Auditor Mingo's Abatement Study Fact Sheet

GENERAL RESULTS:

Regression analysis shows that higher use of property tax abatements is correlated with lower tax rates and higher property values in Franklin County.

The regression results imply that a one percentage point increase in a school district's abatement intensity would result in an $11 reduction in the annual tax bill for a $100,000 residential property.

While these tax savings are small, any reduction is arguably a positive outcome since that means tax incentives have generated enough growth in property values to offset the immediate drop in the tax base from an abatement and thus avoid a tax shift to non-abated properties.

PROPERTY TYPE STATISTICS:

Residential -

2,455 residential parcels received an abatement in 2015, meaning roughly 5 out of 6 parcels abated was residential (83.6%). However, residential parcels are smaller and less valuable so total tax savings for residential parcels were only $8.4 million or roughly 12.8% of total tax savings across these five property types. The $8.4 million in tax savings that residential parcels receive from abatements equals only 0.7% of property taxes paid by residential properties.

Average residential parcel with an abatement received $3,412 in tax savings annually.

Regarding residential parcels: 72% are condominiums, 21% are single family homes, and 7% are other residential properties. Average value of abated condominiums ($286,000) is more than twice the average value of abated single family homes ($115,000). Thus, 86% of total tax savings for residential properties goes to condominiums, 10% goes to single family homes, and 4% goes to other residential properties.

Commercial -

341 commercial parcels received abatements in 2015, 11.6% of all parcels receiving abatements. Tax savings totaled $24.9 million for commercial parcels, or 38.2% of total tax savings for all properties. Tax savings were $9.9 million for office buildings (15.2% of total), $8.3 million for apartments (12.7% of total), and $6.7 million for other-commercial properties (10.2% of total). Tax savings for office buildings is higher than the percentage receiving abatements, with 3.8% of office buildings receiving abatements and tax savings for these properties equaling 7.2% of property taxes paid.

Average office building received $59,910, apartment parcels $74,851, and other-commercial parcels $104,086.

Industrial -

140 industrial parcels received an abatement, but these properties received a total of $32 million in tax savings—nearly half of total tax savings in the county (49.0%). While only 3.3% of industrial parcels receive abatements, the tax savings they receive are equal to nearly a quarter of property taxes paid by industrial properties (24.7%).

Average industrial parcel with an abatement received $228,675 in tax savings.

Auditor Mingo's Abatement Study Fact Sheet

RECENT HISTORY OF ABATEMENT USAGE:

Countywide Usage -

Tax savings for apartments and residential properties has grown rapidly, equaling 0.01% of property taxes paid in the county in 2003, compared to 0.71% in 2015. However, since the 2008 peak in tax savings from abatements, tax savings for industrial properties has declined by more than a third (2.34 to 1.52%) and by more than half for office space (1.02 to 0.47%) and other-commercial properties (0.80 to 0.39%).

Municipality Specific Usage -

Urbancrest (57%), Obetz (41%), and Groveport (35%) have the highest percentage of value abated, with New Albany (12.4%) also high, but a distance behind. These 4 make up only 4.9% of the county's tax base, but 43.5% of total abated value. Grandview (3.9%), Grove City (3.8%), Columbus (2.2%) and Canal Winchester (1.6%) are next highest, but far behind. Dublin and Reynoldsburg don't use abatements.

Most municipalities don't abate residential properties, but Columbus (194 to 2,343) and Bexley (0 to 89) have driven a large increase in the past 10 years (rest of county declined 165 to 24).

School District Comparisons -

The school districts with highest abated properties are Hamilton School District (17.9% of the tax base abated) and Groveport-Madison (17.8%). A third school district heavily impacted by abatements is New Albany-Plain (8.7%). School districts with moderate impact on the tax base include Grandview Heights (3.4%), Columbus (3.2%), and South Western (2.7%). In all other school districts, the percent of the tax base granted abatement is less than 1.2%.

Abatements Impact on School Funding -

Taxes forgone from property tax abatements are highest in Groveport-Madison ($2,156 per pupil) and New Albany-Plain School District ($1,971). Other cities with high forgone revenues include Hamilton ($1,106 per pupil) and Grandview Heights ($1,091), while Columbus ($338) and South Western ($285) school districts have a lower but still significant level of property taxes forgone due to abatements. In all other school districts in the county, property tax savings from abatements are less than $200 per pupil.

Grandview's low % abated (3.4%) is almost as impactful ($1,091) as Hamilton's (17.9% abated, but $1,106 per pupil abated) because of higher valuation per pupil in the district (Grandview's parcel valuation per pupil $286,000, to Hamilton's $65,000).

Evaluation of Real Property Tax Abatements in Franklin County, Ohio

Lincoln Institute of Land Policy

Prepared for Franklin County, Ohio
March 24, 2017

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Table of Contents

Authors 2

Acknowledgements 3

Table of Contents 4

List of Tables 5

Executive Summary 6

Main Findings 9

Figures and Tables 28

Appendix A: Scope of Work A1

Appendix B: Local Government Structure and Finance in Ohio and Franklin County A2

Appendix C: Other Property Tax Abatements and Certain Other Business Tax Incentives A5

Appendix D: Review of Related Studies A9

Appendix E: Regression Analysis A13

Appendix F: Transparency of Property Tax Abatement Programs in Franklin County Cities A24

Appendix G: Description of Certain CRAs A26

Appendix Figure and Tables A31

Individuals Interviewed A41

References A42

List of Figures and Tables

Figure 1: Percentage of Franklin County Real Property Assessed Value by Class of Abatement, 1986-2015

Table 1: Share of Tax Revenue by Source, Franklin County Governments, 2002 and 2012

Figure 2: Approval Processes for Property Tax Abatement Programs

Figure 3: Percent of Tax Savings from CRAs and EZs (1998-2015)

Table 2: Property Tax Abatement Program Comparison

Table 3: Selected Characteristics of Subject Cities

Table 4: Property Tax Abatements in Franklin County (2015), by Property Type

Table 5: Residential Property Tax Abatements (2015)

Figure 4: Tax Savings from Abatements as a Percent of Total Taxes Paid in Franklin County (1999-2015)

Table 6: Number of Parcels Receiving Property Tax Abatements, by Year

Figure 5: Abated Market Values as a Percent of Each City's Tax Base (2015)

Table 7: Changes in the Use of Property Tax Abatements from 1998 to 2015, by City

Table 8: The Impact of Property Tax Abatements on School Districts (2015)

Table 9: School District Real Property Mills, Selected Years 1998-2015

Table 10: Effective Tax Rates by Selected Taxing Districts, Selected Years 1998-2016

Table 11a: Number of Companies that Met Targets in Property Tax Abatement Agreements by City, Fiscal Year 2015

Table 11b: Total Amount of Promised Jobs/Payroll/Investment vs. Total Amount of Realized Jobs/Payroll/Investment, Fiscal Year 2015

Appendix Figure 1: Sources of Local Government Revenue, Ohio and U.S., 2013

Appendix Table 1: Descriptive Statistics for Variables Used in School District Fiscal/Economic Impact Regression Analysis

Appendix Table 2: Fiscal Impact Regression Results Using Franklin County School District Data

Appendix Table 3: Fiscal Impact Regression Results Using Franklin County School District Data

Appendix Table 4: Fiscal Impact Regression Results Using Franklin County School District Data

Appendix Table 5: Economic Impact Regression Results Using Franklin County School District Data

Appendix Table 6: Descriptive Statistics for Variables Used in Census Tract Economic Impact Regression Analysis

Appendix Table 7: Economic Impact Regression Results Using Franklin County Census Tract Data

Appendix Table 8: Market Values Abated through CRA and EZ Abatements, by City (2015)

Appendix Table 9: Number of Parcels with CRA and EZ Abatements, by City (2015)

Executive Summary

Property tax abatements are used by state and local governments throughout the United States to attract business investment, create jobs, eliminate blight, or pursue other goals. This report analyzes the effectiveness of two major property tax abatement programs in Franklin County, Ohio.

- **Community Reinvestment Areas (CRAs)** provide property tax exemptions of up to 100 percent for up to 15 years in designated geographic areas for owners who make improvements to their property. While most of the property value abated from CRAs is for industrial and commercial properties, cities have the option to include residential properties as well.
- **Enterprise Zones (EZs)** provide property tax exemptions of up to 75 percent for up to 10 years for industrial and commercial properties. While EZs officially have geographic boundaries, they cover most of the county's land area and thus are not geographically targeted in practice.

In 2015, communities in Franklin County abated $59.1 million in property taxes under CRAs and $6.3 million under EZs, which together is equal to 3 percent of total property taxes paid in the county. Under both programs, city councils or county commissioners approve the creation of new zones and any agreements with individual companies.

Regression analysis shows that higher use of property tax abatements is correlated with lower tax rates and higher property values in Franklin County.

The analysis looks at how differences across school districts in *abatement intensity*—abated value as a percent of total market value—affects tax rates and property values. The study finds that a one percentage point increase in a school district's abatement intensity, such as from 2 percent of market value to 3 percent, is correlated with a:

- 1.6 percent decrease in a school district's mill rate for real property
- 0.32 percentage point decrease in the effective tax rate on residential property
- 1.5 percent increase in the total market value of property in the school district

The regression results imply that a one percentage point increase in a school district's abatement intensity would result in an $11 reduction in the annual tax bill for a $100,000 residential property. While these tax savings are small, any reduction is arguably a positive outcome since that means tax incentives have generated enough growth in property values to offset the immediate drop in the tax base from an abatement and thus avoid a tax shift to non-abated properties.

The analysis uses a regression-based difference-in-differences methodology, which economists view as one of the best approaches to evaluating the impact of public policies. However, the analysis suffers from the omission of data on some other tax incentives, most notably Job Creation Tax Credits (JCTCs) and performance incentives that cities provide companies to offset their local wage tax. If companies that receive property tax abatements also tend to receive these income tax incentives, then part of the benefits that are attributed to property tax abatements could result from those other incentives.

In some cases, companies must sign an abatement agreement with targets for investment, job creation, and/or payroll that they pledge to meet in return for receiving tax incentives. ***An analysis of data from Tax Incentive Review Council (TIRC) meetings in 2015-16 showed that at least 2/3rd of companies were meeting their goals for new full time jobs, retained full time jobs, new payroll, and investment. Because of the potential for municipal income tax revenue, cities prioritize company promises on payroll and 76 percent of companies met their promises for new payroll.***

Abatement agreements are required for industrial or commercial properties that receive abatements in all EZs or in CRA zones created after 1994. The law does not require agreements for abatement for residential properties or for industrial or commercial properties in pre-1994 CRA zones; owners will receive abatements so long as they meet the criteria for an abatement set out in the city or county ordinance. In 2015, there were over one hundred CRA and EZ abatement agreements subject to TIRC review. Note that in 2015 there were also 189 commercial and industrial parcels that received abatements in pre-1994 CRA zones, which do not require abatement agreements.

While some companies fall short of their promises on jobs, payroll, or investment, other companies significantly exceed their targets. Within each city, companies *collectively* almost always meet the targets set in abatement agreements, which is shown by comparing the total promises for all companies with an agreement in each city (on jobs, payroll, or investment) with the verified outcomes for all companies with agreements in each city (on jobs, payroll, or investment).

TIRC review establishes whether a company is meeting the terms of its abatement agreement, but cannot determine whether an abatement was the decisive factor that led a company to locate or remain in a certain community. If the company would have chosen the same location even without an abatement, then the abatement itself added zero jobs and payroll. In contrast, the regression analysis used in this report is specifically meant to compare actual tax rates and property values to a counterfactual where no abatements were used, and thus does a better job of measuring the economic and fiscal impact of using tax abatements.

Finding reliable information on abatements in Franklin County is challenging.

Ohio state agencies, Franklin County, and local governments in Franklin County provide a patchwork of data on property tax abatement programs including CRAs and EZs. General program information, such as guidelines and eligibility, as well as information about program outcomes for job creation, is widely available. However, meaningful data on the cost of these abatements in terms of forgone revenue is more elusive, and none of seven focus cities (Columbus, Gahanna, Grove City, Hilliard, New Albany, Upper Arlington, and Westerville) in this report include easily accessible data on forgone revenue on their websites. It should also be noted that while 18 states have tax expenditure budgets that include property taxes, Ohio does not.

Other findings on the use of property tax abatements (CRAs and EZs) in Franklin County include:

- *Roughly five out of six parcels receiving abatements are residential (condominiums, single-family homes or multi-family units), but most tax savings from abatements go to business properties.* In 2015, there were 2,455 residential parcels receiving property tax abatement compared to only 140 industrial properties with abatements. However, nearly half (49%) of the tax savings from abatements go to industrial properties, which on average receive a tax savings of $228,675 per

parcel. Only 13 percent of the total tax savings goes to residential properties, which receive an average net tax savings per parcel of $3,412. Nearly all residential parcels with abatements are in Columbus (2,343 parcels) and Bexley (89).

- *The use of property tax abatements in Franklin County has changed considerably during the last two decades*. Tax savings as a percent of total property taxes paid in the county grew rapidly from 1999 to 2002, peaked in 2008, and then declined through 2015. In 2015, tax savings from CRAs and EZs equaled 3 percent of property taxes paid—the same as in 1999.

- *While the state made important changes to the CRA program in 1994, most tax savings from CRA abatements in 2015 were realized in pre-94 CRA zones subject to the earlier program rules.* Of the $65.4 million in tax saving from CRA and EZ abatements in 2015, 52 percent were in pre-1994 CRA zones, 38 percent were in post-1994 CRA zones, and 10 percent were in EZs.

- *The use of property tax abatements varies widely across cities in Franklin County*. On the high end, three cities south of Columbus make very heavy use of abatements: Urbancrest (57.0% of city's tax base was abated in 2015), Obetz (40.6%), and Groveport (34.6%). New Albany (12.4%) also makes heavy use of abatements. Another four cities use abatements moderately: Grandview Heights (3.9% of city's tax base is abated), Grove City (3.8%), Columbus (2.2%), and Canal Winchester (1.6%). In all other cities in the county, the percent of the tax base abated is 1.1 percent or less, including several cities where abatements are less than a quarter of a percent of the city's tax base. In 2015, Dublin and Reynoldsburg were the only two cities in Franklin County with populations above 2,000 that did not make any use of abatements.

- *One of the largest property tax abatements in Franklin County in the last 29 years went to the Nationwide Arena in the City of Columbus.* It received a 15-year, 99 percent reduction in property taxes through a CRA property tax abatement worth about $4 million in tax savings annually. When that abatement expired in 2016, the Ohio Legislature explicitly exempted the arena from taxation by amending a state statute regarding convention centers.

- *The use of tax increment financing (TIF) has grown very rapidly in the past ten years, and TIF is now the largest property tax incentive in Franklin County in terms of property value covered by each program.* While an evaluation of TIF is beyond the scope of this report, future studies should investigate the impact of TIF in Franklin County.

