)	12 (6%)	212 (100%)
2015	74 (100%)	15 (20%)	74 (100%)
2016	100 (98%)	25 (25%)	102 (100%)
2017	68 (97%)	20 (29%)	70 (100%)
2018	77 (93%)	26 (31%)	83 (100%)
<b>Total</b>	<b>601 (67%)</b>	<b>112 (13%)</b>	<b>893 (100%)</b>

<sup>1</sup> Reverter Clause and Owner-Occupied Covenant may apply to the same parcel  
 (Source: Ingham County Treasurer's Office and MSU)



# Study Objectives, Study Area and Data

THREE ANALYSES WERE CONDUCTED TO UNDERSTAND THE IMPACTS OF TAX-AUCTION ACTIVITIES: (1) HEDONIC PROPERTY PRICE ANALYSIS TO UNDERSTAND THE IMPACTS TAX-AUCTION PROPERTIES HAVE ON NEARBY HOME PRICES, AS WELL AS THE EFFECTS OF IMPROVEMENTS MADE TO THE AUCTIONED PROPERTY POST-SALE; (2) REGIONAL ECONOMIC IMPACT ANALYSIS TO ESTIMATE IMPACTS OF TAX-AUCTION EXPENDITURES BY BOTH THE COUNTY AND THE NEW PROPERTY OWNER IN TERMS OF JOBS, LABOR INCOME, VALUE ADDED AND OUTPUT; (3) OUTCOMES OF TAX-AUCTIONED PROPERTIES TO EXAMINE THE DISTRIBUTION OF TAX-FORECLOSURE DISPOSITIONS OVER TIME AND THE RATE AT WHICH THE AUCTIONED PROPERTIES ARE RETURNED TO THE CONVENTIONAL MARKET.

## STUDY OBJECTIVES

In partnership with the Ingham County Treasurer's Office, faculty and students from the MSU School of Planning, Design, and Construction (SPDC) conducted analyses to examine tax-auction effects on nearby housing values and economic impacts to the county as a whole, along with homeowners' efforts to improve residences after the auction. The analyses include:

1. Hedonic Property Price Analysis to understand the impacts tax-auction properties have on nearby home prices, as well as the effects of improvements made to the auctioned property post-sale.
2. Regional Economic Impact Analysis to estimate impacts of tax-auction expenditures by both the county and the new property owner in terms of jobs, labor income, value added and output.
3. Outcomes of Tax-Auctioned Properties to examine the distribution of tax-foreclosure dispositions over time and the rate at which the auctioned properties are returned to the conventional market.

The following sections describe the data, methods, and results involved in each of these analyses. The results from the hedonic, economic impact and reversion rate analyses combine to illustrate the effectiveness of tax-auction activities coordinated by the Ingham County Treasurer's Office and can be

used to guide further efforts towards neighborhood stabilization in communities dealing with similar distressed housing markets.

## STUDY AREA

Ingham County is home to the Michigan State Capitol in Lansing, the only capital city in the nation that doesn't also serve as county seat. Mason, located about 15 miles south of Lansing, instead plays this role and is where the Ingham County Courthouse and other county offices reside. Figure 3 displays the larger communities and townships that comprise Ingham County.

Lansing and East Lansing form the urban core of Ingham County, and feature the largest employers in the county including the State of Michigan, Michigan State University and Sparrow Health System. Meridian Township lies adjacent to East Lansing and includes unincorporated communities Haslett and Okemos, while Holt, Mason, Williamston, Webberville and Leslie are primarily smaller suburban or rural communities within the county. Further out from these urban centers and suburban municipalities lie more sparse and remote rural villages and townships such as Stockbridge, Aurelius Township and White Oak Township, for example, that highlight the diverse community types and urbanization levels that exist within Ingham County.

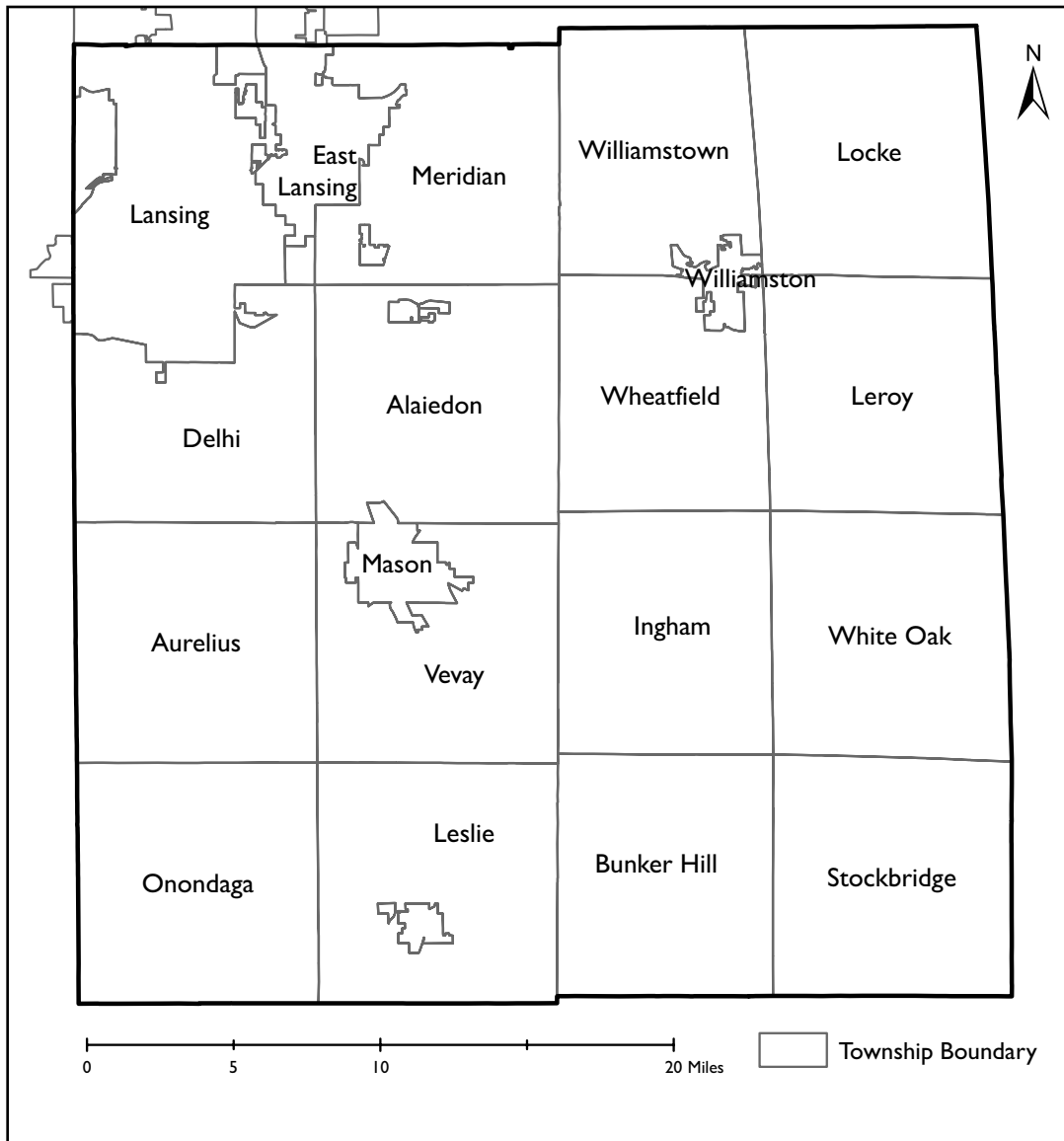


Figure 3: Communities and Townships in Ingham County

(Source: Authors)

## DATA

### Tax-Auction Sales Data

Tax-auction sales data was obtained from the Ingham County Treasurer’s Office that detailed transaction dates, winning bid amounts and parcel details for tax auctions from 2007-2018. For the purposes of the hedonic analysis, only properties with the land use classification for single-family homes (401) were counted, and all other parcel

types were filtered out of the auction sales data set, such as apartment buildings or vacant lots. Table 3 displays the distribution of all types of tax auction sales in Ingham County for each year by municipality.

This table shows how tax-auction properties are located throughout the county but are heavily concentrated in the City of Lansing due to its size and high density of older housing stock compared to neighboring suburbs like Meridian Township or rural areas such as Webberville. Lansing Township



**Table 3: Distribution of Tax-Auctioned Properties for Ingham County by Year and Municipality**

Auction Year	City of Lansing	Williamston	Lansing Township	Delhi Township	Meridian Township	Other Areas	Total
2007	3 (75%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (25%)	4 (100%)
2008	6 (60%)	0 (0%)	1 (10%)	0 (0%)	0 (0%)	3 (30%)	10 (100%)
2009	6 (50%)	0 (0%)	1 (8%)	0 (0%)	0 (0%)	5 (42%)	12 (100%)
2010	4 (21%)	0 (0%)	1 (5%)	3 (16%)	1 (5%)	10 (53%)	19 (100%)
2011	22 (48%)	0 (0%)	7 (15%)	2 (4%)	1 (2%)	14 (30%)	46 (100%)
2012	86 (66%)	2 (2%)	15 (12%)	3 (2%)	5 (4%)	19 (15%)	130 (100%)
2013	103 (79%)	0 (0%)	3 (2%)	11 (8%)	3 (2%)	11 (8%)	131 (100%)
2014	140 (66%)	44 (21%) <sup>1</sup>	4 (2%)	7 (3%)	4 (2%)	13 (6%)	212 (100%)
2015	62 (84%)	0 (0%)	1 (1%)	2 (3%)	1 (1%)	8 (11%)	74 (100%)
2016	83 (81%)	0 (0%)	6 (6%)	3 (3%)	2 (2%)	8 (8%)	102 (100%)
2017	53 (76%)	0 (0%)	5 (7%)	5 (7%)	1 (1%)	6 (9%)	70 (100%)
2018	71 (86%)	0 (0%)	1 (1%)	3 (4%)	2 (2%)	6 (7%)	83 (100%)
<b>Total</b>	<b>639 (72%)</b>	<b>46 (5%)</b>	<b>45 (5%)</b>	<b>39 (4%)</b>	<b>20 (2%)</b>	<b>104 (12%)</b>	<b>893 (100%)</b>

<sup>1</sup> most of them are the vacant lots.