Introduction

State and local governments throughout the United States use a variety of tax incentives and other subsidies to attract and retain business investment, create jobs, reduce blight, and pursue other goals. While tax incentives have the potential to promote economic development, those benefits must be weighed against the costs of forgone tax revenue, which can reduce the funds available for schools and other local public services and/or increase tax rates and shift the tax burden to taxpayers that have not received incentives. The challenge for evaluating the effectiveness of tax incentives is that the counterfactual is unknown. When a business locates in a community and receives a tax incentive, would they still have chosen the same location without any incentives? While many people assume that tax incentives play a decisive factor in tipping business location decisions, research shows that businesses would often choose the same location even without incentives.

The purpose of this study is to test whether or not property tax abatements in Franklin County have increased economic activity in the county (an economic impact), or increased property tax rates and thus increased the tax burden for property owners that have not received abatements (a fiscal impact).[1] The study also investigates the extent to which companies with abatement agreements have met targets for investment, job creation, and payroll included in those agreements, and the transparency of the information on property tax abatements for taxpayers in Franklin County. Finally, the report includes an analysis of how Community Reinvestment Areas (CRAs)[2] and Enterprise Zones (EZs)[3] have been used in the county and background information on both programs.

The value of real property in Franklin County (reported by the county auditor to the Ohio Department of Taxation) exempted from property taxation by tax abatements was $2.7 billion in 2015 as compared to $85 million in 1986.[4] Figure 1 shows the value of property abated through CRAs, "EZs and other", and through tax increment finance (TIF) as a percent of total assessed value in the county from 1986 to 2012. CRA exempt value as a percent of total assessed value rose from 1986 to 2009, then fell through 2015, equaling just under 2 percent in 2015. The value of property abated through "EZs and other" was well under one percent of total assessed value in the county for all years. Tax increment finance (TIF), which Ohio classifies as a property tax exemption, is the most important form of property tax abatement in Franklin County. Up until 1997 TIF accounted for a very small proportion of total assessed value, but after that year it increased markedly and as of 2014-2015 it was still increasing steeply. In 2015, real property abatement attributable to TIF was about 5.5 percent of total assessed value of real property.

Community reinvestment areas and enterprise zones can be established either by counties or municipalities. Providing property tax abatements has very different implications for different local governments depending upon their funding sources. As shown in Table 1, school districts in Franklin County obtain nearly all their tax revenue from the property tax, while the county government obtains about 72 percent of its tax revenue from the property tax. However, cities in Franklin County obtain only 8 percent of their tax revenue from the property tax---most of their tax revenue is derived from income

[1] Appendix A includes the full scope of work for this report.
[2] ORC 3735.65 through 3735.70.
[3] ORC 5709.61 through 5709.69.
[4] Derived from Ohio Department of Taxation, Valuation of Real Property Exempted by Tax Abatements, by Class of Abatement and County, Calendar Year 2015," PE3.

taxes. It was clear from both interviews and the analysis of the data from Tax Incentive Review Councils (TIRCs) that this fiscal structure affects municipal behavior. We heard more than once that local economic development officials made use of property tax abatements in part to increase municipal income tax revenue. We also heard that the company promises that TIRC review placed the highest priority on were those regarding new payroll.

Key Features of Community Reinvestment Areas and Enterprise Zones

Community Reinvestment Areas (CRAs) provide real property tax exemptions to property owners who make improvements to their property in specific geographic areas. CRAs are available for residential, commercial, and industrial remodeling or new construction. The program, first authorized in 1977, underwent significant changes in 1994. Ohio designates CRAs as either pre-1994 CRAs or post-1994 CRAs. In the description below, post-1994 CRAs are described first (see Figure 2).

Cities, villages, and counties are authorized to designate CRA zones and set terms and the extent of the property tax abatements for the designated CRA. The legislative authority of the local governments may adopt a resolution establishing the CRA after public notification. The Ohio Development Services Agency approves proposed CRAs that meet the legal requirements of the statute. To establish a CRA the municipality or county must find that "the area included in the description is one in which housing facilities or structures of historical significance are located and new housing construction and repair of existing facilities or structures are discouraged."[5]

Completion of a housing survey is one of the first steps in creating a CRA. There must be a housing officer for each CRA, one of whose responsibilities is to accept and act on tax exemption applications from property owners within the CRA. A CRA housing council is responsible for an annual inspection of abated properties within the CRA. After ODSA signs off on a CRA, the authorized local governments can approve exemptions for residential, commercial, and industrial facilities (Ohio Development Services Agency 2012). Owners of property within the CRA must apply for an exemption. The housing officer is responsible for finding if a property meets the requirements for an exemption for a residential CRA project. However, if any of the improvements will be used for commercial or industrial use, the municipality or county must enter into a written agreement which must be approved by the legislative authority, and in some cases, overlying school districts.

Although the law was changed in 1994, pre-1994 CRA zones still exist. Although tax abatements in pre-1994 CRAs are time-limited, the zones themselves can exist indefinitely. However, no new pre-1994 CRA zones may be established. In 2015, most tax savings from CRA abatements were still made in pre-1994 CRA zones subject to the earlier program rules (see Figure 3). Of the $65.4 million in tax saving from CRA and EZ abatements in 2015, 52 percent were in pre-1994 CRA zones, 38 percent were in post-1994 CRA zones, and 10 percent were from EZs.

Generally, there is more flexibility for abatement requirements for the post-1994 CRAs. For example, property tax abatement for residential remodeling must be 100 percent for a pre-1994 CRA, but can be any percentage up to 100 percent for a post-1994 CRA. As another example, the term of property tax abatement for new commercial and industrial property within a pre-1994 CRA is up to 15 years as specified in the resolution establishing the CRA, but up to 15 years as negotiated in a CRA agreement for

[5] Ohio Rev. Code 3735.65 (B).

a post-1994 CRA. In another respect, post-1994 CRAs have more stringent requirements. In the case of post-1994 CRAs, school board approval is required if the proposed exemption is greater than 50 percent.

The enterprise zone (EZ) program offers companies property tax exemption on new real property and allows firms to qualify for a reduction in the corporate franchise tax.[6] All the property inside an enterprise zone's perimeter must be included in the zone and the zone must meet a minimum population threshold. Exemptions are granted only for commercial and industrial properties; residential properties are not eligible. Ohio enacted its first EZ law in 1982, but there have been substantial changes over time.

One way that Ohio's EZ program is different from the enterprise zone programs in most states is that it is not generally geographically targeted. Rather, enterprise zones, or a city's set of enterprise zones, often encompass nearly the entire city. For example, the three EZs in Columbus encompass about 97 percent of the city's land area. Similarly, Grove City's enterprise zone is coterminous with the city. However, Grove City has no enterprise zone agreements.

Enterprise zones can either be established as distressed based zones (also called full authority zones) or non-distressed based zones (limited authority zones). They can be designated either by a city or by a county. Evidence of specific levels of distress (e.g., at least 10 percent population loss between 1980 and 2000) are required for the Ohio Development Services Agency (ODSA) to certify the EZ if it is a full authority or distressed based zone. If the zone is a limited authority zone, the EZ must satisfy certain population criteria. Once a zone is certified, a municipality or county can enter agreements with qualifying enterprises for incentives tied to investment and hiring.

Inside a municipality, the maximum exemption from property taxation is 75 percent of the assessed value for up to 10 years, or an average of 60 percent over the term of the enterprise zone agreement. In the unincorporated area of the county the maximum exemption is 60 percent of the assessed value of the property for up to ten years, or an average of 50 percent over the term of the enterprise zone agreement. Each enterprise zone must have an enterprise zone manager who serves as the general administrator of the zone.

Two recent changes have reduced the tax exemption benefits of EZs. Under Ohio law, EZs provide exemption from taxation on both real and tangible personal property. However, Ohio eliminated the Ohio tangible personal property tax in 2005. Also, a reduction in the corporate franchise tax is tied to enterprise zones, but the state's 2005 tax reform included a phase out of that tax. These changes may have reduced the attractiveness of EZs and contributed to the slowdown in their adoption. From 2006 to 2011, Ohio only adopted only three new enterprise zones (County Commissioners Association of Ohio 2016, 27).

As Table 2 illustrates, substantial similarities exist between commercial or industrial CRAs and EZs. They are each used by municipalities or counties to retain or attract companies which generate investment or provide jobs. Another similarity is that agreements in both CRAs and EZs are subject to annual review by Tax Incentive Review Councils (TIRCs). TIRCs review compliance with agreements and recommend

[6] The only exception to the requirement that buildings and improvements to existing land and buildings be new in order to be eligible for tax exemption under the EZ statute is for large manufacturing facilities or properties in a brownfield site (County Commissioners Association of Ohio 2016, 33).

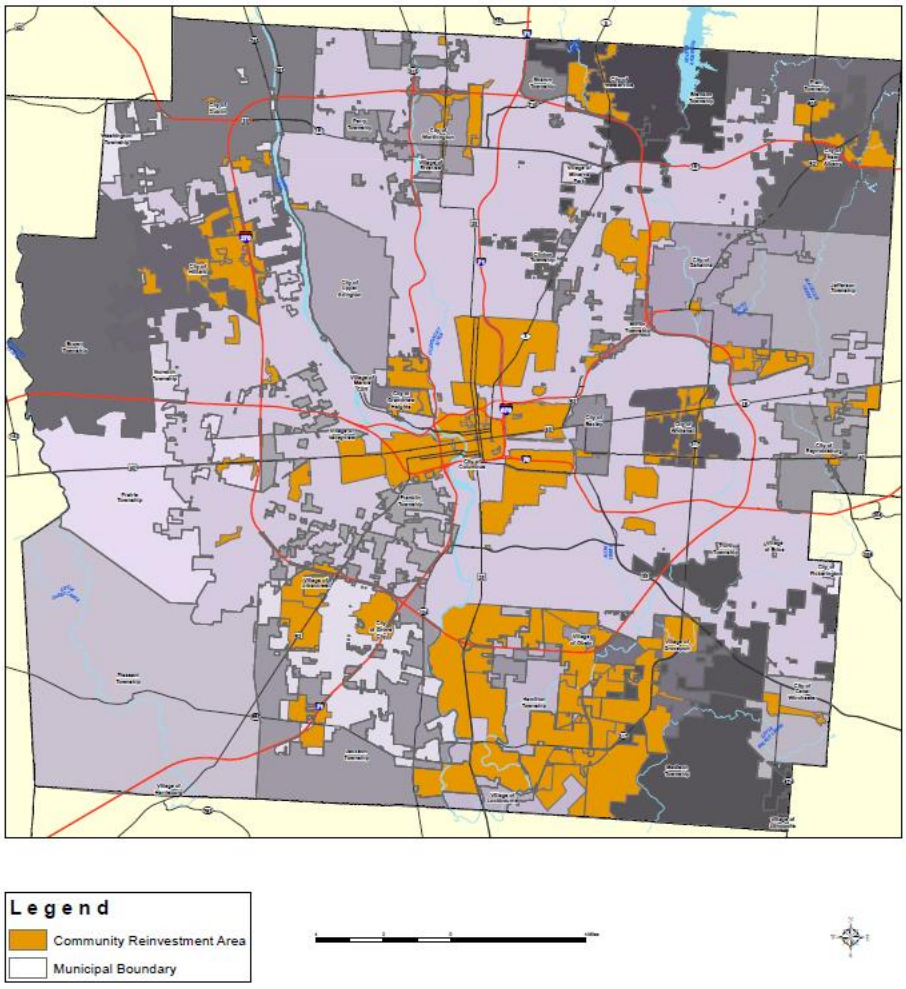
continuation, modification, or cancellation of the agreements. A summary of information from a compilation of many 2015-16 Franklin County TIRC reports will be presented in a later section.

Use of CRAs and EZs Varies within the County

Cities within Franklin County vary a great deal, so not surprisingly, their use of property tax abatement also varies. Table 3 presents basic information about Columbus and the six smaller cities that are the focus of our study as well as for other cities in Franklin County and two villages (Obetz and Urbancrest) which grant property tax abatements. The table also gives basic information from the Ohio Development Services Agency website about the number of CRAs, CRA agreements, EZs and EZ agreements in each city. Recall that residential use of CRAs does not require an agreement and pre-1994 CRAs do not require agreements.

Map

Community Reinvestment Areas in Franklin County, OH



Source: Franklin County Auditor 2016

Among our focus cities, Columbus, Gahanna, Grove City, Hilliard, and Westerville all use pre-1994 CRAs. Columbus has the most CRAs (38) but only seven CRA agreements. New Albany has 4 CRAs but 29 CRA agreements—the highest number of agreements in any of our sample of cities. Since CRA agreements are only used for industrial or commercial purposes, this indicates a greater emphasis on non-residential development and extensive reliance on CRAs, particularly given its small population. Grove City and Groveport are unique within this group in using only pre-1994 CRAs. That explains the fact that each city has several CRAs but no CRA agreements.

Overall, use of EZs is drastically lower than use of CRAs as reflected in the last column of this table. Although all but the cities of Gahanna and Westerville have EZs, most of the cities have no EZ agreements. Since agreements are required to make use of an enterprise zone, this indicates that most of these cities are not using enterprise zones as an economic development tool. Hilliard has three EZ agreements while Columbus has 57 EZ agreements.

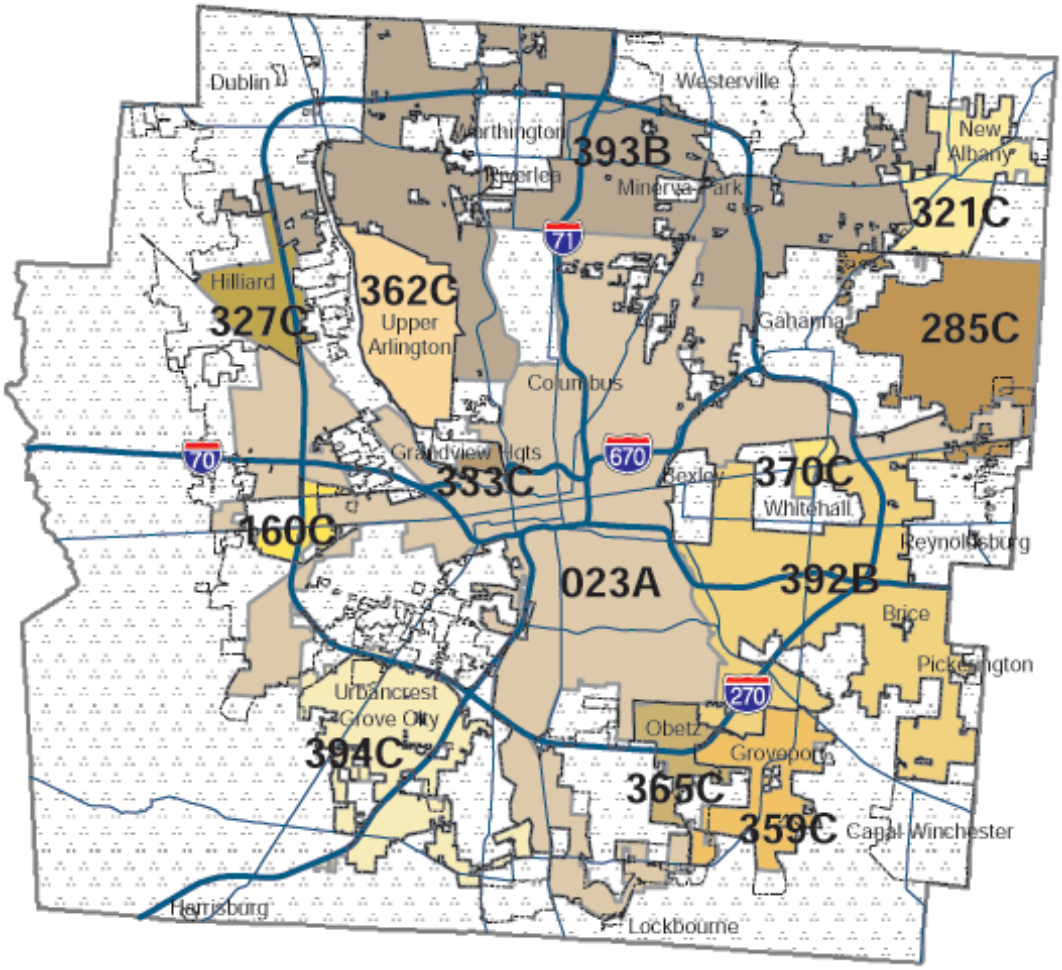
The map on the previous page shows the current location of CRAs in Franklin County. As shown, although substantial areas of the county are in CRAs, there are also substantial areas of the county which are not in a CRA. Accordingly, this program can properly be considered a geographically targeted economic development program.[7]

The map on the next page shows current Franklin County enterprise zones. Because the zones cover such a substantial geographic area, sometimes as much as an entire city as noted above, enterprise zones in Franklin County cannot be considered a type of geographically targeted economic development program. The letters next to the zone numbers indicate the type of zone: “A” indicates a full authority/distressed based zone designated by a municipality, “B” indicates a limited authority/non-distressed based zone designated by a municipality, “C” indicates a limited authority/non-distressed based zone designated by the county, and “D” indicates a full authority/distressed based zone designated by the county.