(Source: Ingham County Treasurer’s Office and MSU)

and Delhi Township lie within or adjacent to the City of Lansing and also feature a higher share of tax-auctioned properties. While Williamston had a large amount of auction sales in 2014, the majority of these properties were vacant lots (43 out of 44 properties), which were not included in the analysis. Figure 4 provides a spatial analysis of tax-auction sales distribution over the same time period, with the largest mass of properties clustered in the northwest corner around Lansing, Lansing Township, and Delhi Township.

### Conventional Home Sales Data

Housing data was requested and obtained from the Ingham County Treasurer’s Office and Equalization Department. This included ownership, sales and assessment data (such as parcel number, street address, sale date and sale price) along with information on building characteristics (number of bedrooms, square footage, garage size) for all

housing sales in Ingham County that occurred from January 2006 to March 2019. In this study the definition of conventional home sales is that of a sale amount between \$5,000 and \$1,000,000. This data set will be used in the hedonic property analysis. Like the tax auction sales data, only property sales featuring a single-family home land-use classification (401) were incorporated into the analysis, with sales of other housing types or vacant parcels excluded from the model.

### Home Improvement Permit Data

The Equalization Department housing data also featured permitting details that indicated the number of work permits pulled for all Ingham County properties. This data includes parcel info, permit type (electrical, mechanical and/or plumbing), permit fee, work value and date issued. Permitting data for tax-auctioned properties were then filtered out to determine whether investments

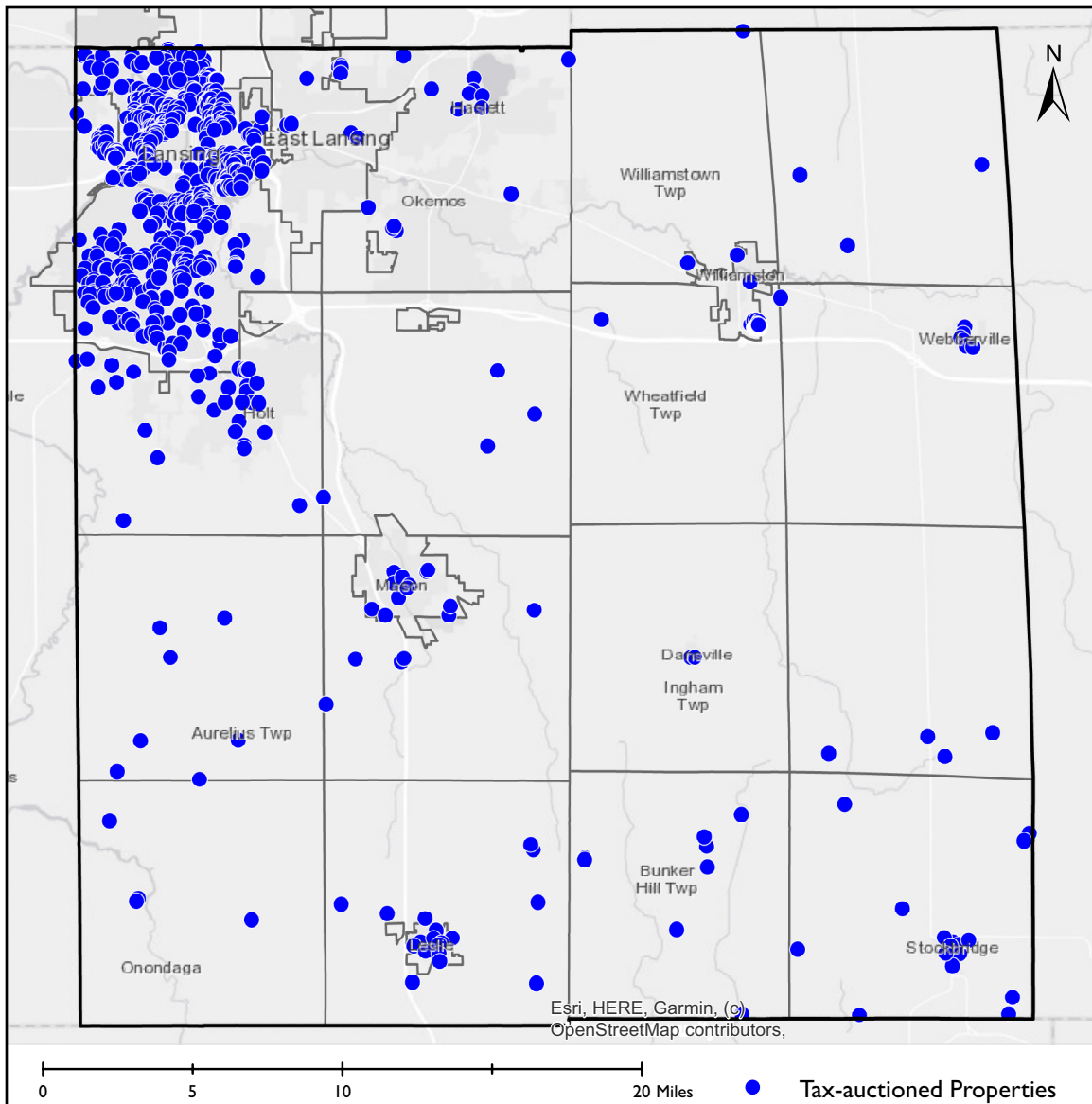


Figure 4: Distribution of Tax-Auctioned Properties in Ingham County (2007 - 2018)

(Source: Authors)

had been made before or after the auction sale.

This data set will be used in the hedonic property price analysis as well as the economic impact analysis.

# Hedonic Property Price Analysis

THE IMPACTS OF TAX-AUCTION HOME SALES AND SUBSEQUENT EFFORTS TO INVEST IN THE PROPERTY CAN BE EXAMINED THROUGH SALE PRICE FLUCTUATIONS OF NEARBY HOUSES BEFORE AND AFTER TAX AUCTION ACTIVITIES AND THE EFFORTS MADE BY AUCTIONED PROPERTY OWNERS TO INVEST IN REHABILITATION OR HOME IMPROVEMENTS.

## METHOD

The impacts of tax-auction home sales and subsequent efforts to invest in the property can be examined through sale price fluctuations of nearby houses before and after tax auction activities. The hypothesis follows that home sale prices surrounding a tax-auction property will experience declines but will increase in instances where the buyer invests in their purchase to maintain or improve the auctioned home.

To examine these tax auction activities, a linear regression hedonic price model will be used in this study as illustrated below:

$$y = \beta_0 + \beta_1 X + \dots + \beta_n X \quad (1)$$

Where  $y$  is the latest home price of the nearby property and  $X$  are the factors impacting the price.

In this study, the factors that impact the home sale price include:

1. Years sold
2. Building structural characteristics
3. Amenities
4. Neighborhoods and their related characteristics
5. Urbanization
6. Communities in Ingham County

Additionally, to further examine the impacts of tax auction activities a binary variable *AfterAuctionBuffer*

was added to the equation to represent home sales that took place after the nearby foreclosure was sold at the auction. Home improvements made to an auctioned property and the effects these efforts have on surrounding home sale prices were also examined using the variable *ImproveAfterTaxAuction*. With these additional factors in mind, the equation can be rewritten as:

$$\begin{aligned} \text{SalePrice} = & \beta_0 + \beta_1 x(\text{AfterAuctionBuffer}) \\ & + \beta_2 x(\text{ImproveAfterAuction}) + \beta_3 x(\text{sales years}) \\ & + \beta_4 x(\text{building structures}) + \beta_5 x(\text{amenities}) \\ & + \beta_6 x(\text{neighborhood characteristics}) \\ & + \beta_7 x(\text{urbanization}) + \beta_8 x(\text{community}) + \epsilon \end{aligned} \quad (2)$$

Hedonic analysis was then utilized to explore the sale price change of nearby properties after a foreclosed property is sold at the tax auction. Table 4 illustrates the variables used to capture the multiple factors outlined above that impact the home sale price. These variable types are discussed in more detail below.