Only Columbus and Hilliard currently use enterprise zones. Hilliard’s enterprise zone and two of Columbus’ enterprise zones are limited authority or non-distressed based zones. Columbus’ enterprise zone 023 is a full authority or distressed-based zone.

[7] Upon occasion CRAs are not geographically targeted. Appendix G, which describes certain important CRAs in Franklin County, describes the Urbancrest CRA which encompasses the entire Village of Urbancrest.

Map
Enterprise Zones in Franklin County



Source: Ohio Development Services Agency 2016d

The Use of Property Tax Abatements in Franklin County

This section presents a variety of statistics about the use of CRA and EZ abatements in Franklin County, including the types of properties that receive abatements, changes in the use of abatements over time, and variations in the use of abatements across cities and their impact on school districts. The analysis uses a variety of data sources provided by the Franklin County Auditor's office, described in more detail at the end of Appendix E.

Types of Properties that Receive Tax Abatements. Table 4 shows how abatements were used for five major types of properties in 2015. The key finding is that the great majority of parcels receiving abatements are residential, but most tax savings go to business properties because they are typically much larger and more valuable properties.

There were 2,455 residential parcels that received an abatement in 2015, which means roughly five out of every six parcels receiving an abatement were residential (83.6%). However, because residential parcels are smaller and less valuable, total tax savings for residential parcels were only $8.4 million or roughly one-sixth of total tax savings across these five property types (12.8% of total). The average residential parcel with an abatement received $3,412 in tax savings.

In contrast, only 140 industrial parcels received an abatement, but these properties received a total of $32 million in tax savings—nearly half of total tax savings in the county (49.0%). The average industrial parcel with an abatement received $228,675 in tax savings.

Table 4 also shows data on abatements for three types of commercial properties: office space, apartments, and other commercial properties. In total, there were 341 commercial parcels with abatements in 2015, 11.6 percent of all parcels receiving abatements. Tax savings totaled $24.9 million for commercial parcels, or 38.2 percent of total tax savings for all properties. Tax savings were $9.9 million for office buildings (15.2% of total), $8.3 million for apartments (12.7% of total), and $6.7 million for other commercial properties (10.2% of total). Average tax savings were $59,910 for office buildings, $74,851 for apartments, and $104,086 for other commercial properties.

The bottom three rows in the table look *within* each category of properties to see the impact of property tax abatements. These data again show the greater importance of abatements for industrial properties as compared to the other four types of properties. While only 3.3 percent of industrial parcels receive abatements, the tax savings they receive are equal to nearly a quarter of property taxes paid by industrial properties (24.7%). Abatements are also more important for office buildings, with 3.8 percent of office buildings receiving abatements and tax savings for these properties equaling 7.2 percent of property taxes paid by office buildings. The greater importance of abatements for industrial properties and office buildings is not that surprising since these two categories encompass most export base facilities that typically receive the largest share of tax incentives.

Less than one percent of parcels from the other three property types receive abatements, with 0.9 percent of other commercial parcels receiving abatements, and 0.6 percent of apartments and residential parcels receiving abatements. While residential parcels account for five out of six parcels receiving abatements, that high share mainly reflects the fact that there are far more residential parcels than any other type of property. The $8.4 million in tax savings that residential parcels receive from abatements equals only 0.7 percent of property taxes paid by residential properties.

Table 5 breaks out residential abatements in more detail. Of all residential parcels with abatements, 72 percent are condominiums, 21 percent are single family homes, and 7 percent are other residential properties. However, the average value of abated condominiums ($286,000) is more than twice the average value of abated single family homes ($115,000). Thus, 86 percent of total tax savings for residential properties goes to condominiums, 10 percent goes to single family homes, and 4 percent goes to other residential properties.

Changes in the Use of Abatements. The use of property tax abatements in Franklin County has changed considerably over the past two decades. Tax savings as a percent of property taxes paid in the county grew rapidly from 1999 to 2002 (3.10 to 3.97%), peaked in 2008 (4.61%), and then declined through

2015 (see Figure 4). After this growth and subsequent decline, tax savings equaled the same percentage of taxes paid in 2015 as they did in 1999—3.10 percent in both years.

Looking at total tax savings obscures major changes in the use of tax abatements for the five categories of properties receiving abatements. Tax savings for apartments and residential properties has grown rapidly since 2003. Tax savings for apartments and residential properties equaled 0.01 percent of property taxes paid in the county in 2003, compared to 0.71 percent percent in 2015. In contrast, since the 2008 peak in tax savings from abatements, tax savings for industrial properties has declined by more than a third (2.34 to 1.52%) and by more than half for office space (1.02 to 0.47%) and other commercial properties (0.80 to 0.39%).[8]

Table 6 shows the annual change in the number of parcels receiving property tax abatements. The number of industrial, office, and other commercial parcels that received abatements all grew significantly from 1998 to 2008 and then declined through 2015. In contrast, the number of apartment and residential parcels that receive abatements has grown dramatically from 2003 to 2015.

The Use of Abatements Among Municipalities. The use of property tax abatements varies widely across municipalities in Franklin County. For example, Figure 5 presents data on the current use of abatements in each city or village, plus changes in the use of abatements from 2010 to 2015. The graph splits municipalities into four groups based on how heavily they use abatements.[9]

At the high end, three municipalities south of Columbus make very heavy use of abatements, with the market value of abated properties equal to one-third to three-fifths of the potential tax base in each: Urbancrest (57.0% of village's tax base is abated), Obetz (40.6%), and Groveport (34.6%). In addition, New Albany (12.4%) also makes heavy use of abatements, but far less than the preceding three municipalities. While these four small municipalities collectively account for only 4.9 percent of the county's tax base and 1.7 percent of the county's population, they account for 43.5 percent of total abated market values in the county.

All other municipalities in Franklin County use abatements far less than Urbancrest, Obetz, Groveport, and New Albany. Below the top four municipalities, Grandview Heights (3.9% of city's tax base is abated) and Grove City (3.8%) have the highest use of abatements in the county, followed by Columbus (2.2%) and Canal Winchester (1.6%). In all other municipalities in the county, the percent of the tax base abated is 1.1 percent or less, including several cities where abatements are less than a quarter of a percent of the city's tax base. In 2015, Dublin and Reynoldsburg were the only two municipalities with populations above 2,000 not using abatements.

Another important distinction between municipalities is the types of properties that receive tax abatements. In most municipalities, abatements are used solely for industrial and commercial properties. However, a few cities also use abatements for residential properties and apartment buildings, with the highest share of abated values for these types of properties in Bexley (86% of abated

[8] Note that these percentages and those shown in the graph all use the same denominator—total property taxes paid in Franklin County for all properties. Thus, the percentages for the five categories add up to total tax savings for all properties. Tax savings from abatements equaled 3.1 percent of property taxes paid in 2015, which included apartment and residential properties (0.71%), plus industrial (1.52%), plus office space (0.47% percent), plus other commercial properties (0.39%).

[9] More detailed data for each city is shown in Appendix Tables 8 and 9.

value is for residential parcels), Columbus (37% for residential, 22% for apartments), Grandview Heights (42% for apartments), and Gahanna (17% for residential). Note that the large increase in the number of residential parcels receiving abatements shown in Table 5 is driven entirely by Columbus and Bexley. From 2005 to 2015, the number of residential parcels receiving abatements grew from 194 to 2,343 in Columbus, from 0 to 89 in Bexley, and declined from 165 to 24 in all other municipalities in the county.

Recent trends in the use of abatements for individual municipalities follow the entire county trend per Figure 4. From 2010 to 2015, the use of abatements relative to each municipality's tax base grew for only three of the seventeen municipalities shown in Figure 5. The largest increase was in Grandview Heights where the percent of tax base abated grew 2.3 percentage points, from 1.6 to 3.9 percent. The other increases were in Canal Winchester (0.7% to 1.6% of tax base abated) and New Albany (12.0% to 12.4%).

In all other municipalities with populations above 2,000 as well as in unincorporated areas where county commissioners make abatement decisions, the use of abatements declined from 2010 to 2015. Some of the largest declines were among the heaviest users of abatements in the county, including Groveport (45.3% to 34.6%) and Urbancrest (62.2% to 57.0%). However, the most notable declines relative to their use of abatements in 2010 were in Grove City (9.0% to 3.8%), Gahanna (4.1% to 0.9%), Reynoldsburg (2.1% to 0.0%), and Hilliard (2.7% to 1.1%).

Figure 5 focuses on more recent changes since 2010, but Table 7 provides a more long-term picture with data for each municipality back to 1998. Despite significant growth county-wide in the use of abatements from 1998 to 2009, this growth was driven almost entirely by four municipalities. For example, Table 7 shows that from 1998 to 2010, abated market values for the county as a whole grew from $833 million to $2.75 billion. Nearly half of this growth was in Columbus ($799 million increase in abated values), and the rest of the growth was mainly in Groveport ($414 million increase), New Albany ($236 million increase), and Obetz ($231 million increase). Smaller increases occurred in twelve other municipalities that collectively added $321 million in abated values from 1998 to 2010, while abated values fell by $86 million in Reynoldsburg and Dublin. The more recent decline in abated values county-wide is spread more evenly across cities, with the largest drops from 2010 to 2015 in Grove City ($157 million), Groveport ($119 million), Gahanna ($93 million), and Columbus ($77 million).

The Impact of Abatements on School Districts. In Franklin County, roughly two-thirds of property tax revenues flow to school districts.[10] Thus, in the absence of school compensation agreements, school districts bear most of the burden from any declines in property tax revenues due to tax abatements. Table 8 provides information on the impact of property tax abatements in each school district in the county, including data on the percent of each district's tax base abated away and property tax revenues forgone (both measured on a per pupil basis).

Wide differences appear across school districts in the impact of abatements on their tax bases. The differences reflect the wide-ranging use of abatements across cities described above. Measured by the percent of each school district's tax base abated away, the impacts in Hamilton School District (17.9% of the tax base granted abatement) and Groveport-Madison (17.8%) are far more than any other school districts in the county. Abatements offered by the cities of Groveport and Obetz greatly affect these two school districts. These are two of the three municipalities with very heavy use of abatements in Franklin

[10] Based on an analysis of data from the 2012 Census of Government Finances.

County. A third school district heavily impacted by abatements is New Albany-Plain (8.7% of tax base abated away). School districts where abatements have a moderate impact on the tax base include Grandview Heights (3.4%), Columbus (3.2%), and South Western (2.7%). In all other school districts, the percent of the tax base granted abatement is less than 1.2 percent.

Table 8 also looks at the tax savings from property tax abatements in each school district on a per pupil basis. Notable differences exist between the school districts where the largest share of the tax base is abated and districts with the highest forgone revenues per pupil. Taxes forgone from property tax abatements are highest in Groveport-Madison ($2,156 per pupil) and New Albany-Plain School District ($1,971). Other cities with high forgone revenues include Hamilton ($1,106 per pupil) and Grandview Heights ($1,091), while Columbus ($338) and South Western ($285) school districts have a lower but still significant level of property taxes forgone due to abatements. In all other school districts in the county, property tax savings from abatements are less than $200 per pupil.

Differences across school districts in property values per pupil are the main reason why some of the districts where the largest share of the tax base is abated are not the most heavily impacted when looking at taxes forgone per pupil, and vice versa. For example, Grandview Heights has the largest tax base per pupil in Franklin County ($286,000 in property value per pupil), so even though abated values are only 3.4 percent of the district's tax base, the district's high property values mean that tax savings are high on a per pupil basis ($1,091). In contrast, Hamilton has the second smallest tax base per pupil in the county ($65,000 in value per pupil), so even though 17.9 percent of the school district's tax base receives abatement—which is highest in the county—taxes abated are a comparatively modest $1,106 per pupil.[11]

Economic Impact

The expectation for each property tax abatement granted is some increase in property value, investment, employment and/or payroll. The Tax Incentive Review Council (TIRC) process monitors whether a promised increase occurs. What is much more difficult to ascertain is whether such an economic impact would have taken place absent the property tax abatement. For example, consider an entrepreneur with strong family ties to a community in the Columbus metro area. If that entrepreneur were considering a business opportunity, it might be a foregone conclusion that the establishment of the new business occurs in that community. For that entrepreneur, a property tax abatement would be a welcome, but certainly not a decisive, factor in his or her location decision. On the other hand, an entrepreneur with no family ties to the Columbus area, making decisions about location of generic office space, might find property tax abatement an important determinant of a location decision. Determining whether property tax abatements on balance are causing firms to locate in a certain community and thus increase property value is a question beyond the realm of the TIRC process.

Multiple regression analysis provides a solid methodology for estimating the economic impact of economic development programs. Through this common statistical technique used by economists, one can estimate whether the use of an economic development program has a statistically significant positive effect on investment, property value, employment, or wages. Conducting such analysis requires that the researcher assemble an appropriate data set with data on the economic indicator that the

[11] Taxable property values per pupil come from the Ohio Department of Taxation (SD1 table): http://www.tax.ohio.gov/tax_analysis/tax_data_series/school_district_data/publications_tds_school.aspx.

program is expected to affect, on the economic development program being evaluated, and on control variables that are also expected to have a significant influence on the economic indicator under study.