To better quantify impacts to surrounding properties, many studies that feature hedonic analysis also define a buffer distance and establish an impact area around the foreclosed or abandoned property. As discussed in the literature review, various radii distances have been utilized for this purpose, with studies finding negative impacts on properties ranging anywhere from 250 feet to 1,000 feet from the foreclosure (Hartley, 2014;

Table 4: Data and Variables Adopted in the Hedonic Analysis

Topics		Variable Name	Variable Description	Data Source
Location		address	address	Ingham County Treasurer's Office
		parcelnumber	Parcel Number	Ingham County Treasurer's Office
		y	Property Address Latitude	Centroid of the parcel polygon
		x	Property Address Longitude	Centroid of the parcel polygon
		distance	Distance to the nearest tax-auctioned properties	Calculated by the home sales data and tax auction data provided by Ingham County Treasurer's Office
Transaction Details	Home Sales Price	SalesPrice	The sales amount between \$5,000 and \$1,000,000, which are treated as conventional sales	Calculated by the home sales data and tax auction data provided by Ingham County Treasurer's Office
		AfterAuctionBuffer	A binary variable to indicate whether the latest transaction of this home is after the nearest tax auction properties within certain buffer, e.g., 500 feet	Calculated by the home sales data and tax auction data provided by Ingham County Treasurer's Office
		ImproveAfterTaxAuction	A binary variable to indicate whether the property owner worked on improving the house after he/she bought the property through the tax auction	Calculated by the permits issued after the tax auction. The permit data is from the Ingham County Treasurer's Office.
	Sold Year	Year_2006	A binary variable to indicate the latest sold year is 2006	Ingham County Treasurer's Office
		Year_2007	A binary variable to indicate the latest sold year is 2007	Ingham County Treasurer's Office
		Year_2008	A binary variable to indicate the latest sold year is 2008	Ingham County Treasurer's Office
		Year_2009	A binary variable to indicate the latest sold year is 2009	Ingham County Treasurer's Office
		Year_2010	A binary variable to indicate the latest sold year is 2010	Ingham County Treasurer's Office
		Year_2011	A binary variable to indicate the latest sold year is 2011	Ingham County Treasurer's Office
		Year_2012	A binary variable to indicate the latest sold year is 2012	Ingham County Treasurer's Office
		Year_2013	A binary variable to indicate the latest sold year is 2013	Ingham County Treasurer's Office
		Year_2014	A binary variable to indicate the latest sold year is 2014	Ingham County Treasurer's Office
		Year_2015	A binary variable to indicate the latest sold year is 2015	Ingham County Treasurer's Office
		Year_2016	A binary variable to indicate the latest sold year is 2016	Ingham County Treasurer's Office
		Year_2017	A binary variable to indicate the latest sold year is 2017	Ingham County Treasurer's Office
		Year_2018	A binary variable to indicate the latest sold year is 2018	Ingham County Treasurer's Office
		Year_2019	A binary variable to indicate the latest sold year is 2019	Ingham County Treasurer's Office

Table 4: Data and Variables Adopted in the Hedonic Analysis (cont.)

Topics	Variable Name	Variable Description	Data Source
Building Structures	LotSize	Lot Size by Acres	Ingham County Treasurer's Office
	LivingArea	Finished Area (Sq Ft)	Ingham County Treasurer's Office
	TotalRooms	Total Number of Rooms	Ingham County Treasurer's Office
	NoBedrooms	Number of Bedrooms	Ingham County Treasurer's Office
	NoBathrooms	Number of Bathrooms - calculated	Ingham County Treasurer's Office
	GarageArea	Garage Area (Sq Ft)	Ingham County Treasurer's Office
	DetachedGarage	A binary variable to indicate whether the garage is a detached garage or not	Ingham County Treasurer's Office
Amenities	DistanceToPark	Distance to park and green space (Ft)	Calculated by the parcel map provided by Ingham County Treasurer's Office and ESRI Park/Green Space Data
	DistanceToWater	Distance to waterbody (Ft)	Calculated by the parcel map provided by Ingham County Treasurer's Office and ESRI Water Area Space Data
Neighborhood characteristics at census block group level	PopWhiteNoHispanic	Percentage of White Non-Hispanic population in 2017 by census block group	Census ACS survey
	PovertylineUnder100	Percentage of population under 100 poverty line in 2017 by census block group	Census ACS survey
	MedianHouseholdIncome	Median household income in 2017 by census block group	Census ACS survey
	HUVacantRate	Percentage of vacant house units in 2017 by census block group	Census ACS survey
	HUOwnerOccupiedRate	Percentage of owner occupied house units in 2017 by census block group	Census ACS survey
	CrimeIndex	Overall Crime Index in 2018 by census block group	ESRI Crime Index 2018

Table 4: Data and Variables Adopted in the Hedonic Analysis (cont.)

Topics	Variable Name	Variable Description	Data Source
Urbanization Impacts	UrbanRural_1_PrincipalUrbanCenters	A binary variable to indicate whether sold property is in Principal Urban Centers (Cities with populations of 2.5 million or more).	ESRI Tapestry Segmentation 2018
	UrbanRural_2_UrbanPeriphery	A binary variable to indicate whether sold property is in the fringe of major cities	ESRI Tapestry Segmentation 2018
	UrbanRural_3_MetroCities	A binary variable to indicate whether sold property is in smaller metropolitan cities or satellite cities of major cities	ESRI Tapestry Segmentation 2018
	UrbanRural_4_SuburbanPeriphery	A binary variable to indicate whether sold property is in the suburbs of major cities and Metro cities	ESRI Tapestry Segmentation 2018
	UrbanRural_5_Semirural	A binary variable to indicate whether sold property is in smaller towns and communities located throughout the country	ESRI Tapestry Segmentation 2018
	UrbanRural_6_Rural	A binary variable to indicate whether sold property is in farmland and rural resort areas	ESRI Tapestry Segmentation 2018
Community Impacts	RegionLansing	A binary variable to indicate whether the sold property is in City of Lansing or Lansing Township	Calculated by the home sales data from Ingham County Treasurer's Office
	RegionEastLansing	A binary variable to indicate whether the sold property is in City of East Lansing	Calculated by the home sales data from Ingham County Treasurer's Office
	RegionMeridianTwp	A binary variable to indicate whether the sold property is in Meridian Township	Calculated by the home sales data from Ingham County Treasurer's Office
	RegionDelhiTwp	A binary variable to indicate whether the sold property is in Delhi Township	Calculated by the home sales data from Ingham County Treasurer's Office
	RegionOtherCities	A binary variable to indicate whether the sold property is in Leslie City, Stockbridge Village, Mason City, or Williamston City.	Calculated by the home sales data from Ingham County Treasurer's Office
	RegionRural	The sold property is in another Ingham County municipality not included above.	Calculated by the home sales data from Ingham County Treasurer's Office

(Source: Ingham County Treasurer's Office and MSU)





Figure 5: Map of Property Price Assessment Using 500-Foot Buffer  
(Source: Authors)

Zhang et al., 2016; Bak and Hewings, 2019). This analysis first used a 1,000-foot buffer radius to examine impacts, and then experimented with other distances moving closer to the auction sale. Home sales that occurred within the buffer zone of an auctioned property were then filtered out, and the Euclidean distance between the auction sales and the homes sold on the conventional market was then calculated. Conventional home sales located within multiple buffer zones were grouped with the closest tax-auctioned property. Figure 5 illustrates the finalized buffer radius of 500 feet that was selected for the analysis. After testing the hedonic model with multiple runs, this distance most clearly illustrated the impacts of tax auction sales.

Conventional home sales were then compared with the auction sale date of the nearby foreclosed property to form the variable *AfterAuctionBuffer*. Home sale dates that occurred after the auction sale were assigned a value of '1', while all remaining sales were coded as '0'. If a home sale occurred within multiple buffers, the buffer area assigned to the closest tax-auctioned property was used for

comparison.

Data received from the Equalization Department also included permitting records that indicated whether a property sold at the auction had permits pulled at some point after sale. The presence of electrical, mechanical and/or plumbing permits typically indicates that efforts have been made by the auction buyer to invest in their purchase and maintain or improve the home. The binary variable *ImproveAfterTaxAuction* was then incorporated into the model to evaluate the relationship between home improvement efforts conducted after auction and the sale prices of surrounding homes.

Building characteristics found in the sales data such as square footage, number of bedrooms, and year built were used in the model to control for building structural factors. Access to amenities was also entered into the analysis by measuring the distance to parks or nearby water bodies from the address of the sold home. Block group level Census data was used to determine neighborhood characteristics; variables such as household income, education, vacancy rate, owner-occupied rate and crime index were attached to each sales record, along with other neighborhood characteristics referenced in Table 4 above. These variables help control for the different socioeconomic and demographic characteristics that may vary based on the foreclosed property's location within the county. Similarly, variables that identify whether the sold property is found in a metro, suburban, rural, or peripheral area attempt to take into account the level of urbanization and the relationship this has on home sale prices. Within a large study area such as Ingham County, a wide range of municipalities exist that each have their own unique features, from dense urban centers to remote rural villages. The community impacts variable identifies which municipality the home sale occurred in to better inform its relationship within the county and account for the

Table 5: List of Variables Used in Hedonic Analysis

Variable Type	Variable	Description	Minimum	Maximum	Mean	Std. Deviation
<b>Dependent Variable</b>	SalesPrice	Latest Sales Price (\$)	5,000.00	775,000.00	61,552.61	49,382.86
<b>Independent Variables</b>						
Tax Auction Impact	AfterAuction500ft	Home sale after the nearest property was auctioned	0	1 (N=2,947)	0.45	0.50
Improvement of Tax Auction Impact	ImproveAfterTaxAuction	The nearest tax auction property has permits after purchase at the tax auction	0	1 (N=3,449)	0.53	0.50
Year Sold	SoldYear_2006	Sold Year - 2006	0	1 (N=284)	0.04	0.20
	SoldYear_2007	Sold Year - 2007	0	1 (N=277)	0.04	0.20
	SoldYear_2008	Sold Year - 2008	0	1 (N=336)	0.05	0.22
	SoldYear_2009	Sold Year - 2009	0	1 (N=426)	0.07	0.25
	SoldYear_2010	Sold Year - 2010	0	1 (N=409)	0.06	0.24
	SoldYear_2011	Sold Year - 2011	0	1 (N=439)	0.07	0.25
	SoldYear_2012	Sold Year - 2012	0	1 (N=471)	0.07	0.26
	SoldYear_2013	Sold Year - 2013	0	1 (N=463)	0.07	0.26
	SoldYear_2014	Sold Year - 2014	0	1 (N=428)	0.07	0.25
	SoldYear_2015	Sold Year - 2015	0	1 (N=448)	0.07	0.25
	SoldYear_2016	Sold Year - 2016	0	1 (N=611)	0.09	0.29
	SoldYear_2017	Sold Year - 2017	0	1 (N=827)	0.13	0.33
	SoldYear_2018	Sold Year - 2018	0	1 (N=942)	0.15	0.35
	SoldYear_2019	Sold Year - 2019	0	1 (N=128)	0.02	0.14
Building Structures	LivingArea	Finished Area (Sq Ft)	376.00	8,432.00	1,143.86	454.03
	NoBathrooms	Number of Bathrooms	0.50	6.00	1.29	0.49
	GarageArea	Garage Area (Sq Ft)	128.00	2,016.00	389.50	156.93
	DetachedGarage	Has a detached garage	-	1.00	0.79	0.41

Table 5: List of Variables Used in Hedonic Analysis (cont.)