As an example of the use of multiple regression analysis to detect the economic impact of an economic development incentive, Andrew Hultquist (2014) conducted such an examination of Ohio's Enterprise Zone (EZ) and Job Creation Tax Credit (JCTC)[12] programs on employment and wage growth in Ohio zip codes between the years of 2000 to 2004. This was one of the very few studies we found that specifically focused on the economic impact of EZs in Ohio. Hultquist's relevant findings indicate that the cumulative value of both JCTC and EZ incentives exerts no influence on aggregate employment in a zip code, and only a very modest positive influence on wages. One regression equation showed that a $1 million increase in total incentive value (which includes both Job Creation Tax Credits and Enterprise Zone incentive agreements) in an Ohio zip code, in both the previous year and current year, increased total wages in that Ohio zip code in the current year by a "modest" $2,000 (Hultquist 2014, 216-217).

When disaggregating the JCTC and EZ incentives, Hultquist finds that a $1 million increase in EZ abatement in a zip code correlates with a very small one-twentieth increase in a manufacturing job within the zip code. Alternatively, a $1 million increase in tax credits through the JCTC correlates with a $45 million increase in trade/transportation wages and nearly 900 jobs. As Hultquist notes, this large difference between the influence of JCTC and EZ incentives arises because the typical JCTC firm tax credit was about $150,000, while the typical EZ firm property tax abatement was about $5.5 million. Thus, he appropriately cautions against making out of sample projections for the values of these incentives.

The analysis offered here broadly follows the Hultquist approach, and previous regression-based studies of the economic impact of property tax abatement. The economic variable we investigate is the market value of property. We could not, unfortunately, obtain employment or payroll data to use in our data set because it is not widely available for the smaller units of geography used in this analysis of only Franklin County. In addition, we investigated the impact of CRAs and EZs, instead of JCTCs and EZs as Hultquist did. Because of the potential importance of JCTCs, we would have liked to obtain that data to use as a control variable, but were unable to do so before this study was due for completion.

Appendix E provides considerable detail on the regression analysis we used to estimate the economic impact of property tax abatements in Franklin County. In summary, our regression analysis finds that the use of property tax abatements in Franklin County did have a positive impact on property values. For example, in school districts we found that a one-percentage-point increase in the use of CRA and EZ abatements as a percentage of the market value of a Franklin County school district's property exerted about a 1.5 percent increase in the total market value of the school district's property (as reported in Appendix Table 5). When using the mean value of this property tax base over all school districts and years of about $5.4 billion (as reported in Appendix Table 1), this translates into a rise of about $81 million. Furthermore, in Census Tracts we found that a one-percentage-point increase in the use of CRA and EZ abatements as a percentage of the market value of a Franklin County school district's property exerted about a 0.6 percent increase in the market value of the school district's property (as reported in Appendix Table 7). When using the mean value of this property tax base over all school districts and

[12] Appendix C provides a short description of Job Creation Tax Credits.

years of about $320 million (as reported in Appendix Table 6), this translates into a rise of about $2 million. Appendix Table E also describes two important caveats to keep in mind regarding these results.

Fiscal Impact

Although seldom recognized in the popular press, providing tax incentives for economic development can have either a positive or negative impact on the community providing the abatements (see Kenyon, Langley and Paquin 2012). As we have previously mentioned, a crucial distinction is whether the activity the abatement (or other incentive) is designed to stimulate would have occurred if the abatement had not been offered. If it clearly would not have, the positive side of the abatement is the revenue gain from expanded economic activity attributable to the incentive which yields increased property tax revenue and/or reduced property tax rates. If the activity attributable to an abatement would have occurred even without the abatement, then a negative side of abatement is a loss in taxable property value and the subsequent loss in property tax revenue and/or increase in the rate of property taxation this necessitates. Other potential effects are increased public service costs due to the new businesses attracted or the potential for a multiplier effect whereby attraction of one business in turn attracts other businesses.

In our examination of fiscal impact, we net out the negative effects from the positive to determine the net fiscal benefit of an abatement to a jurisdiction. We do this because this is essentially what all taxpayers should ask when thinking about the desirability of abatement use in a jurisdiction they live in. Do the benefits from providing property tax abatements outweigh the costs?

Tables 9 and 10 present information that may indicate that the benefits of property tax abatements in Franklin County do not outweigh the costs. Table 9 shows Franklin County school district millage rates for selected years between 1998 and 2015. In 14 of the 16 school districts millage rates increased between 1998 and 2015. Table 10 shows effective property tax rates for Class 1 (residential and agricultural) and Class 2 (commercial and industrial) properties for selective taxing districts associated with our sample of communities.[13] For the most part from 1998 to 2016 effective property tax rates rose across the board. For Class 1 properties the increase in effective tax rates ranged from 20 percent for Grove City to 62 percent for Plain Township/New Albany. For Class 2 properties the increase in effective tax rates ranged from 16 percent for Gahanna Gahanna Jefferson to 60 percent for the city of Westerville. The increases in millage rates and effective property tax rates shown in these two tables may have been due to an increase in abatement activity, but they could have also been due to an increase in the demand for local government services, or the necessity for higher local tax rates required by cuts in state aid. Without further investigation, it is impossible to determine which cause is the more important.

Although the time trend observed in Tables 9 and 10 is suggestive and intriguing, it fails to constitute evidence of a negative fiscal impact of property tax abatements. To accurately estimate whether the fiscal impact of abatements is positive or negative, we must account for other important factors that can impact effective property tax rates. Ultimately, this is the reason that we chose to use regression

[13] Appendix B offers an overview of the system of property taxes in Ohio and an explanation of effective property tax rates.

analysis that allows for the separation of effects by different explanatory variables on one dependent variable.

As completely described in Appendix E of this report, all our regressions designed to measure the impact of an incentive like CRAs and EZs use some measure of the property tax rate as the dependent variable. We use some measure of the intensity of CRA and EZ use as the key explanatory variable, and strive to include appropriate control variables such as percentage of the population that is of school age, household income, and the percent of the adult population with at least a Bachelor's Degree. We offer a summary description of our methodology below, and a fuller description in Appendix E, but first we summarize the two studies most relevant to our investigation of the fiscal impact of CRAs and EZs in Franklin County.

In 2015 the *Columbus Dispatch* reported on a study by Clarence Mingo on the growth in use of property tax abatements and their impact on taxes paid by properties not receiving an abatement (Franklin County Auditor 2015a, Franklin County Auditor 2015b, Bush 2015). That study focused on property tax abatements other than tax increment finance. As reported, "In 1999, fewer than 400 privately owned parcels had any type of special property-tax deal, but the number had grown to 19,000 by 2014."

The Mingo study found that over the 5-year period from 2010 through 2014 more than $300 million in property tax burden was shifted from parcels receiving an abatement to those not receiving an abatement. This estimate was derived by conducting an Excel spreadsheet exercise whereby all parcels with abated value were listed and the abated value was multiplied by the 35 percent assessment ratio and the appropriate effective tax rate. If the property was residential, the 10 percent rollback credit was also subtracted to derive an estimate of the total revenue foregone. This study is a static exercise with an implicit assumption that property tax abatements have no positive economic impact on the property tax base that needs consideration.

Michael Hicks and Dagney Faulk (2016) completed another relevant study worth considering. Their study examined the fiscal impact of property tax abatements granted by local governments from 2002 to 2011 in the State of Indiana. In Indiana, real or personal property in an economic revitalization area or enterprise zone can receive a property tax abatement for up to 10 years, and, unlike in Ohio, a sliding scale is used to ramp down the assessment percentage over time. For example, a property receiving a ten-year property tax abatement would have a 100 percent abatement in the first year, a 95 percent abatement in the second, an 80 percent abatement in the third, and so on per a set schedule, which ends up providing zero abatement in year eleven.

Using a data set based on counties for the period 2002 to 2011, Hicks and Faulk use a regression analysis methodology and find that each doubling of the abated share of assessed value increases the effective property tax rate by 12 percent. Hicks and Faulk caution the reader that this statistically significant finding can either mean that property tax abatements lead to higher effective property tax rates, or that counties with higher property tax rates provide a greater amount of property tax abatements. They suggest that a more thorough regression analysis, with appropriate control variables, is necessary to sort this out. We take this suggestion seriously in our own choice of a more thorough regression analysis of the fiscal impact of abatement than they accomplished.

Appendix E in this report provides considerable detail on the regression analysis used to estimate the fiscal impact of property tax abatements in Franklin County. It describes the simple theory that underlies the regression analysis and how this led to the appropriate choice of regression method and inclusion of necessary explanatory variables that serve as controls so we can appropriately determine the independent effect of abatement on rate of property taxation. In summary, our regression analysis finds that the use of property tax abatements in Franklin County has reduced the rate of both measures of property tax rate used in our analysis.

Using property tax millage rate, in school districts a one-percentage-point increase in CRA abatement as a percent of a school district's property tax base yields a 1.6 percent decrease in the school millage rate (see Appendix Table 2). When using the mean value of the school millage rate over all school districts and years in the data sample, it falls from 38.29 mills (reported in Appendix Table 1) to 37.68 mills. Using effective property tax rate on residential property in a school district, a one-percentage-point increase in CRA abatement as a percent of a school district's property tax base yields a 0.32 decrease in this measure of property tax rate. When using the mean value of this effective property tax rate in our data sample, it falls from 76.46 (reported in Appendix Table 3), to 76.14. The regression results imply that a one percentage point increase in a school district's abatement intensity would result in an $11 reduction in the annual tax bill for a $100,000 residential property. While these tax savings are small, any reduction is arguably a positive outcome since that means tax incentives have generated enough growth in property values to offset the immediate drop in the tax base from an abatement and thus avoid a tax shift to non-abated properties. Appendix E also describes two important caveats to keep in mind regarding these results.

Analysis of Tax Incentive Review Council Data

Tax Incentive Review Councils, or TIRCS, exist to hold businesses with tax abatement agreements accountable for their side of the agreement. Individual municipalities or the county are responsible for forming these committees wherever there are active tax incentive agreements, including for CRAs, EZs, and TIFs. Once a year, TIRCs audit the companies receiving property tax abatements to see how they are reaching their job, payroll, and/or investment promises that were established at the beginning of the agreements. Agreements do not have to meet every one of their targets to be deemed in compliance, and not every target is weighted evenly. If the companies are falling behind on their goals by a large amount, the TIRCs can make a recommendation to modify or cancel the agreements. However, it is up to the granting authority whether to follow the TIRC recommendation. This process is important because the municipalities which grant property tax abatements are agreeing to lose a significant portion of their property tax revenue over an extended period. Most of the agreements are made for either 10, 12, or 15 years with up to 100 percent of the property tax abated.

This analysis is based on a review of TIRC audits of 94 agreements in the following cities: Bexley, Columbus, Gahanna, Grandview Heights, Hilliard, New Albany, Obetz, Upper Arlington, Urbancrest, Westerville, Whitehall, and Worthington, as well as unincorporated townships. We retrieved data on TIRC audits of 57 agreements for fiscal year 2015[14] from the Franklin County Auditor's Office. For

[14] The fiscal year in Franklin County corresponds with the calendar year, and TIRCS are conducted in August of the following year, so the TIRCs from the auditor's office were done in August 2016 looking back on 2015 and the TIRCs from the Ohio state website were done in summer 2015 looking back on 2014.

information on the additional 37 agreements, we added data found on the Ohio Development Services Agency website. The ODSA website has only been updated to include TIRCs for the fiscal year 2014. Our analysis does not include 16 agreements that originated in or after 2013, as the companies have had only a couple of years to begin meeting their targets in payroll, jobs, and investment. To our knowledge, this is the first comprehensive analysis done on TIRCs in Franklin County by an outside source.

We evaluated these agreements on their performance in four categories: new full time jobs, retained full time jobs, new payroll, and investment. Not every agreement includes promises in every category, and there are some agreements which also had promises for retained payroll and part time jobs. However, these four categories represent the most commonly made promises with the most readily available data. Out of 94 agreements, 42 were falling short of their targets in at least one of these categories. As seen in Table 11a, in none of the four categories were 100 percent of the companies meeting their promises. When looking at job and payroll targets, TIRC committee members place more importance on payroll performance as it is a source of income tax revenue for the city. Only one agreement was not meeting targets for new payroll, new full time jobs, and retained full time jobs.

While several agreements are falling short of their targets in one or more categories, other agreements are significantly exceeding their targets. Looking at new full time jobs, retained full time jobs, new payroll, and investment by city in Table 11b shows most cities meeting or exceeding their targets when all the agreements are grouped together. For new full time jobs, Bexley, Gahanna, New Albany, and Westerville are all falling short of their targets. For retained full time jobs, only New Albany appears to be falling short, but this is almost all due to one agreement which promised over 2,000 retained full time jobs and delivered 1,613. This same problem appears when looking at new payroll: Gahanna is not meeting its target due to unclear data on verified new payroll. And for new investment, every municipality is either surpassing or is very close to reaching its overall goal, with the lowest being Whitehall reaching 97 percent of its target.[15]

For the county as a whole, the number of new full time jobs, new payroll, and investment exceeds the number promised. New payroll is at 150 percent of the amount promised, a positive outcome for municipalities which are seeing increased income tax revenue. Only retained full time jobs falls 6 percent short of reaching the target. However, adding retained jobs and new jobs together shows the county reaching 107 percent of its total jobs target, so the slight underperformance in retained jobs is made up for by overperformance in new jobs.

For the individual agreements that are falling behind on their promises, TIRCs can recommend that they be modified to adjust the terms of the agreement by either changing the duration or abatement percentage that the company is eligible for, or by changing the jobs, payroll, or investment targets the company must reach. In 2015, the Franklin County TIRCs recommended that six agreements be amended. Five of these agreements were in Columbus, and one was in Bexley. Five recommendations were to modify the job/payroll promise to “reflect more realistic numbers.” The other recommendation suggested that the agreement either be modified to account for delayed construction, or be dissolved.

[15] One large investment project in Grandview Heights was only reaching about 30 percent of its target, but was not included in the analysis because the investment timeframe extended into 2030.

Transparency

Ohio state agencies, Franklin County, and the local governments in Franklin County provide a patchwork of data on property tax abatement programs including CRAs and EZs. General program information, such as guidelines and eligibility, is widely available, as is information on program outcomes such as job creation. Meaningful data on the cost of these abatement programs (foregone revenue), however, can be elusive.

Two databases published online by the Ohio Development Services Agency (ODSA) provide data on Community Reinvestment Area (CRA) and Enterprise Zone (EZ) abatements.[16] A landing page for each program provides links to the applicable statutes and rules, sample documents, application forms, annual reporting forms, and links to searchable databases.[17] The landing pages summarize program structure and benefits as well as instructions for establishing a zone and applying for benefits. However, searchable databases offer data on program costs (revenue foregone) and program outcomes (jobs retained/created). The database links are in the second or third level of the accordion-style menu on the left-side of the landing page under the headings "Annual Reporting" and/or "Maps" (Ohio Development Services Agency 2016a and 2016b).