Variable Type	Variable	Description	Minimum	Maximum	Mean	Std. Deviation
Neighborhood characteristics at census block group level	PopWhiteNoHispanic	Percentage of White Non-Hispanic population in 2017 by census block group	0.20	1.00	0.68	0.18
	MedianHouseholdIncome	Median household income in 2017 by census block group	13,750.00	101,324.00	39,700.47	13,918.74
	EducationCollege	Percentage of population with associates degree and above by census block group	0.26	1.00	0.62	0.14
	HUVacantRate	Percentage of vacant house units in 2017 by census block group	-	0.38	0.13	0.09
	HUOwnerOccupiedRate	Percentage of owner occupied house units in 2017 by census block group	0.04	1.00	0.60	0.20
	CrimeIndex	Overall Crime Index in 2018 by census block group	8.00	414.00	144.16	72.42
Urbanization Impacts	UrbanRural_2_UrbanPeriphery	The sold property is in the urban periphery	0	1 (N=718)	0.11	0.31
	UrbanRural_3_MetroCities	The sold property is in the Metro cities	0	1 (N=5,362)	0.83	0.38
	UrbanRural_4_SuburbanPeriphery	The sold property is in the suburbs of major cities and Metro cities	0	1 (N=184)	0.03	0.17
	UrbanRural_5_Semirural	The sold property is in the semirural region	0	1 (N=73)	0.01	0.11
	UrbanRural_6_Rural	The sold property is in the rural region	0	1 (N=152)	0.02	0.15

Table 5: List of Variables Used in Hedonic Analysis (cont.)

Variable Type	Variable	Description	Minimum	Maximum	Mean	Std. Deviation
Community Impacts	RegionLansing	The sold property is in City of Lansing or Lansing Township	0	1 (N=5,708)	0.88	0.33
	RegionEastLansing	The sold property is in City of East Lansing	0	1 (N=81)	0.01	0.11
	RegionMeridianTwp	The sold property is in Meridian Township	0	1 (N=105)	0.02	0.13
	RegionDelhiTwp	The sold property is in Delhi Township	0	1 (N=270)	0.04	0.20
	RegionOtherCities	The sold property is in Leslie City, Stockbridge Village, Mason City, or Williamston City.	0	1 (N=228)	0.04	0.18
	RegionRural	The sold property is in another Ingham County municipality not included above.	0	1 (N=97)	0.01	0.12
<b>N</b>						<b>6,454</b>

(Source: Ingham County Treasurer's Office and MSU)

Table 6: Hedonic Analysis Results

Variable Type	Variable	Description	Estimate	Std. Error	Std.	Sig.
	(Constant)		-15.40	4,072.80		1.00
Tax Auction Impact	AfterAuction500ft	Home sale after the nearest property was auctioned	-1,591.92	1,307.62	-0.02	0.22
Improvement of Tax Auction Impact	ImproveAfterTaxAuction	The nearest tax auction property has permits after purchase at the tax auction	1,387.10	931.67	0.01	0.14
Year Sold	SoldYear_2006	Sold Year - 2006	15,322.59	2,634.32	0.06	0.00
	SoldYear_2007	Sold Year - 2007	712.22	2,649.58	0.00	0.79
	SoldYear_2008	Sold Year - 2008	-22,228.51	2,505.64	-0.10	0.00
	SoldYear_2009	Sold Year - 2009	-29,484.51	2342.48	-0.15	0.00
	SoldYear_2010	Sold Year - 2010	-32,677.84	2,345.85	-0.16	0.00
	SoldYear_2011	Sold Year - 2011	-39,911.01	2,292.73	-0.20	0.00
	SoldYear_2012	Sold Year - 2012	-38,094.11	2,214.78	-0.20	0.00
	SoldYear_2013	Sold Year - 2013	-33,472.74	2,096.16	-0.17	0.00
	SoldYear_2014	Sold Year - 2014	-24,046.74	2,072.77	-0.12	0.00
	SoldYear_2015	Sold Year - 2015	-20,310.19	2,009.12	-0.10	0.00
	SoldYear_2016	Sold Year - 2016	-14,670.53	1,792.26	-0.09	0.00
	SoldYear_2017	Sold Year - 2017	-9,485.26	1,629.85	-0.06	0.00
	SoldYear_2018	Sold Year - 2018 <sup>1</sup>				
	SoldYear_2019	Sold Year - 2019	-2,178.21	3,211.02	-0.01	0.50
Building Structures	LivingArea	Finished Area (Sq Ft)	25.60	1.20	0.24	0.00
	NoBathrooms	Number of Bathrooms	15,674.01	1,137.28	0.16	0.00
	GarageArea	Garage Area (Sq Ft)	17.39	2.89	0.06	0.00
	DetachedGarage	Has a detached garage	-10,201.68	1,168.70	-0.08	0.00

Table 6: Hedonic Analysis Results (cont.)

Variable Type	Variable	Description	Estimate	Std. Error	Std.	Sig.
Neighborhood characteristics at census block group level	PopWhiteNoHispanic	Percentage of White Non-Hispanic population in 2017 by census block group	15,182.47	2,857.09	0.06	0.00
	MedianHouseholdIncome	Median household income in 2017 by census block group	0.27	0.05	0.08	0.00
	EducationCollege	Percentage of population with associates degree and above by census block group	20,832.25	3,712.40	0.06	0.00
	HUVacantRate	Percentage of vacant house units in 2017 by census block group	-22,825.86	4,973.52	-0.04	0.00
	HUOwnerOccupiedRate	Percentage of owner occupied house units in 2017 by census block group	3,404.21	3,084.64	0.01	0.27
	CrimeIndex	Overall Crime Index in 2018 by census block group	-42.73	7.83	-0.06	0.00



Table 6: Hedonic Analysis Results (cont.)

Variable Type	Variable	Description	Estimate	Std. Error	Std.	Sig.
Urbanization Impacts	UrbanRural_2_UrbanPeriphery	The sold property is in the urban periphery	3,710.46	1,574.29	0.02	0.02
	UrbanRural_3_MetroCities <sup>2</sup>	The sold property is in the Metro cities				
	UrbanRural_4_SuburbanPeriphery	The sold property is in the suburbs of major cities and Metro cities	2,3682.30	3,135.90	0.08	0.00
	UrbanRural_5_Semirural	The sold property is in the semirural region	-1,558.21	4,446.52	-0.00	0.73
	UrbanRural_6_Rural	The sold property is in the rural region	18,182.38	5,012.73	0.06	0.00
Community Impacts	RegionLansing <sup>3</sup>	The sold property is in City of Lansing or Lansing Township				
	RegionEastLansing	The sold property is in City of East Lansing	58,636.63	4,138.80	0.13	0.00
	RegionMeridianTwp	The sold property is in Meridian Township	67,197.73	3,708.15	0.17	0.00
	RegionDelhiTwp	The sold property is in Delhi Township	19,655.19	2,713.07	0.08	0.00
	RegionOtherCities	The sold property is in Leslie City, Stockbridge Village, Mason City, or Williamston City.	13,358.70	2,954.64	0.05	0.00
	RegionRural	The sold property is in another Ingham County municipality not included above.	-10956.12	5,981.92	(0.03)	0.07
<b>R-squared</b>					<b>0.528</b>	
<b>Adjusted R-squared</b>					<b>0.525</b>	
<b>N</b>					<b>6,454</b>	

<sup>1</sup> Year 2018 is the base year for comparison

<sup>2</sup> UrbanRural\_3\_MetroCities the base segment for comparison

<sup>3</sup> City of Lansing is the base region for comparison

(Source: Ingham County Treasurer's Office and MSU)

different types of municipalities that exist within the study area.

## RESULTS

Using the variables outlined in Table 4 above, the linear regression hedonic price model described in Equation 2 was calculated using SPSS Statistics software. As stated previously, multiple buffer distances were tested in the model, and the 500-foot radius was found to illustrate the strongest impacts.

Analysis results are illustrated in Table 5 and Table 6. Table 5 displays the list of variables used by the model to run the analysis grouped by variable type, along with a brief description and related statistics for each. The regression model optimizes the variable combinations to provide better predictions. Table 6 includes the actual values derived for each variable, listing the regression results with parameters, standard error and confidence level (significance). In total, 6,454 records with unique properties were entered into the calculations.

Similar to the 2015 tax-auction research findings, along with other related studies cited in this report, tax-auction properties were found to have negative impacts on nearby home sale prices. However, tax-auction properties that undergo maintenance and improvements after they are purchased tend to increase the home sale price of surrounding properties. This reinforces the importance of responsible buyers participating in tax auction sales who will invest in property maintenance and home improvements after they acquire the parcel. Such efforts will not only have positive impacts on surrounding property values but can also lead to improved neighborhood stability through revitalized housing stock and less resident turnover.

Along with binary variables representing home sales after the tax auction sale, and home improvements made by the new owner after their tax auction purchase, control variables involving building structures and neighborhood characteristics were also included in the analysis. Other variables controlling for urbanization levels and municipality conditions were utilized to address the diverse markets within a county-wide study area.

Overall, 68.9% (R-squared) of the variance was explained by these variables in this hedonic regression model. The analysis indicates that improvements and investment made to auctioned properties after they are purchased (*ImproveAfterTaxAuction*) leads to positive impacts on surrounding home prices. Results show that the sale price of a home located within 500 feet of the tax-auctioned property that underwent improvements will increase \$1,387 on average when the sale occurs after these investments are made. This illustrates how these efforts to invest in the tax-auctioned property not only lead to improved neighborhood aesthetics and streetscape appearance, but also help improve and stabilize the home sale prices in the surrounding area.

In examining building structure variables used in the model, the results confirm the accepted positive relationship between home sale price and architectural features such as square footage, number of bathrooms and garage size. Homes that have larger garages, multiple bathrooms and more square footage are typically expected to sell for higher than homes with less floor space. Neighborhood characteristics coefficients yielded results consistent with other studies citing the negative relationship that crime and vacancy rates have on property values (Larson et al., 2019; Chamberlain et al., 2018; Whitaker and Fitzpatrick, 2013). Results also illustrated the

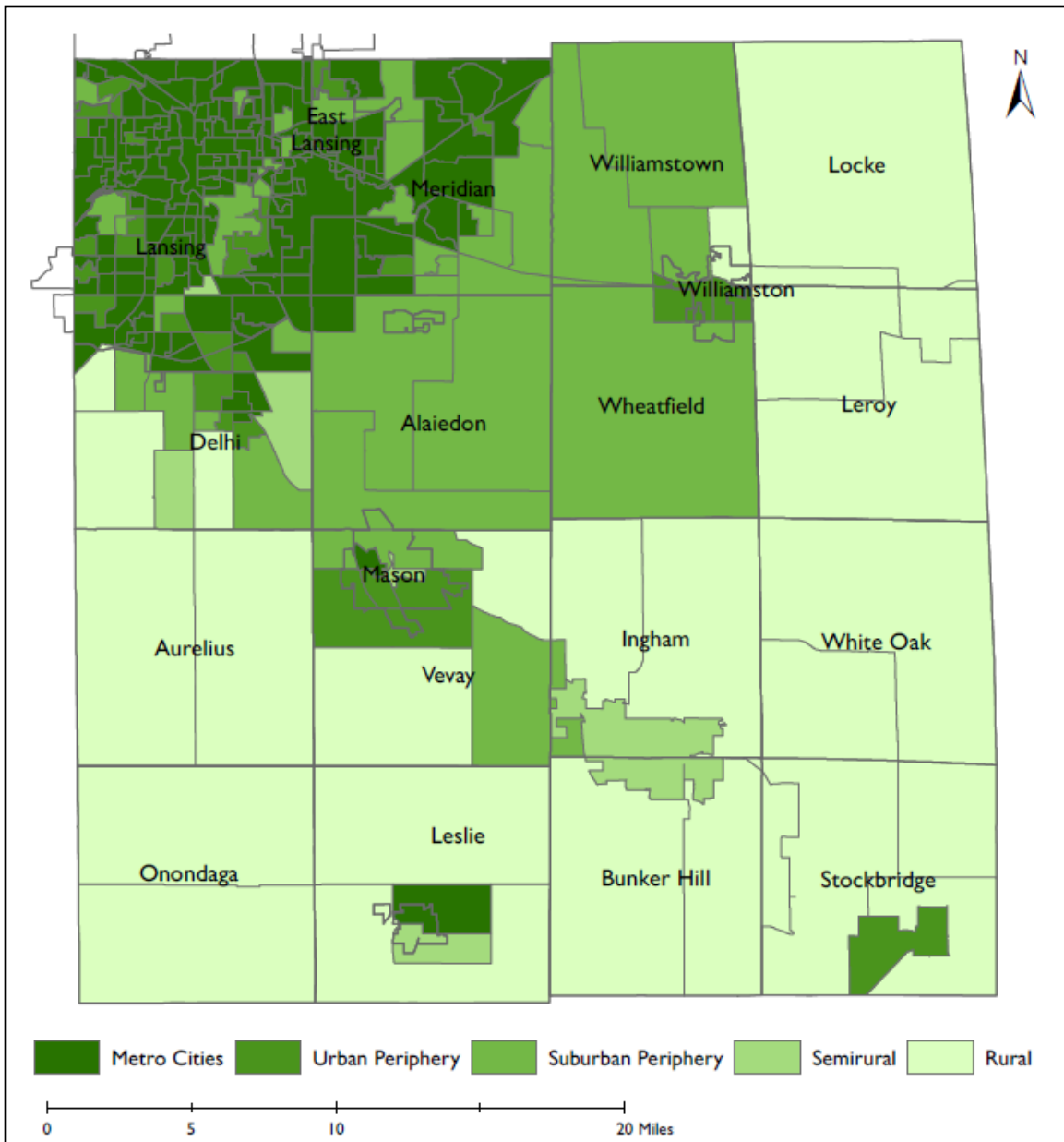


Figure 6: Urbanization Variable Distribution in Ingham County by Census Tracts  
 (Source: Authors)

positive relationship owner-occupancy rates have on the sale price of the home, with an increase in homesteads enhancing surrounding home values and stabilizing residential turnover (Mallach, 2012; Kingsley, Smith and Price, 2009).

Given a broad study area like Ingham County, which features multiple cities, townships and villages of various sizes that each have their own local characteristics, results were also examined through

control variables for urbanization and community impacts. Findings indicated higher home sale prices in suburban areas compared to more dense urban areas or more rural locales in the county. Using the City of Lansing and Lansing Township as control variables for comparison, results illustrated higher home sale prices in Meridian Township and East Lansing, with rural communities experiencing lower prices relative to the mean/average. Figure 6

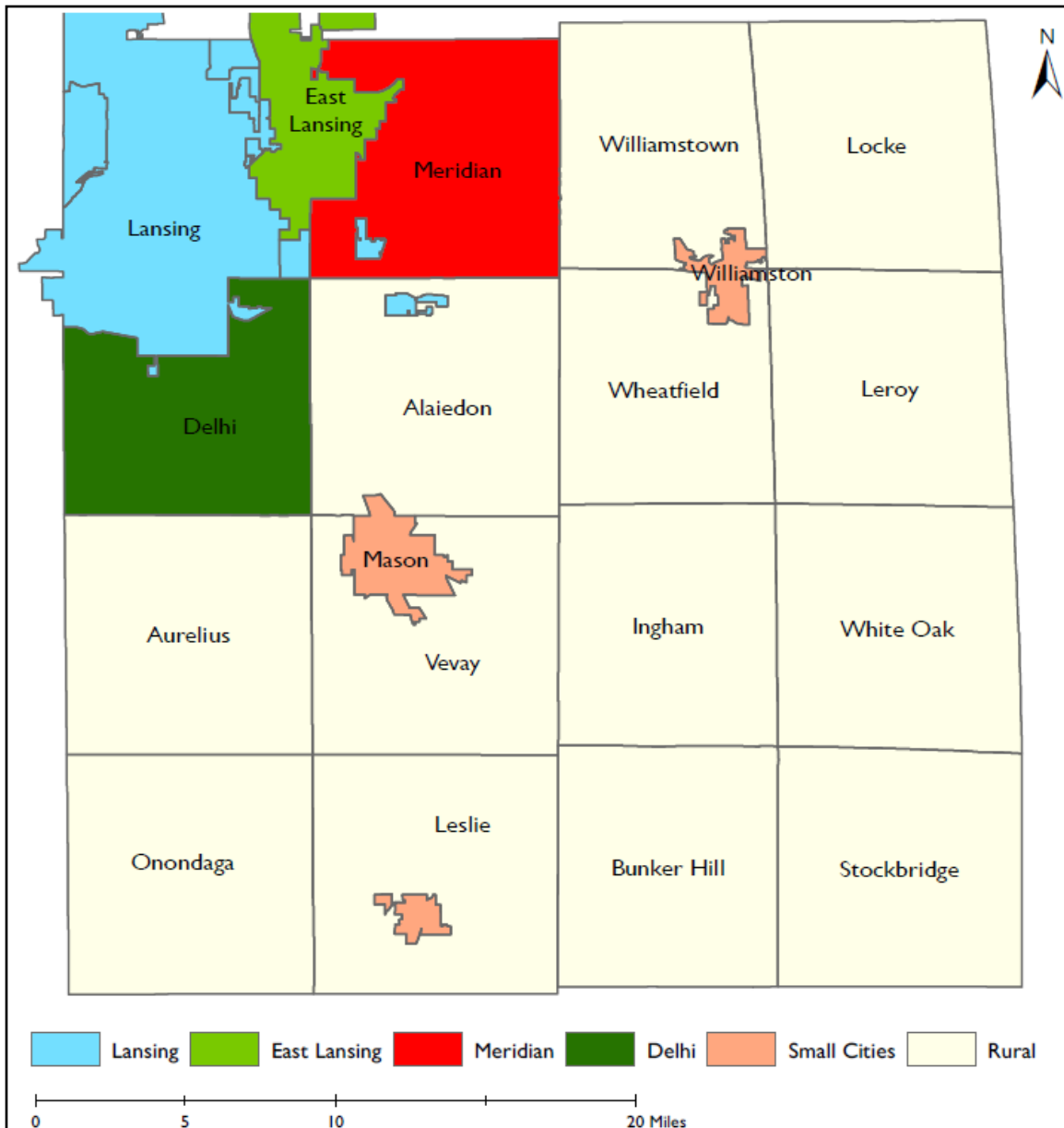


Figure 7: Community Variable Distribution in Ingham County by Census Tracts

(Source: Authors)

illustrates the urbanization categories utilized in the analysis and their distribution throughout the county (Metro Cities, Urban Periphery, Suburban Periphery, Semirural, Rural & Other), while Figure 7 provides a breakdown of community categories as defined for this variable (Lansing, East Lansing, Meridian, Delhi, Small Cities, Rural).