The CRA and EZ databases for Franklin County each have two pieces: a table of all CRA or EZ zones in Franklin County at the top of the page and a table of all CRA or EZ agreements in the county below. The tables of zones include the zone number, community name, zone name, and pre-1994 designation (CRA only) with a link to a page of contact information for each zone which lists the date of certification, date of amendment, zone manager name, title, address, and phone number. Similarly, the tables of CRA or EZ agreements list the zone number, agreement number, business name, school district name, and local jurisdiction with links to the most recent CRA agreement annual report.[18] The annual report for each CRA agreement includes about two printed pages of additional data including nature of business, school compensation agreement (if any), agreement date, amendment date, expiration data, revenue sharing (if any), value of real property investments and exemptions, abatement percentage and term, number of jobs created or retained, payroll of created/retained jobs, agreement status, property taxes paid and taxes foregone in the previous year and over the term of the agreement (cumulative), TIRC date, TIRC recommendation, local government action on TIRC, and annual report year. The state's databases of CRAs and EZs are each searchable by county, company, school district, or zone number, but not by municipality. The CRA database provides no data on abatements provided in pre-1994 CRAs which do not require formal agreements. These reports are useful, but the valuable data in the annual reports are not aggregated by school district, community or even by county (Ohio Development Services Agency 2016c and 2016d).

[16] The OSDA database of CRA zones and agreements is located at https://development.ohio.gov/oteisearch/CRA/
The EZ database is located at https://development.ohio.gov/OTEISearch/ez/
[17] The CRA landing page is located at https://development.ohio.gov/bs/bs_comreinvest.htm
The EZ landing page is located at https://development.ohio.gov/bs/bs_oezp.htm
[18] A sample 2015 annual report for the Nationwide Arena CRA agreement is located at
https://development.ohio.gov/oteisearch/CRA/agreement.aspx?AgmntNo=049-00960-04%2098-001

Franklin County's web page on incentives provides a map with overlays for CRA and EZ zones.[19] It describes each program in one paragraph with links to ODSA resources.[20] Among the data available from the Franklin County Auditor's Office are a pair of statistical graphs on aggregate abatement tax impact for years 2010 through 2014.[21] These tables, a product of Franklin County Auditor Clarence Mingo's 2015 study on tax shifting, show total forgone property tax revenue for all governments and for school districts (cumulatively and by district) over the five-year period (Franklin County Auditor 2015a and 2015b).

ODSA began publishing annual reports on the EZ program after a reporting requirement was enacted in 1994, and did so annually for 18 years. The agency published the last stand-alone annual report on the Enterprise Zone program in 2012 (tax year 2011). That 89-page document included a lengthy narrative that provided a program overview, historical context, year-over-year comparisons, and data analysis. Part B of the report was a series of tables of individual agreements with zone number, agreement number, company, county, local jurisdiction, agreement date, job retention and creation commitments and outcomes, real property investment commitments and outcomes, and personal property commitments and outcomes.[22] Since 2013, the agency has included a pared-down annual report on the EZ program as an appendix to the agency's annual report which compiles data on 12 of its programs in the report appendices (Ohio Development Services Agency 2012). The six-page EZ appendix in the 2016 report (tax year 2015) consists of a one-page program summary with statistics on property tax collected and jobs created, followed by four pages of condensed tables listing zone number, company name, city, county, school district, agreement date and school district compensation data, but no statistics on outcomes or abatement value for individual agreements. While the compilation of reports on multiple economic development programs is useful, in condensing the report, ODSA has omitted some valuable data and important context (Ohio Development Services Agency 2016). The ODSA annual report makes no mention of CRAs though Ohio local governments abate far more value through CRAs each year than through Enterprise Zones, as reported by the Ohio Department of Taxation and described elsewhere in this report (Ohio Development Services Agency 2016; Ohio Department of Taxation 2015).

A national study of transparency of city and county government economic development incentives released in 2017 ranked Franklin County among local governments with the highest degree of disclosure. The study, which evaluated two programs in each of the 50 highest-population U.S. cities and counties with local economic development incentives, analyzed transparency of CRA and EZ programs in Franklin County and the City of Columbus's TIF program. Among 35 programs across the U.S. for which at least basic information was available online, Franklin County's CRA and EZ programs both earned a fourth-place ranking with scores of 85 out of 100 possible points. The median score was 55, with points

[19] The description of incentives and CRA & EZ map are located at http://www.franklincountyohio.gov/SmartWorks/WhyFranklinCounty/Incentives.cfm

[20] These links were broken as of 2/6/17.

[21] These are found at Departments>Real Estate>Real Estate Overview, under the heading "Tax Incentives"

[22] The 2011 annual report, published in 2012, is located at https://development.ohio.gov/files/reports/2011EZAnnualReport.pdf. Tables begin on page 17.

based on twelve disclosure components.[23] [24] The author notes Franklin County is in one of the few states with state-level disclosure of local economic development incentives (Tarczynska 2017).

The Ohio Department of Taxation's Tax Data Series includes tables for tax years 1986 through 2014 that report total property tax value abated by each county for the following programs: Community Urban Redevelopment Corporation (CURC); Community Reinvestment Area (CRA), Urban Redevelopment Tax Increment Finance (TIF), and Municipal Urban Renewal.[25] All other local property tax abatements, including Enterprise Zone incentives are captured as "Other" abatements. While these tables provide useful data on abated property value, they stop short of reporting the actual cost of abatements – revenue foregone. These tables show aggregate abated value for the county only, not for individual local governments (Ohio Department of Taxation 2015).

Although the State of Ohio publishes a tax expenditure report, this document does not include property tax expenditures.[26] A tax expenditure is the revenue lost by a government due to a tax abatement. Connolly and Bell (2011) found 18 states included property tax expenditures in their tax expenditure budget (State of Ohio 2015; Connolly and Bell 2011).[27]

The County Commissioners Association of Ohio's handbook includes a chapter on tax abatement. A summary table reports the value of tax abatements for CRAs, Other (primarily EZs), TIF, CURC, and Municipal Urban Renewal. Chapter 15 devotes 15 pages to a detailed explanation of CRA objectives, establishment, rules, benefits, review requirements, appeals process, and annual reporting requirements.[28] The handbook includes 22 pages of narrative on Enterprise Zone tax exemptions covering the program's legal history, current law, uses, guidelines, types of zones, criteria and standards, exemption percentages and terms, rules, review requirements, revocation procedures, and annual reporting requirements. The chapter also discusses tax increment finance at length (County Commissioners Association of Ohio 2016).

As described in Appendix F of this report, property tax abatement data on local government web sites varies widely. Most of the seven subject cities (Columbus, Gahanna, Grove City, Hilliard, New Albany, Upper Albany, and Westerville) provide basic information on incentive programs, such as eligibility criteria and benefits, but none report the cost of abatement programs. Franklin County, Columbus, and three of the subject suburbs (Hilliard, Gahanna, and New Albany) participate in a transparency initiative

[23] The study found 27 local governments failed to even list the names of recipient firms on a public web page. The City of Columbus, due to lack of online data on its TIF program, was listed among these non-transparent local governments.

[24] The twelve components are facility address, date of award, subsidy duration, approved dollar value of subsidy, jobs projected/required, actual subsidy provided/claimed, actual jobs created, wages/payroll, multiple years of data, accessibility and user-friendliness, and downloadable data.

[25] Links to table PE-3, "Valuation of Real Property Exempted by Tax Abatements-By Class of Abatement and County" for years 1986–2015 are located at http://www.tax.ohio.gov/tax_analysis/tax_data_series/publications_tds_property.aspx#Realpropertyonly

[26] The tax expenditure report for 2015 is located at http://obm.ohio.gov/Budget/operating/doc/fy-16-17/State_of_Ohio_Budget_Tax_Expenditure_Report_FY-16-17.pdf.

[27] Those states were Arizona, California, District of Columbia, Florida, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Montana, Nebraska, Oregon, Texas, Utah, Vermont, Washington, West Virginia, and Wisconsin.

[28] Chapter 15 of the handbook is located at https://www.ccao.org/userfiles/Chapter%2015%20Tax%20Abatement%2001%2029%2016.pdf

of Ohio Treasurer Josh Mandel called Ohio's Online Checkbook.[29] At ohiocheckbook.com, local and county governments and school districts can join the State of Ohio in reporting every expenditure and check issued by the government. However, this transparency initiative does not capture tax expenditures, such as property tax abatements (Ohio Treasurer).

While state agencies' efforts at transparency provide some valuable data on property tax abatement, these data are fragmented and often difficult to find. Because EZ and post-1994 CRA abatements require a formal agreement, data on these incentives are more readily available than on pre-1994 abatements for which there is little reporting. Currently no central clearinghouse exists with comprehensive data on the cost of property tax abatements searchable by abatement program, local government, and beneficiary.

Conclusion

Community Reinvestment Areas (CRAs) and Enterprise Zones (EZs) are the two most important property tax abatement programs in Franklin County, Ohio. In 2015, tax savings from CRAs and EZs equaled 3 percent of property taxes paid.

Although most abated properties are residential, most of the tax savings from CRAs and EZs goes to industrial properties, which on average receive a tax savings of $228,675 per parcel. Although changes were made to the CRA program in 1994 and no new pre-1994 CRA zones can be established, most tax savings from CRAs is still attributable to pre-1994 CRAs. The original intent of CRA abatement was property tax relief for construction or remodeling of housing, but most of the tax savings under the CRA program is currently provided to industrial and commercial development.

We used regression analysis to estimate the impact of CRAs and EZs on property value, school millage rates, and effective property tax rates. We found that the use of CRAs and EZs had a positive impact on market value and a negative effect on property tax rates. That is, CRA and EZ use increased property values and decreased property tax rates. However, we urge caution in relying on these results because of the potential for omitted variables and some question regarding whether the regression results imply causation.

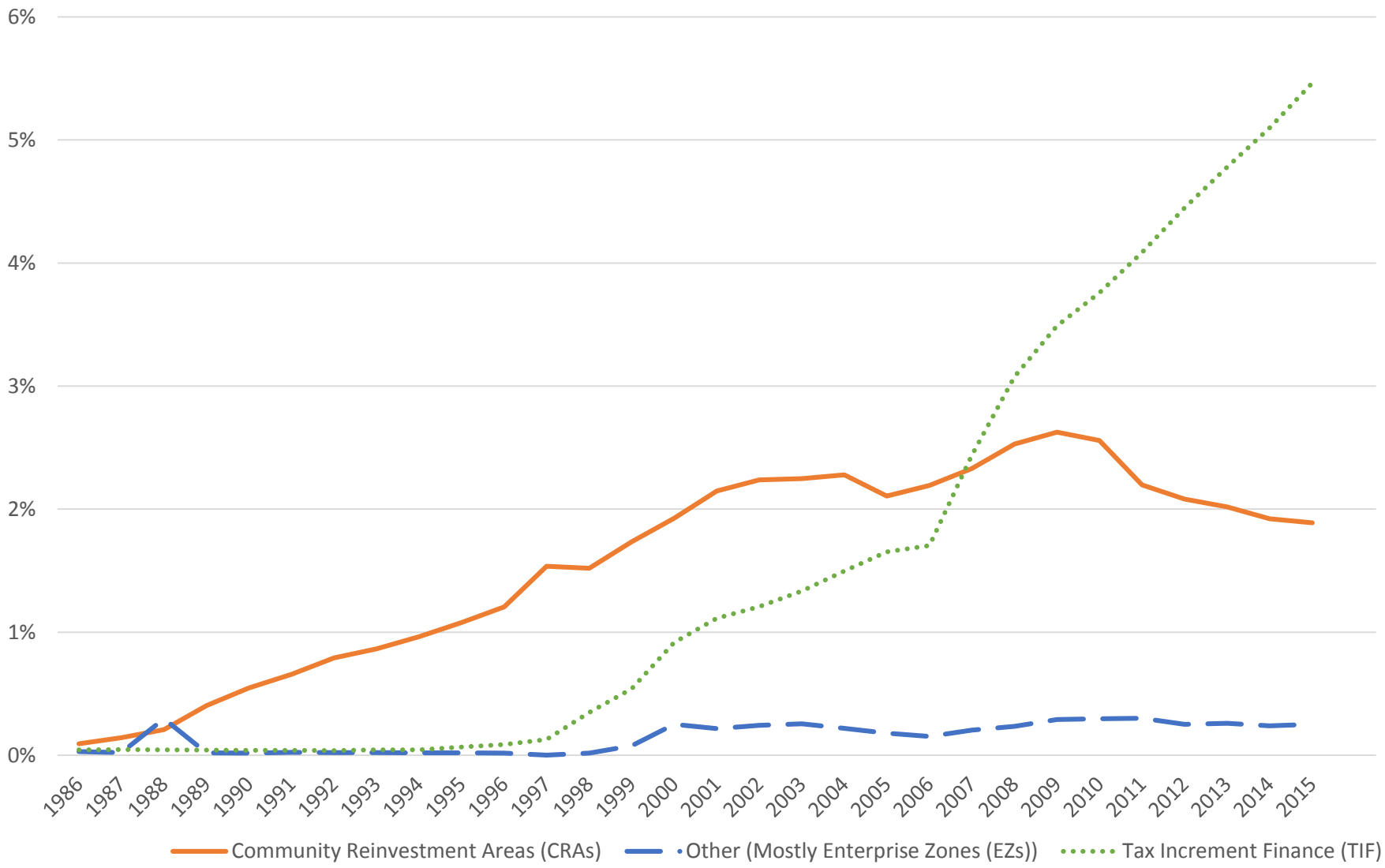
An analysis of Tax Incentive Review Council meeting data for 2015-16 found that at least 2/3rd of companies were meeting their goals for new full time jobs, retained full time jobs, new payroll, and investment. Because of the potential for municipal income tax revenue, cities prioritize company promises on payroll and 76 percent of companies met their promises for new payroll. When we analyzed agreements by city, however, businesses exceeding their promises almost always more than made up for businesses falling short of their promises.

Ohio state agencies, Franklin County, and local governments in Franklin County provide a patchwork of data on property tax abatement programs including CRAs and EZs. General program information, such as guidelines and eligibility, is widely available, but meaningful data on the cost of these programs (or forgone revenue), can be elusive.