# Regional Economic Impact Analysis

THE INPUT-OUTPUT MODEL IS APPLIED TO ESTIMATE THE ECONOMIC IMPACTS OF (1) INGHAM COUNTY'S EXPENDITURES ON ADMINISTRATIVE COSTS RELATED TO THE TAX AUCTION ALONG WITH THE MAINTENANCE COSTS TOWARDS UPKEEP OF PROPERTIES BEFORE THE AUCTION SALE; AND (2) THE EXPENDITURES OF AUCTIONED PROPERTY OWNERS ON REHABILITATING AND IMPROVING THE HOUSE.

In addition to the hedonic property price analysis, this study examined the overall economic impact of tax auction-related activities from 2006-2018 using IMPLAN® (Impact analysis for PLANning) input-output model.

Activities of interest include:

1. Ingham County expenditures
  - Administrative costs associated with coordinating and promoting auction
  - Closing costs for tax auction properties with owner-occupancy covenants
  - Property maintenance before the tax auction includes lawn mowing, cleanouts, tree removal and minor repairs
2. Expenditures on home improvements by property owner
  - Closing costs (auctioneer's premium and recording fee)
  - Permit fees
  - Building and property maintenance
  - New construction
  - Demolition
  - Remodeling (e.g., roofing, electrical, plumbing, siding, etc.)
  - Alteration of structure (e.g., addition of garage, pole barn, porch/deck, etc.)

Through input-output analysis, the direct, indirect and induced economic impacts for employment, labor income, value added and value of output to the region were generated based on the expenditures listed above. This information allows the Ingham County Treasurer's Office to determine the systematic impacts (dollars flowing through the economy) of money invested in tax auction sale properties and answers the question: How many jobs are created by the activities associated with returning these properties to the tax roll?

## METHOD

The regional economic impact analysis was performed using IMPLAN (Impact analysis for PLANning), which is a complete economic assessment package, including data and software, devised and provided by MIG, Inc. (formerly Minnesota IMPLAN Group, Inc.). The IMPLAN model is widely used by many government agencies, colleges and universities, nonprofit organizations, corporations, business development organizations and community planning organizations to estimate economic impacts of various activities.

Using multipliers provided by IMPLAN for Ingham County, as well as categorized spending data provided by the Ingham County Treasurer's Office, the IMPLAN model produced estimates of four types of economic impacts:

- Direct and indirect economic impacts output as well as in backward- and forward-linked industries;

- Direct and indirect job creation impacts;
- Direct and indirect labor income; and
- Total value-added impacts, or the value in goods and services added across industries as a result of spending by Ingham County and new owners of auctioned property, after accounting for costs.

## MODEL INPUT

Three main expenditure categories went into the economic impact analysis of Ingham County tax-foreclosure auction activities: (1) Costs involved with marketing and conducting the auction including the estimated administrative costs and closing costs for properties with owner-occupancy covenants, which are paid for by the Ingham County Treasurer’s Office; (2) further expenses paid by the Treasurer’s Office for property maintenance leading up to the auction sale, as well as tending to properties that remain unsold at either auction for the remainder of the calendar year; and (3) investments made by new owners of tax-auctioned properties toward renovations and other home improvement efforts.

Auction sales data received from the Treasurer’s Office included sale date, winning bid amount and other parcel details. Their office also provided annual expenditure amounts for both auction administrative costs, as well as estimated maintenance costs for items such as home cleanouts, tree removal and other landscaping and property upkeep while the property is waiting to be sold at auction. Estimated utility costs were also incorporated into the property maintenance expenditure category.

Data provided by the Ingham County Equalization Department contained information on residential

building permits issued to all properties in Ingham County between January 2006 and March 2019. This data included the parcel number, address, issue date, permit value, permit category and permit type. The permits were aggregated into the below categories:

- Building and property maintenance
- New construction
- Demolition
- Remodeling (e.g., roofing, electrical, plumbing, siding, etc.)
- Alteration of structure (e.g., addition of garage, pole barn, porch/deck, etc.)

The permits from the tax-auctioned properties were then filtered out to calculate the expenditures made by property owners to the home after purchase. Some data on the value of the work for permits associated with tax-auction properties did not exist and was estimated by identifying the median value of permits by category from this broader data set. This method may overstate the value of the permits for tax-auction properties, since it is anticipated that speculators or landlords may spend less to renovate properties than homeowners. In addition, the permit fees are captured in this estimate, along with the closing costs (Auctioneer’s Premium and Recording Fee).

The distribution of these three general expenditure categories are shown in Table 7. In total, administrative costs by Ingham County reached \$993,800 over the course of the study period, with costs relating to property maintenance totaling \$625,100. Closing auction costs, permit fees and other maintenance and renovation expenditures made by new owners of tax-auctioned properties totaled \$14,100,906. These spending categories combined led to overall expenditures in Ingham

County of \$15,719,806 on tax auction-related activities.

The spending categories associated with these three types of expenditures were matched with industries available for modeling within the IMPLAN framework. The IMPLAN industries used are shown in Table 8.

Next, the multipliers provided by IMPLAN in the specified industries were applied to the categorical spending totals. The approximate impacts were calculated at three levels: 1) Direct economic impacts (total economic activity effect of tax auction spending in industries directly related to the activities, such as house construction and renovation, utilities, property and building maintenance, closing costs, etc.) and indirect economic impacts (the secondary impacts in “backward” and “forward” linked industries as a result of the tax auction spending in primary sectors); 2) total (direct and indirect) job creation impacts; and 3) total value-added impacts (value in goods and services added across industries as a result of spending on tax-auction activities after accounting for costs).

## RESULTS

The results for this economic impact estimate are shown in Table 9.

The expenditures of both Ingham County and tax-auction homeowners are \$15,719,806 in total (Table 8). Among the total spending, \$12,599,250 is captured within the county and leads to \$19,865,504 output in total, when accounting for direct, indirect and induced effects. This output generated about 123 jobs in Ingham County with \$6,409,660 in labor income between 2007 and 2019. Finally, the value-added to the gross regional product during this time period as a result of tax-auction activities is estimated at \$10,105,038.



Table 7: Distribution of Expenditure (\$) Data by Ingham County Tax Auction Activities – 2007 – March 2019

Category	Year											Total		
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		2018	2019
<b>Administrative Costs (by Ingham County)</b>														
Administrative Costs Associated with Auction and Marketing	4,000	10,000	12,000	19,000	46,000	130,000	131,000	212,000	74,000	102,000	70,000	83,000	-	893,000
Closing Costs (Owner-Occupancy Covenants)	-	-	-	-	-	7,200	5,400	10,800	13,500	22,500	18,000	23,400	-	100,800
<b>Property Maintenance (by Ingham County)</b>														
Lawn Mowing/Snow Removal	1,600	4,000	4,800	7,600	18,400	52,000	52,400	84,800	29,600	40,800	28,000	33,200	-	357,200
Utilities (gas, electricity, water)	1,200	3,000	3,600	5,700	13,800	39,000	39,300	63,600	22,200	30,600	21,000	24,900	-	267,900
<b>Property Improvement (by Owner)</b>														
Closing Costs (Auctioneer's Premium and Recording Fee)	8,000	20,000	24,000	38,000	92,000	260,000	262,000	424,000	148,000	204,000	140,000	166,000	-	1,786,000
Permit Fees	-	100	50	175	5,819	11,080	21,161	26,950	35,088	42,259	45,123	11,935	-	199,740
Building and Property Maintenance	-	-	-	-	-	16,800	3,400	72,716	23,800	36,225	148,485	50,110	39,000	390,536
New Construction	-	-	-	-	-	-	60,000	72,500	72,500	72,500	1,780,000	145,000	-	2,202,500
Demolition	-	-	-	-	8,000	24,000	24,000	40,000	16,000	24,000	36,000	102,000	8,000	282,000
Remodeling (E.G., Roofing, Electrical, Plumbing, Siding, etc.)	-	17,193	-	16,000	17,800	213,860	288,210	770,369	793,119	965,880	1,221,170	1,459,580	356,393	6,119,574
Alteration of Structure (E.G. Addition of Garage, Pole Barn, Porch/Deck, etc.)	-	-	-	-	-	35,710	138,500	86,100	210,405	125,000	2,130,924	393,917	-	3,120,556
<b>Total</b>	<b>14,800</b>	<b>54,293</b>	<b>44,450</b>	<b>86,475</b>	<b>201,819</b>	<b>789,650</b>	<b>1,025,371</b>	<b>1,863,835</b>	<b>1,438,212</b>	<b>1,665,764</b>	<b>5,638,702</b>	<b>2,493,042</b>	<b>403,393</b>	<b>15,719,806</b>