[29] Ohio's Online Checkbook for local governments and schools is located at http://local.ohiocheckbook.com/

Figure 1

Percentage of Franklin County Real Property Assessed Value by Class of Abatement, 1986-2015



Source: Ohio Department of Taxation

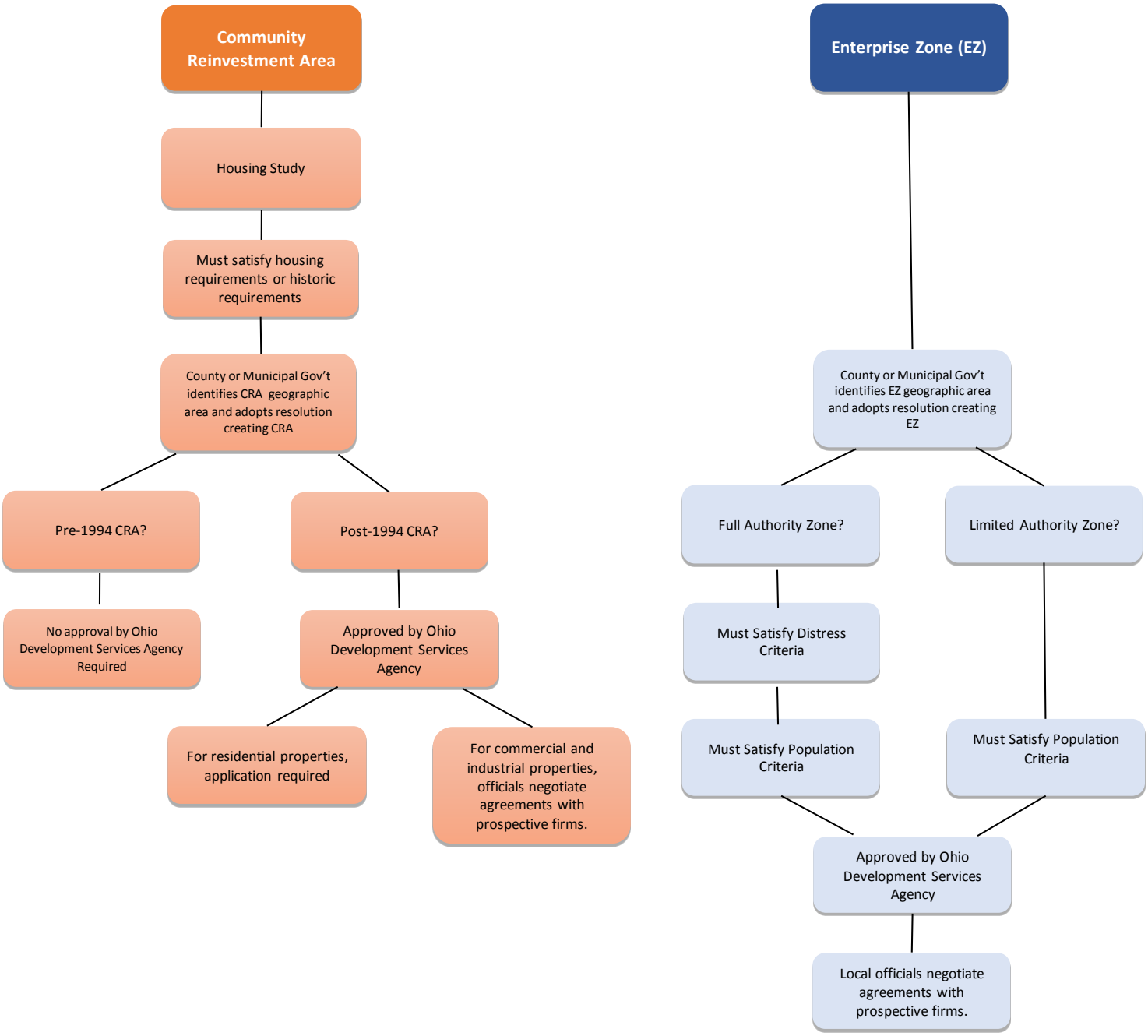
Table 1: Share of Tax Revenue by Source, Franklin County governments, 2002 and 2012

	2002		2012	
	Property Tax as Percent of Total Tax Revenue	Income Tax as Percent of Total Tax Revenue	Property Tax as Percent of Total Tax Revenue	Income Tax as Percent of Total Tax Revenue
Franklin County	73.1%	0.0%	71.8%	0.0%
Cities	8.8%	83.5%	7.6%	85.2%
School Districts	98.9%	0.6%	99.0%	1.0%

Note: Income tax revenue includes individual and corporate income tax collections

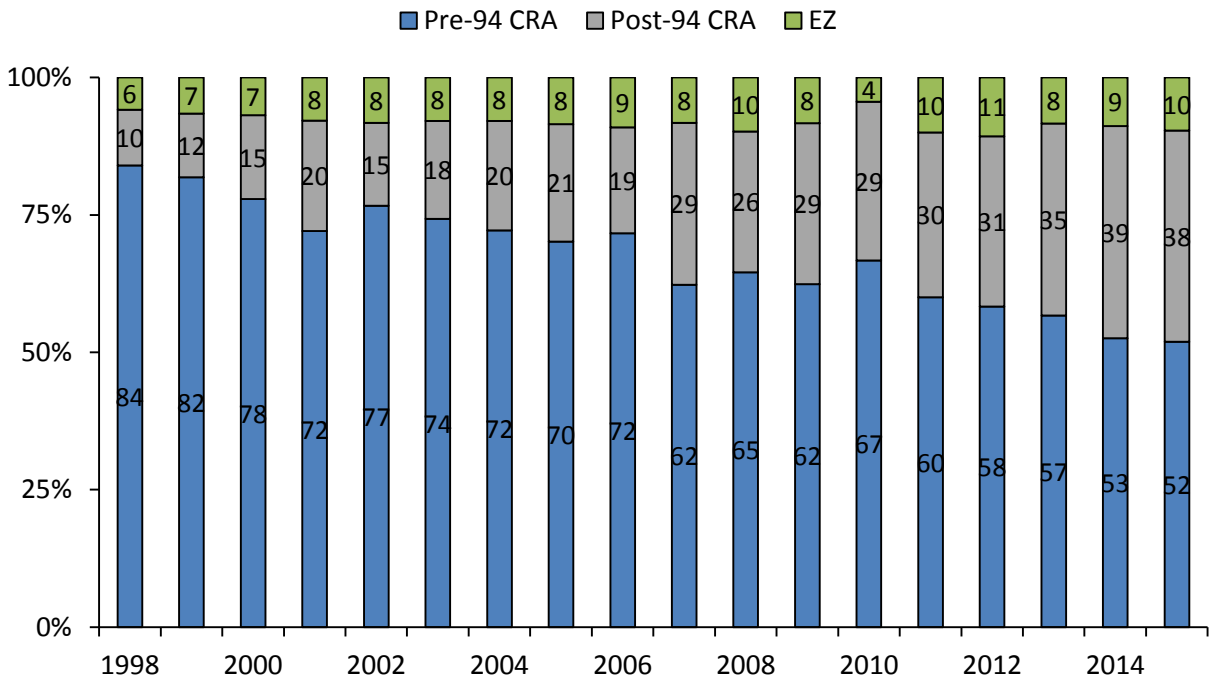
Source: U.S. Census Bureau, Census of Government Finances for 2002 and 2012

Figure 2: Approval Processes for Property Tax Abatement Programs



Note: Although pre-1994 CRAs still exist, it is no longer possible to create pre-1994 CRAs.
Sources: State Statute; County Commissioners Association of Ohio 2016; DeWine 2015

Figure 3: Percent of Tax Savings from CRAs and EZs (1998-2015)



Source: Analysis of data provided by the Franklin County Auditor's Office (See Appendix E for details)

Table 2: Property Tax Abatement Program Comparison

	Community Reinvestment Areas (CRAs)		Enterprise Zones (EZs)
	Residential	Commercial or Industrial	
Purpose	Revitalize housing stock, construct new housing	Retain or attract companies which generate investment and/or provide jobs	Retain or attract companies which generate investment and/or provide jobs
Industry Focus	Housing	Commercial or Industrial	Commercial or Industrial
Requirements	Housing structures or structures of historic significance are located; new housing construction and housing repair are discouraged		Minimum population (all EZs); satisfy distress criteria (full authority EZs only)
Local Government Authority	Established by municipalities or counties	Established by municipalities or counties	Established by municipalities or counties
Incentive Granted	Tax abatement of assessed value of newly remodeled or constructed property; always 100% abatement for pre-1994 CRA, up to 100% abatement for post-1994 CRA	Tax abatement of assessed value of newly remodeled or constructed real property; always 100% abatement for pre-1994 CRA, up to 100% abatement for post-1994 CRA, depending upon school board approval	Up to 100% abatement of assessed value of real property first used at project site as a result of agreement; abatement of personal property and reduction in corporate franchise tax liablity much reduced by 2005 OH tax reform.
Term of Incentive	Up to 15 years	Up to 15 years	Up to 15 Years
Administered by	Housing officer and housing council (designated by local legislative authority)	Same as for residential CRA but approval of written agreement required	Enterprise zone manager
Ongoing Monitoring by	Tax incentive review council (TIRC) which annually reviews compliance with tax exemption agreements and recommends continuation, modification, or cancellation of each agreement to municipal or county legislative body. One member of each TIRC must be from the relevant school board.		
Role of School Boards	Notice to school board required	Notice to school board required; school board approval required for post-1994 CRA if exemption > 50%	Without school board approval maximum abatement of 75%; with approval, 100%
Relocation of Jobs from Another OH Location	NA	Notice to municipality losing operations and to ODSA required	Notice to and waivers from ODSA required
Zone Amendments	Pre-1994 CRA zones can be amended twice but with a 3rd amendment the CRA becomes subject to post-1994 rules		Allowed, in particular to change boundaries of EZ zone
Clawbacks	NA	Option to include clawback provision in individual agreements	Option to include clawback provision in individual agreements
Revocations of Incentive Agreements	Possible if housing officer finds that property has not been properly maintained or repaired	Possible if company has not met obligations in CRA agreement	Possible if company has not met obligations in EZ agreement

Note: Ohio Development Services Agency = ODSA

Sources: State Statute; DeWine 2015; Ohio Development Services 2016; County Commissioners Association of Ohio 2016

Table 3: Selected Characteristics of Subject Cities

	Population 2015	Median Household Income 2015	Distance from Columbus Center (mi.)	CRAs			Enterprise Zones	
				Pre-94 CRA(s)	No. CRAs	No.CRA Agreements 2016	No. EZs	No. EZ Agreements 2016
Bexley	13,442	$100,121	3.28		3	2	0	0
Canal Winchester	7,621	$76,667	12.67	Y	2	4	0	0
Columbus	824,663	$45,659	0.00	Y	38	7	3	57
Dublin	43,224	$211,020	11.33		0	0	0	0
Gahanna	34,095	$72,863	7.50	Y	7	10	0	0
Grandview Heights	7,014	$92,921	2.57		1	4	1	0
Grove City	37,751	$66,403	7.44	Y	4	0	1	0
Groveport	5,604	$57,346	9.50	Y	5	0	1	0
Hilliard	31,803	$88,003	9.82	Y	10	9	1	3
New Albany	9,136	$196,030	13.05		4	29	1	0
Obetz	4,558	$46,042	6.23		3	2	1	0
Reynoldsburg	36,899	$60,549	9.91		0	0	0	0
Upper Arlington	34,465	$98,618	4.08		1	5	1	0
Urbancrest	995	$18,438	6.42		1	7	1	0
Westerville	37,540	$82,121	12.00	Y	4	13	0	0
Whitehall	18,521	$35,476	6.02		6	1	1	0
Worthington	13,867	$90,445	9.18		1	3	0	0

Sources: Map Developers; Ohio Development Services Agency 2016c and 2016d; U.S. Census Bureau

Table 4: Property Tax Abatements in Franklin County (2015), by Property Type

	Industrial	Office Space	Apartments	Other Commercial	Residential	Total
Totals for Each of the Five Property Types						
Number of Parcels with Abatement	140	166	111	64	2,455	3,068
Market Value Abated (Millions)	1,029.8	320.7	273.2	233.5	384.9	2,246.0
Net Tax Savings from Abatements	32,014,497	9,945,046	8,308,438	6,661,492	8,376,727	65,391,692
Net Tax Savings Per Parcel	228,675	59,910	74,851	104,086	3,412	21,314
Share of Total Property Tax Abatements Going to Each of the Five Property Types						
% of All Parcels Receiving Abatements	4.8%	5.7%	3.8%	2.2%	83.6%	100%
% Total Market Value Abated	45.9%	14.3%	12.2%	10.4%	17.2%	100%
% Total Tax Savings	49.0%	15.2%	12.7%	10.2%	12.8%	100%
For Each Property Type…						
% Parcels that Receive an Abatement	3.3%	3.8%	0.6%	0.9%	0.6%	0.7%
% Market Value that is Abated	19.4%	6.6%	2.1%	3.8%	0.7%	2.2%
Tax Savings as a % of Taxes Paid	24.7%	7.2%	2.6%	3.9%	0.7%	3.1%

Note: The commercial class has been broken into three categories: Office space (land use codes 447-450, 470), apartments (codes 401-403), and other commercial (codes 400, 404-446, 451-469, and 471-499). The table excludes 132 parcels receiving $85,492 in tax savings that could not be classified because their land use was listed as “Abated Property for CRA” in the Auditor’s database. Table includes CRA and EZ abatements, but not EPA abatements.

Source: Analysis of data provided by the Franklin County Auditor’s Office (See Appendix E for details)

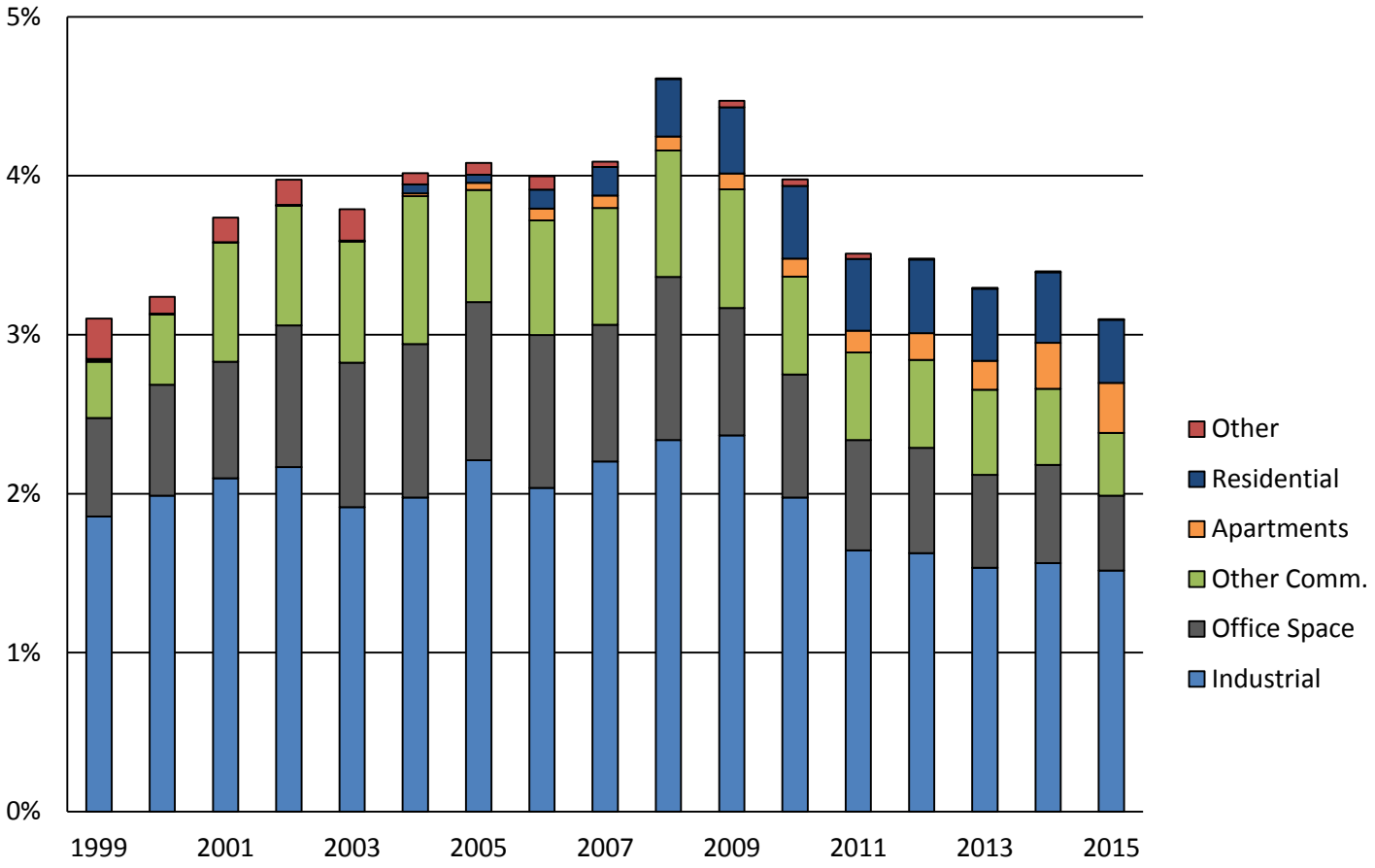
Table 5: Residential Property Tax Abatements (2015)

	Parcels with Abatement		Tax Savings		Average Tax Savings	Average Value for Abated Properties
	# Parcels	% Parcels	Total	% Savings		
Condos	1,524	71.6%	7,177,227	85.7%	4,709	267,972
Single-Family Homes	450	21.1%	857,165	10.2%	1,905	114,537
Affordable Housing	88	4.1%	55,961	0.7%	636	52,895
Multi-Family (2-3 Units)	22	1.0%	44,223	0.5%	2,010	174,768
Other Residential	44	2.1%	242,153	2.9%	5,503	328,427

Note: Count of parcels with abatements excludes garages for condo units (land use code 559).

Source: Analysis of data provided by the Franklin County Auditor's Office (See Appendix E for details)

Figure 4: Tax Savings from Abatements as a Percent of Total Taxes Paid in Franklin County (1999-2015)



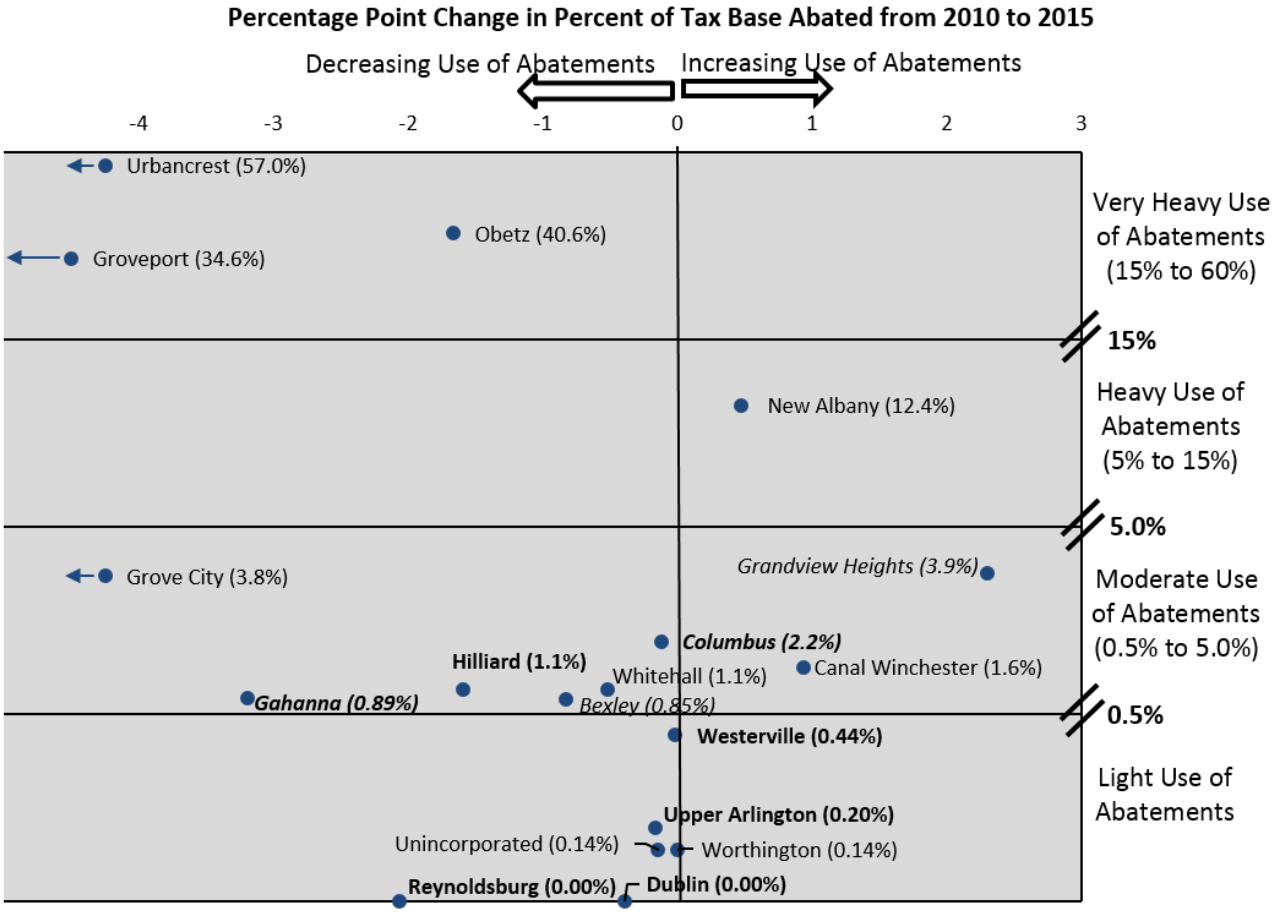
Source: Analysis of data provided by the Franklin County Auditor's Office (See Appendix E for details)

Table 6: Number of Parcels Receiving Property Tax Abatements, by Year

	Industrial	Office Space	Other Commercial	Apartments	Residential	Other	Total
1998	123	46	62	2	63	10	306
1999	160	53	67	2	32	17	331
2000	178	60	71	1	13	13	336
2001	197	67	81	0	12	63	420
2002	199	173	86	1	15	33	507
2003	190	180	90	1	31	38	530
2004	191	179	99	3	334	26	832
2005	203	186	103	4	359	50	905
2006	201	208	118	7	664	120	1,318
2007	205	230	112	5	930	205	1,687
2008	214	236	115	5	1,625	130	2,325
2009	211	232	116	10	1,974	132	2,675
2010	206	234	110	13	2,190	133	2,886
2011	192	227	114	17	2,293	134	2,977
2012	177	177	106	21	2,320	131	2,932
2013	164	178	104	28	2,357	132	2,963
2014	149	184	103	39	2,367	132	2,974
2015	140	166	111	64	2,455	132	3,068

Source: Analysis of data provided by the Franklin County Auditor's Office (See Appendix E for details)

Figure 5: Abated Market Values as a Percent of Each City's Tax Base (2015)



Notes:
Parenthesis show abated market values as a percent of each city's tax base in 2015.
Bolded cities have populations greater than 30,000.
Italicized cities are where residential and apartment properties account for at least 15% of abated values.
Tax base is the market value of property in each city minus exempt values, but with abated values included.
Graph excludes cities with populations under 2,000 that did not use property tax abatements in 2015.

Source: Analysis of data provided by the Franklin County Auditor's Office (See Appendix E for details)

Table 7: Changes in the Use of Property Tax Abatements from 1998 to 2015, by City

City	Market Values Abated--- 1998	Market Values Abated--- 2000	Market Values Abated--- 2005	Market Values Abated--- 2010	Market Values Abated--- 2015	Chg. 1998-2010	Chg. 2010-15	Number of Parcels 2000	Number of Parcels 2005	Number of Parcels 2010	Number of Parcels 2015
Bexley	0.0	0.0	0.0	22.5	12.5	22.5	-10.0	0	0	94	90
Canal Winchester	0.0	3.0	3.5	3.9	8.9	3.9	5.0	1	6	14	12
Columbus	282.4	439.4	821.5	1,081.6	1,004.5	799.2	-77.1	74	312	2,121	2,630
Dublin	53.5	88.5	102.7	20.7	0.0	-32.7	-20.7	35	22	4	0
Gahanna	48.5	91.9	120.9	117.6	24.9	69.1	-92.7	35	139	210	79
Grandview Heights	0.0	0.8	5.4	10.6	32.6	10.6	22.0	1	3	8	12
Grove City	203.7	234.6	296.3	272.2	114.9	68.5	-157.3	70	77	85	66
Groveport	78.0	191.9	314.6	491.6	372.4	413.6	-119.2	48	58	63	38
Hilliard	34.2	38.8	70.5	71.5	31.4	37.3	-40.1	7	6	6	8
New Albany	0.0	69.4	208.0	235.9	285.7	235.9	49.8	3	8	24	35
Obetz	24.7	65.1	122.2	255.6	255.4	230.9	-0.2	23	194	179	23
Reynoldsburg	85.8	79.8	76.4	32.5	0.0	-53.3	-32.5	7	1	1	0
Upper Arlington	0.0	0.0	18.2	16.5	9.7	16.5	-6.8	0	9	17	13
Urbancrest	6.8	7.4	25.1	69.0	64.1	62.3	-5.0	3	5	33	33
Westerville	7.8	7.0	15.1	10.3	9.5	2.5	-0.8	2	4	6	11
Whitehall	0.0	1.6	0.3	13.6	8.0	13.6	-5.6	3	1	2	1
Worthington	0.0	0.0	0.0	2.2	2.3	2.2	0.1	0	0	9	20
Unincorporated Areas	8.0	16.2	20.3	19.6	9.2	11.6	-10.3	12	11	10	6
Total	**833.3**	**1,335.2**	**2,221.1**	**2,747.4**	**2,246.0**	**1,903**	**-491**	**312**	**845**	**2,876**	**3,071**

Source: Analysis of data provided by the Franklin County Auditor's Office (See Appendix E for details)

Table 8: The Impact of Property Tax Abatements on School Districts (2015)

	Market Value Abated Millions ($)	% Tax Base	Property Taxes Forgone Due to Abatements $	Per Pupil	FY 2012 Expenditure Per Pupil ($)	Percent of Abated Value in School District, by City
Bexley	12.5	0.85%	313,055	134	14,348	Bexley (100%)
Canal Winchester	8.9	0.99%	300,629	80	9,781	Canal Winchester (100%)
Columbus	933.6	3.19%	23,889,637	338	14,613	Columbus (100%)
Dublin	9.7	0.13%	318,109	21	12,709	Upper Arlington (100%)
Gahanna Jefferson	52.6	1.17%	1,498,570	198	11,426	Columbus (53%), Gahanna (47%)
Grandview Heights	32.6	3.39%	1,185,969	1,091	15,319	Grandview Heights (100%)
Groveport-Madison	497.8	17.81%	15,879,020	2,156	10,967	Groveport (75%), Obetz (24%), Townships (1.1%), Columbus (0.4%)
Hamilton	140.7	17.92%	3,610,446	1,106	8,504	Obetz (98%), Townships (2%)
Hilliard	46.6	0.64%	1,619,582	102	11,335	Hilliard (67%), Columbus (33%)
New Albany-Plain	285.7	8.67%	9,447,808	1,971	12,137	New Albany (100%)
Reynoldsburg	0.0	0.00%	0	0	10,140	N/A
South Western	205.2	2.71%	6,675,740	285	10,274	Grove City (56%), Urbancrest (31%), Columbus (13%)
Upper Arlington	0.0	0.00%	0	0	15,157	N/A
Westerville	9.5	0.23%	326,999	22	10,720	Westerville (100%)
Whitehall	8.0	1.10%	232,949	59	11,175	Whitehall (100%)
Worthington	2.3	0.04%	83,593	9	13,367	Worthington (100%)

Source: Analysis of data provided by the Franklin County Auditor's Office and school enrollment data from the Ohio Department of Taxation's SD1 spreadsheets (See Appendix E for details)

Table 9: School District Real Property Mills, Selected Years 1998-2015

	1998	2004	2010	**2015**
Bexley	51.82	47.11	48.24	45.03
Canal Winchester	25.33	27.81	41.45	42.66
Columbus	36.90	37.49	41.53	44.80
Dublin	40.95	32.53	44.63	51.67
Gahanna Jefferson	38.87	31.93	36.35	43.28
Grandview Heights	42.59	41.42	44.49	45.41
Groveport-Madison	44.12	34.27	35.28	44.97
Hamilton	30.82	25.07	23.08	25.68
Hilliard	32.85	40.29	43.77	51.06
New Albany-Plain	29.53	35.80	46.74	50.92
Reynoldsburg	32.60	27.62	32.78	39.48
South Western	32.92	26.87	38.65	42.82
Upper Arlington	41.23	46.27	43.86	45.59
Westerville	33.16	32.72	43.58	52.26
Whitehall	45.13	40.38	38.47	46.31
Worthington	40.51	46.13	46.64	55.57

Note: Mill rates are for current expenses of school districts. They exclude "tax reduction factors" but take into account property tax programs that are currently fully reimbursed to local school districts by the state such as the homestead exemption.

Source: Ohio Department of Taxation (Table SD1)

Table 10: Effective Tax Rates by Selected Taxing Districts, Selected Years 1998-2016

	1998		2004		2010		2016	
	Effective Rate		Effective Rate		Effective Rate		Effective Rate	
	Class 1 Res/Agr	Class 2 All Other	Class 1 Res/Agr	Class 2 All Other	Class 1 Res/Agr	Class 2 All Other	Class 1 Res/Agr	Class 2 All Other
City of Columbus	54.12	62.33	55.71	67.94	63.25	76.67	74.72	87.03
City of Gahanna Gahanna Jefferson	68.05	76.71	61.44	71.04	68.38	76.81	82.35	88.89
City of Gahanna Columbus Csd	61.13	69.16	65.33	77.55	72.25	85.77	88.08	99.80
City of Grove City	68.64	80.73	56.73	71.84	71.97	86.22	82.31	95.76
City of Hilliard Wash Twp Dublin	73.62	76.56	64.14	69.49	81.41	88.81	90.39	100.35
City of Hilliard Wash Twp Hilliard	64.51	68.92	70.78	79.26	81.71	90.33	94.95	105.44
City of Hilliard Brown Twp Hilliard	65.37	70.43	71.96	81.18	80.22	87.67	97.21	105.55
City of Upper Arlington Dublin	70.48	73.03	61.66	66.22	75.38	82.14	84.64	93.67
City of Westerville	63.01	63.10	67.37	69.68	80.80	86.65	95.42	101.04
Plain Twp New Albany Corp	59.30	60.68	70.68	71.35	85.58	84.28	96.07	94.31

Note: Effective property tax rates include tax reduction factors but do not take into account the 10 percent credit for all real property not used for business purposes, the 2.5 percent credit for owner-occupied residential property, or the homestead exemption.