(Source: Ingham County Treasurer's Office and MSU)

Table 8: Tax Auction-Related Expenditure Cross Reference to IM-PLAN Industry

Expenditure Category	IMPLAN Industry
<b>Administrative Costs (by Ingham County)</b>	
Administrative Costs Associated with Auction and Marketing	Other local government enterprises
Closing Costs (Owner-Occupancy Covenants)	Monetary authorities and depository credit intermediation
<b>Property Maintenance (by Ingham County)</b>	
Lawn Mowing/Snow Removal	Landscape and horticultural services
Utilities - Natural Gas	Natural gas distribution
Utilities - Electricity	Electric power generation, transmission, and distribution
Utilities - Water	Water, sewage and other treatment and delivery systems
<b>Property Improvement (by Owner)</b>	
Closing Costs (Auctioneer's Premium and Recording Fee)	Monetary authorities and depository credit intermediation
Permit Fees	Other local government enterprises
Building and Property Maintenance	Maintenance and repair construction of residential structures
New Construction	Newly constructed single-family residential structures
Demolition	Waste management and remediation services
Remodeling (E.G., Roofing, Electrical, Plumbing, Siding, etc.)	Maintenance and repair construction of residential structures
Alteration of Structure (E.G., Addition of Garage, Pole Barn, Porch/Deck, etc.)	Construction of other new residential structures

(Source: Ingham County Treasurer's Office and MSU)

Table 9: Economic Impacts of Ingham County Tax Auction Activities

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	66.2	\$3,863,776	\$5,926,718	\$12,599,250
Indirect Effect	33.1	\$1,479,671	\$2,297,441	\$4,130,667
Induced Effect	24	\$1,066,214	\$1,880,879	\$3,135,588
<b>Total Effect</b>	<b>123.3</b>	<b>\$6,409,660</b>	<b>\$10,105,038</b>	<b>\$19,865,504</b>

(Source: Ingham County Treasurer's Office and MSU)



# Outcomes of Tax-Auction Sold Properties

PROPERTIES SOLD AT THE TAX AUCTION MAY EXPERIENCE A VARIETY OF OUTCOMES AFTER THE SALE, FROM CONTINUED VACANCY AND HABITUAL TAX DELINQUENCY TO RESTORATION OF THE HOME AND RETURN TO THE CONVENTIONAL MARKET. ANALYZING THESE OUTCOMES OVER TIME HELPS ILLUSTRATE THE PROGRESS MADE BY THE TAX AUCTION THROUGH THE YEARS, ALONG WITH THE EFFECTIVENESS OF STIPULATIONS LIKE THE REVERTER CLAUSE IN STABILIZING THE TAX BASE AND KEEPING PROPERTIES FROM REVERTING TO DELINQUENCY.

When a property experiences foreclosure in Ingham County, there are other avenues the parcel may travel through besides the tax auction, such as possession by the Ingham County Land Bank for demolition, restoration or redevelopment. Local municipalities may also acquire the foreclosed property in some instances, with future development or other community initiatives in mind for the parcel, or as a means to prevent further disinvestment in the surrounding area. For properties sold at the tax auction, they may experience a variety of outcomes after the sale, from continued vacancy and habitual tax delinquency to restoration of the home and return to the conventional market. Analyzing these outcomes over time helps illustrate the progress made by the tax auction through the years, along with the effectiveness of stipulations like the reverter clause in stabilizing the tax base and keeping properties from reverting to delinquency.

In the years following the Treasurer opting in to the tax auction, most foreclosures were still acquired by the Ingham County Land Bank. This percentage gradually declined through the years as the auction procedure was refined and streamlined, and the number of foreclosed properties to address ballooned in the years following the Great Recession. Table 10 illustrates this trend by listing the total number of properties foreclosed each year from 2006 - 2018, along with the percentage sold at the tax auction compared with the amount of

properties that either went into the land bank's possession or were disposed of in another manner.

Starting in 2012, the tax auction began to hit its stride, with the percentage of total foreclosures sold at the auction dramatically increasing each year until 2015, which was also the first year that total number of foreclosed properties began to decrease, dropping from 311 in 2014 to 189 in 2015, and holding steady at that level during the next two years before further dropping to 119 in 2018. 2012 was also the year when foreclosure totals spiked, creating an overload of parcels to address and dispose of through the tax auction or other means. This led to an increased reliance on the tax auction, as the percentage of auction sales in 2013 grew to match the amount of land bank acquisitions that year, while the next year auction sales increased to comprise over 68% of foreclosure dispositions. While this percentage decreased the following year with the drop in the amount of foreclosed properties, auction sales percentages have remained consistent in years since.

Taking a closer look at tax auction sales in relation to whether a reverter clause and owner-occupied covenant was attached also provides insight into the outcomes produced by these stipulations. In the literature review of her 2015 analysis, Dewar references multiple studies that describe the high likelihood of properties purchased at tax auctions reverting to foreclosure, in some cases

Table 10: Distribution of Tax-Foreclosed Properties by Types of Disposition and Year

Auction Year	# Properties Foreclosed	Properties Sold through Tax Auction	Properties to Ingham County Land Bank	Properties by Other Dispositions
2006	75	0 (0%)	69 (92%)	6 (8%)
2007	56	4 (7%)	48 (86%)	4 (7%)
2008	110	10 (9%)	95 (86%)	6 (5%)
2009	118	12 (10%)	103 (87%)	3 (3%)
2010	258	19 (7%)	234 (91%)	5 (2%)
2011	278	47 (17%)	215 (77%)	16 (6%)
2012	449	125 (28%)	312 (69%)	12 (3%)
2013	262	125 (48%)	124 (47%)	13 (5%)
2014	311	212 (68%)	95 (31%)	4 (1%)
2015	189	75 (40%)	87 (46%)	27 (14%)
2016	198	102 (52%)	83 (42%)	13 (7%)
2017	191	71 (37%)	115 (60%)	5 (3%)
2018	119	80 (67%)	27 (23%)	12 (10%)
<b>Total</b>	<b>2,614</b>	<b>882 (34%)</b>	<b>1,607 (61%)</b>	<b>126 (5%)</b>

(Source: Ingham County Treasurer's Office and MSU)

within the following year. Her own examination of Genesee County tax auction sales circa 2002-2004 revealed similar results, with about 43% of the properties sold foreclosed again and back under the Treasurer's ownership by 2007 (Dewar, 2015). Often this can be traced to speculators purchasing homes at low prices with the intent to resell the property for profit, or renting the property out for short-term gains before allowing it to return to foreclosure, further damaging any efforts towards neighborhood stabilization (Hackworth, 2014; Dewar, 2015; Fujii, 2016).

Findings like Dewar's and others discussed above demonstrate the limited success many tax auction programs have in restoring foreclosed properties to productive reuse for the community. Guidelines and stipulations such as the reverter clause in tax auction policies attempt to prevent these patterns of disinvestment, yet also prove to be limited without proper enforcement. Wayne County

utilized a 2-year reverter clause for tax auction sales starting in 2011, yet did little to manage or enforce the clause until 2014. At that point the delinquency rate on all auctioned properties had climbed to 78%, representing approximately \$80 million in lost revenue for the county (Kirtner, 2016). In Ingham County, the reverter clause was implemented in 2013 and attached to most foreclosed properties sold at the auction, and then increased in 2015 to encompass almost all auctioned properties. Table II illustrates that on average, these properties with the reverter clause attached returned to foreclosure only 8% of the time (i.e., only 49 of the 600 properties with reverter clause attached from 2013-2018 have reverted).

When the owner-occupied covenant is attached to an auction property, it appears to have similar effects on reversion rates, with only 7% of these properties returning to foreclosure after purchase. Table II below also illustrates a steady increase

Table 11: Distribution of Tax-Foreclosed Properties with Reverter Clauses and Owner-Occupied Covenants

Auction Year	# Auction Properties	Reverter Clause	Reverted with Reverter Clause	Owner-Occupied Covenant	Reverted with Owner-Occupied Covenant
2006	0	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2007	5	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2008	10	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2009	12	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2010	19	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2011	46	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2012	130	0 (0%)	0 (0%)	8 (6%)	0 (0%)
2013	131	114 (87%)	0 (0%)	6 (5%)	0 (0%)
2014	212	168 (79%)	13 (6%)	12 (6%)	2 (1%)
2015	74	74 (100%)	7 (9%)	15 (20%)	2 (3%)
2016	102	100 (98%)	14 (14%)	25 (25%)	2 (2%)
2017	69	67 (97%)	13 (19%)	19 (28%)	2 (3%)
2018	83	77 (93%)	2 (2%)	26 (31%)	0 (0%)
<b>Total</b>	<b>893</b>	<b>600 (67%)</b>	<b>49 (5%)</b>	<b>111 (12%)</b>	<b>8 (1%)</b>

(Source: Ingham County Treasurer’s Office and MSU)

in the percentage of owner-occupied covenants attached to auction properties each year. In the first few years of its adoption this stipulation was only used on approximately 6% of properties but has grown to encompass over 25% of properties sold at auctions for the past three years. These findings suggest that compared to other counties analyzed in the literature, stipulations used in Ingham County tax auctions like the reverter clause and owner-occupied covenant have much greater success in preventing the foreclosed property from returning to delinquency.

This study also examined the amount of tax-foreclosed properties purchased at the auction that were then eventually sold on the conventional market. Table 12 illustrates annual distribution of tax-auctioned properties, along with the amount that were sold on the conventional market each year.

The average sale price change for each year describes the difference between the winning bid amount for the tax-auctioned property and its home sale price on the conventional market. Since 2014 this average price change has remained relatively stable. The average number of days that the property purchased at the auction takes to be sold on the conventional market is also indicated, with the length of time the property remains unsold significantly decreasing as the years passed and housing market conditions improved. Figure 8 shows an example of a successfully rehabilitated tax-auctioned property resold on the conventional market, the same property highlighted in figure I in the executive summary.

Table 12: Distribution of Tax-Auctioned Properties Sold on Conventional Market

Auction Year	# Auction Properties	# Auctioned Properties Sold on Conventional Market This Year	Average \$ Price Change	Average # Days After Auction
2006	0	0 (0%)	-	-
2007	5	0 (0%)	-	-
2008	10	1 (10%)	\$64,999	1,437
2009	12	3 (25%)	\$59,856	2,545
2010	19	4 (21%)	\$17,430	1,123
2011	46	8 (17%)	\$36,776	1,488
2012	130	39 (30%)	\$39,665	1,031
2013	131	42 (32%)	\$27,995	900
2014	212	46 (22%)	\$44,582	878
2015	74	22 (30%)	\$47,631	589
2016	102	33 (32%)	\$41,624	314
2017	69	19 (28%)	\$51,760	304
2018	83	2 (2%)	\$41,000	54
<b>Total</b>	<b>893</b>	<b>219 (25%)</b>		

(Source: Ingham County Treasurer's Office and MSU)

Public View Owner View

118 Haze St  
Lansing, MI 48917

2 beds · 1 bath · 729 sqft

Note: This property is not currently for sale or for rent. The description below may be from a previous listing.

Welcome home! This beautifully home has been remodeled from top to bottom and has been built to last!

● SOLD: \$77,000  
Sold on 12/06/18  
Zestimate®: \$65,532

EST. REFI PAYMENT  
\$300/mo

See current rates

Figure 8: Zillow Listing for Tax-Auctioned Property Resold on Conventional Market

(Source: Zillow)



# Conclusion

THIS REPORT CONTINUES A SERIES OF STUDIES EVALUATING INGHAM COUNTY'S EFFORTS IN DEALING WITH TAX-FORECLOSED PROPERTIES, WITH PARTICULAR FOCUS ON THE IMPACTS OF TAX-AUCTION SALES ON SURROUNDING HOMES. ITS GOAL IS TO PROVIDE INSIGHT INTO THE EFFECTIVENESS OF THESE POLICIES AND PROCEDURES IN MANAGING FORECLOSED PROPERTIES, AND TO EXAMINE THE VARIOUS CONSEQUENCES THESE ACTIVITIES HAVE FOR NEIGHBORHOOD STABILIZATION. THE DISTRIBUTION OF FORECLOSURE DISPOSITIONS THROUGH THE COURSE OF THE STUDY TIME FRAME HIGHLIGHTS THE DYNAMIC MARKET CONDITIONS GOVERNMENTS FACE WHEN DEALING WITH THESE DISTRESSED PROPERTIES.

Ingham County has worked hard in the past decade to restore housing stock, property values and neighborhood conditions to levels they were at pre-recession by using tools such as the land bank and tax auction to manage tax-foreclosed properties. Each community dealing with distressed housing markets in the aftermath of the Great Recession features its own unique challenges, and the Treasurer's Office has attempted to adjust their efforts to match regional market conditions through the years as the nation's economic conditions gradually improve.

This report continues a series of studies evaluating Ingham County's efforts in dealing with tax-foreclosed properties, with particular focus on the impacts of tax-auction sales on surrounding homes. Its goal is to provide insight into the effectiveness of auction policies and procedures in managing foreclosed properties, and to examine the various consequences these activities have for neighborhood stabilization. The distribution of foreclosure dispositions through the course of the study time frame highlights the dynamic market conditions governments face when dealing with these distressed properties. Ingham County initially resorted to the land bank for disposing of tax-foreclosed properties in the years leading up to the recession and immediately after. Yet as the economy stabilized and market conditions grew more favorable, the county relied more heavily

on the tax auction to process its large amount of foreclosures, with auction sales and land bank transfers gradually balancing out. This returned opportunities for private investment to individual buyers and property management companies and placed less emphasis on public sector transactions and governmental land management.

Coinciding with this uptick in foreclosures processed through the tax auction, the Treasurer's Office began implementing stipulations such as the reverter clause and owner-occupied covenant to help guide the private market towards responsible investment with qualified and informed buyers. These stipulations aim to encourage purchasers who have the liquidity and can afford to maintain the property and invest in home improvements rather than auction buyers seeking to turn a quick profit while performing minimal upkeep to the home. This reinvestment by the new owner keeps the property from reverting to tax delinquency, and more importantly returns a quality housing option to the tax base that increases funding for public services and improves neighborhood stability.

Results of this study indicate that the involved efforts of the Ingham County Treasurer's Office create positive impacts on local housing markets and neighborhood conditions, and that policies and procedures utilized for tax-foreclosure auctions appear to serve their intended purpose

of preventing tax reversion and replenishing housing stock. First, the hedonic property price analysis examined the relationship between home sale prices of properties within a 500-foot buffer area of tax auction activities. Controlling for variables including building structural features, neighborhood socio-economic characteristics, community location and urbanization levels, the regression analysis indicated a negative relationship between the home sale price and proximity to a tax-auctioned property, similar to other literature discussed in this report. However, controlling for the same variables, residential home sale prices were positively impacted when the nearby auctioned property underwent maintenance or renovations by its new owner (based on permits pulled after purchase), with a sales price increase of \$1,387. This helps affirm the value of the Treasurer's Office encouraging responsible buyers at the auction who will commit to putting money and care back into the property, helping to restore neighborhood character instead of further contributing to its decline.

The IMPLAN Economic Impact Analysis took a closer look at expenditures by both Ingham County and new property owners after the auction sale. Spending categories were organized by the administrative and property maintenance costs paid by the county, and the expenditures made by the new owner when purchasing and investing in improvements to the auctioned property. These tax auction-related activities led to total expenditures of \$15.7 million, with almost \$12.6 million captured within Ingham County translating into \$19,865,504 in output, when accounting for direct, indirect and induced effects. Through these efforts, about 123 jobs were generated in the county accounting for \$6,409,660 in labor income between 2007-2019.

A closer examination of tax-auctioned property outcomes also helped provide insight into the

way solutions used to address tax-foreclosed properties have evolved with improved market conditions, and how stipulations attached pre-sale affect these outcomes as well. As noted above, tax auction dispositions continued to increase in the years following the recession as market conditions improved and foreclosures became more attractive, feasible investments. Stipulations incorporated by the Treasurer's Office to guide properties towards more responsible investors have shown to have positive outcomes on reversion rates and home values upon resale. While studies on similar distressed housing markets have indicated the high percentage of auctioned properties that return to delinquency in the years shortly after their purchase, this analysis indicates the effectiveness of the reverter clause and owner-occupied covenants in curbing this trend in Ingham County. Out of the 600 tax-auction properties sold with a reverter clause from its inception in 2013 to 2018, only 49 (8%) have reverted to tax delinquency. Owner-occupancy covenants also reduce the likelihood of reversion, with a 7% (8 out of 111) rate of return to delinquency for auctioned properties with this stipulation attached.

This study also analyzed the amount of properties purchased from the tax auction that were eventually rehabbed and sold on the conventional market, and found trends consistent with the improved market conditions the county has experienced over the

Results of this study indicate that the involved efforts of the Ingham County Treasurer's Office create positive impacts on local housing markets and neighborhood conditions, and that policies and procedures utilized for tax-foreclosure auctions appear to serve their intended purpose of preventing tax reversion and replenishing housing stock.

past five years. While the percentage of auctioned properties sold on the conventional market each year and the average sale price change have both remained relatively stable in that time frame, the average number of days the auctioned property takes to be sold has seen a steady decrease each year. This trend signals the improved economic conditions in local housing markets and how auction buyers are now able to move quicker on the renovations and investments necessary to prepare the home for sale on the conventional market.

Ingham County has evolved its tax-auction program in alignment with the changing market conditions in the region to maximize the auction's use and effectiveness in processing foreclosed properties.

As can be observed from this study and the related literature, managing a tax-foreclosure auction program that successfully returns distressed properties to the tax roll involves extensive efforts and planning by the local unit of government. Ingham County has evolved its tax-auction program in alignment with the changing market conditions in the region to maximize the auction's use and effectiveness

in processing foreclosed properties. Results of the analyses discussed above help provide a better understanding of the value the Treasurer's Office's efforts have on revitalizing housing options and returning these forlorn parcels to productive use. While many of these findings may not surprise the county staff and other local stakeholders who work closely within these distressed markets on a regular basis, the results can be shared with skeptical community members or weary officials who want more clarification on the goals and outcomes of these government initiatives. The positive benefits of tax-auction activities derived from this study can be used to further inform the public and help them connect how these programs have a direct impact on the quality of their own streets, neighborhoods and community.



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# The Full Report

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