Source: Franklin County Auditor's Office

Table 11a: Number of Companies that Met Targets in Property Tax Abatement Agreements by City, Fiscal Year 2015

	New Full Time Jobs			Retained Full Time Jobs			New Payroll			Investment		
City	# With Promise	# that Met Promise	% that Met Promise	# With Promise	# that Met Promise	% that Met Promise	# With Promise	# that Met Promise	% that Met Promise	# With Promise	# that Met Promise	% that Met Promise
Bexley	1	0	0%	0	0		1	1	100%	2	2	100%
Columbus	22	14	64%	14	12	86%	23	16	70%	26	22	85%
Gahanna	2	1	50%	2	1	50%	2	0	0%	4	2	50%
Grandview Heights	4	4	100%	3	3	100%	1	1	100%	5	5	100%
Hilliard	2	2	100%	1	1	100%	3	3	100%	3	3	100%
New Albany	13	4	31%	1	0	0%	14	9	64%	14	12	86%
Obetz	3	1	33%	1	1	100%	2	2	100%	4	2	50%
Upper Arlington	5	4	80%	4	4	100%	4	4	100%	5	4	80%
Urbancrest	5	5	100%	1	1	100%	5	4	80%	3	2	67%
Westerville	12	7	58%	4	4	100%	11	9	82%	12	10	83%
Whitehall	2	2	100%	2	2	100%	2	1	50%	2	1	50%
Worthington	3	2	67%	0	0		3	3	100%	3	2	67%
Townships	5	5	100%	4	4	100%	5	5	100%	7	7	100%
Total	79	51	65%	37	33	89%	76	58	76%	90	74	82%

Table 11b: Total Amount of Promised Jobs/Payroll/Investment vs. Total Amount of Realized Jobs/Payroll/Investment, Fiscal Year 2015

	New Full Time Jobs			Retained Full Time Jobs			New Payroll			Investment		
Municipality	Total Promise	Total Realized	Actual as a % of Target	Total Promise	Total Realized	Actual as a % of Target	Total Promise	Total Realized	Actual as a % of Target	Total Promise	Total Realized	Actual as a % of Target
Bexley	79	45	57%	0	0		1,200,000	6,162,539	514%	21,300,000	35,900,024	169%
Columbus	1,007	2,407	239%	3,713	3,693	99%	35,377,453	134,985,774	382%	251,805,000	348,384,249	138%
Gahanna	44	8	18%	61	71	116%	2,535,000	0	0%	5,150,000	5,510,200	107%
Grandview Heights	111	1,285	1158%	89	89	100%	3,500,000	4,499,871	129%	28,758,000	34,348,498	119%
Hilliard	17	75	441%	85	85	100%	2,540,000	9,021,792	355%	6,800,000	8,410,125	124%
New Albany	6,822	4,222	62%	2,053	1,613	79%	199,256,800	139,520,667	70%	572,500,000	899,086,045	157%
Obetz	1,008	1,750	174%	35	35	100%	17,590,000	24,841,678	141%	156,147,800	154,491,167	99%
Upper Arlington	144	213	148%	169	169	100%	2,912,050	6,490,993	223%	17,456,000	19,656,773	113%
Urbancrest	215	787	366%	44	44	100%	4,408,080	30,279,157	687%	30,200,000	55,960,790	185%
Westerville	1,268	959	76%	88	88	100%	41,990,000	83,929,652	200%	53,220,000	74,731,424	140%
Whitehall	57	76	133%	40	40	100%	10,294,681	10,348,206	101%	29,150,000	28,401,805	97%
Worthington	129	136	105%	0	0		5,881,281	7,325,161	125%	6,212,100	6,705,500	108%
Townships	263	1,032	392%	1,274	1,274	100%	14,038,000	50,586,622	360%	55,770,000	66,266,105	119%
Total	11164	12995	116%	7651	7201	94%	341,523,345	507,992,112	149%	1,234,468,900	1,737,852,705	141%

Sources: Franklin County Auditor's Office; Ohio Development Services Agency 2016c and 2016d

Appendix A

Scope of Work

The Lincoln Institute of Land Policy (hereinafter the "Lincoln Institute") will undertake an in-depth study on the use of real property tax abatement incentives in Franklin County (hereinafter referred to as the "Study"). Real property tax abatements are defined as a reduction or exemption of real property taxes granted by a government for a specified period of time, usually to encourage certain activities such as capital investment, job creation, or elimination of blight. The following property tax abatements will be the focus of this Study:

- Community Reinvestment Areas, ORC 3735.65 through 3735.70
- Enterprise Zones, ORC 5709.61 through 5709.70

The Study will examine all real property tax abatements initiated from 1995 to 2015 in six (6) municipalities within Franklin County and a sampling of abatements for the City of Columbus for the same time period. The six municipalities are provisionally New Albany, Westerville, Hilliard, Gahanna, Grove City and Upper Arlington. Any changes in the set of municipalities will be by mutual agreement of Franklin County and the Lincoln Institute. The Study will look at a mix of property classes or types, including residential, commercial, industrial, distressed, and mixed use.

Part of the Study will involve creation of a data set on property tax abatements. Franklin County will provide data they have. Franklin County will facilitate the Lincoln Institute in obtaining data from the State of Ohio and from municipalities within Franklin County. The Lincoln Institute will add additional data from the U.S. Census Bureau and other sources as appropriate.

Using the data set, the Lincoln Institute will summarize the initial desired outcomes of the abatement agreements and investigate whether these desired outcomes actually occurred. The Study will also examine how school districts that rely on real property taxes are affected by the use of property tax abatements. The Study will determine whether there is a shift of the real property tax burden onto unabated properties and estimate the amount of any tax shifts. The researchers will choose the best analytic method(s) based on data availability, which will include some combination of fiscal impact analysis, economic impact analysis, regression analysis, and difference-in-differences analysis. The study will also look at the process for approving abatements and how transparent municipalities have been in disclosing information on tax abatements.

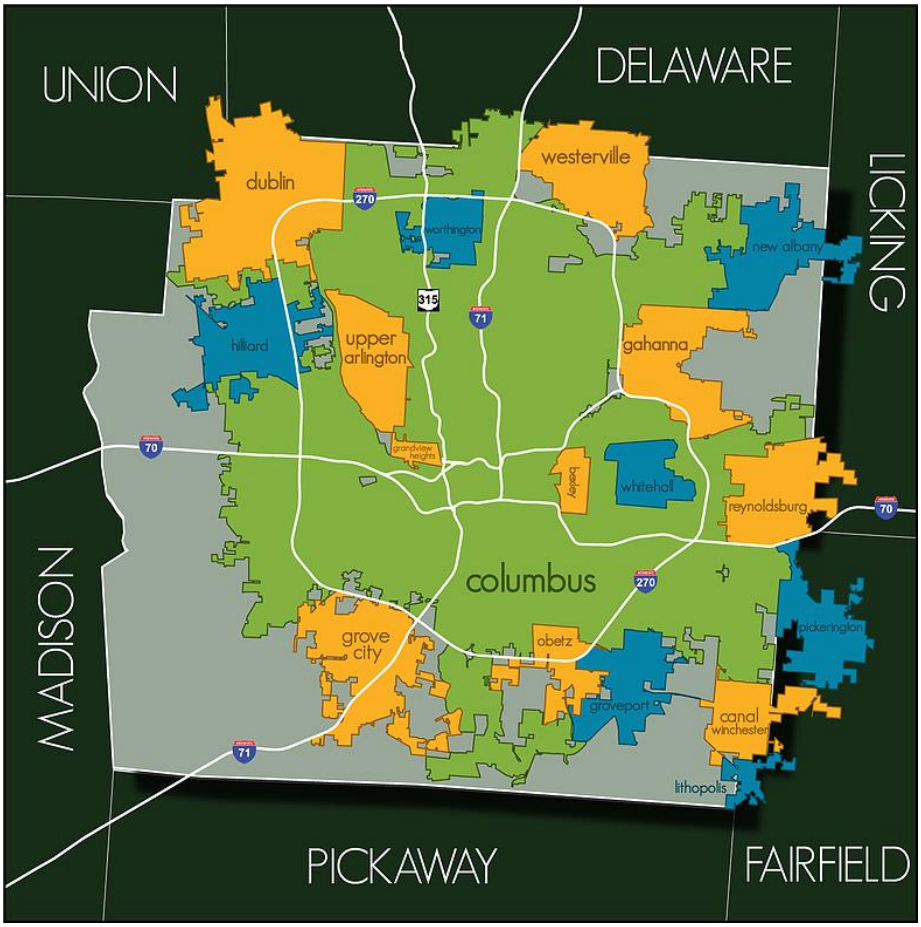
The deliverables submitted to Franklin County will be a draft and a final monograph (between fifteen (15) and forty (40) pages, plus possible appendices) (hereinafter collectively referred to as the "Monograph" and individually as the "Draft Monograph" and "Final Monograph") and a data set (hereinafter referred to as the "Data Set"). The Draft Monograph will be reviewed by Franklin County and two outside reviewers chosen by the Lincoln Institute. Franklin County Deputy Auditor Mark Potts will be the Project Manager for this Study, and will review and approve the Draft Monograph, Final Monograph, and the Data Set, and authorize payments to the Lincoln Institute.

Appendix B

Local Government Structure and Finance in Ohio and Franklin County

With 3,842 local governments, Ohio has more local governments than all but four other states.[1] The land area of each of its 88 counties is divided into townships. Municipal governments, which are incorporated, are either cities or villages, depending upon their population. Cities and villages can exist within townships, but when the boundaries of a city or village are coterminous with a township, the township ceases to exist.

Municipalities often grow by annexing land within a township (which is unincorporated). Sometimes this leads to municipalities which span county borders. For example, the city of Dublin, Ohio, which is located northwest of Columbus, is located in Delaware, Franklin, and Union Counties (see map below). Annexation also accounts for some of the unusual local government geography. For example, annexation of previously incorporated areas by the city of Columbus has created a situation whereby the city of Bexley is completely surrounded by the city of Columbus, also shown in the map below.



Source: St. Clair

[1] [1] U.S. Census, American Fact Finder, Local Governments by Type and State, 2012. The other states are Illinois with 6,963 local governments, Texas (5,147), Pennsylvania (4,897), and California (4,425).

Ohio also has 1,509 special purpose governments. School districts are of various types, but all are independent governments. Other special purpose governments include such entities as joint fire districts, park districts, and regional water and sewer authorities.

School districts are not necessarily coterminous with cities or villages, so that any general purpose incorporated local government may share a school district with another local government or be served by more than one school district. Sometimes school districts span county boundaries, as in the case of Licking Heights Local School District, which is mainly in Licking County, but which serves some Franklin County residents.

As shown in Appendix Figure 1, Ohio local governments rely less on the property tax and more on the sales tax and the income tax than the U.S. on average.[2] Counties and regional transit authorities can levy sales taxes, while municipalities and school districts can levy income taxes. Each of Franklin County's 15 cities levies an income tax at rates between one and 2.5 percent.

About 4,000 of Ohio's local governments levy property taxes, including counties, townships, municipalities, school districts, joint vocational school districts, and special service districts. In general, school districts rely most heavily on property taxes, followed by counties, then by municipalities, with many municipalities relying very little on property tax revenue.

Like most states, assessment of property is conducted at the county level. Real property is assessed at 35 percent of market value with revaluation required every six years. Ohio repealed taxation of tangible personal property in 2005 and phased it out over five years.

Although Ohio is not generally considered a state with a classified property tax system[3], in practice, due to the use of its tax reduction factors (explained below) it does impose different effective property tax rates on two classes of property: Class 1, residential and agricultural; and Class 2, all other, including commercial and industrial.

Local governments in Ohio may only institute property tax rates of up to one percent, or 10 mills, on real property[4] without approval from a majority of voters. Taxes levied within the 10-mill limitation are referred to as inside mills, and those voted in excess of the 10-mill limitation are called outside mills. The overlapping political jurisdictions associated with each property share the 10 mills of inside revenue, with the allocation among them set by law. School districts usually receive between four and six mills (Sullivan and Sobul 2010).

An important feature of Ohio's property tax is the application of tax reduction factors. As described by the Ohio Department of Taxation:

> These factors, which apply only to real property taxes, restrict the growth in taxes due to valuation increases that occur after reappraisal or triennial update (reduction factors also restrict decreases in taxes due to valuation declines that may occur after reappraisal or triennial

[2] The rest of this section draws heavily from Lang, Bree. 2016. "Ohio." In State-by-State Property Tax at a Glance. Significant Features of the Property Tax. Lincoln Institute of Land Policy, Cambridge, MA.

[3] A classified property tax system is one that applies different tax rates or assessment ratios to different classes of property.

[4] Real property is land and permanent improvements to land, such as buildings.

> update). Tax reduction factors are calculated only on levies enacted outside the 10-mill limitation…(Sullivan and Sobol 2010, 3).

Tax reduction factors are computed separately for Class 1 and Class 2 properties. For an initial levy, the property tax rates for each class of property are the same. However, over time as tax reduction factors are used, the effective property tax rates for the two classes of property diverge. Notwithstanding the general definition of effective property tax rate (revenue raised divided by market value), in Ohio the effective tax rate for the property tax is the total nominal rate for a local government or tax district once tax reduction factors have been applied, but before certain property tax relief measures are taken into account.

Effective rates are often reported by taxing district. A taxing district is a portion of the county within which property tax rates are constant. Because of the multiplicity of entities levying property taxes which do not have coterminous borders, each city is likely to have several taxing districts. For example, the city of Westerville has several taxing districts because it spans both Franklin and Delaware Counties and three townships and is served by two school districts. Altogether there are 610 taxing districts in Franklin County.

A recent study of Ohio's tax structure (Bruce and Fox 2011) found three concerns with its system of property taxation: They found it: (1) complicated and non-transparent; (2) complex in its use to fund local public education, and (3) subject to an increasing tendency to narrow the tax base by allowing property tax abatements.

Appendix C

Other Property Tax Abatements and Certain Other Business Tax Incentives

This study focuses on Community Reinvestment Areas (CRAs) and Enterprise Zones (EZs), but Ohio municipalities and counties also provide tax abatements for economic development through other programs. This appendix describes property and income tax abatement programs that have been or currently are important in Franklin County. These programs were identified through the Ohio County Commissioners Handbook, the web site of the Ohio Department of Taxation, interviews with Franklin County economic development officials or experts, and analyses of data provided by Franklin County (Ohio Department of Taxation 2015 and County Commissioners Association of Ohio 2016). For a more comprehensive list of business incentives see Columbus 2020 (2017).

A **Tax Increment Finance (TIF)** district (Ohio Rev. Code § 5709.40-43, § 5709.73-74, § 5709.77-79) is a geographic area where, after its establishment date, the district retains its incremental growth in property tax revenue to spend on infrastructure to encourage revitalization. TIFs do nothing to reduce the tax payments due on all forms of property in the district. However, under Ohio statute, this additional increment is no longer considered property taxation and is instead labeled a Payment in Lieu of Taxes (PILOT). For this reason, the Ohio County Commissioners Handbook (2016) includes TIFs in its tax abatement chapter. Most analyses do not consider TIF a form of tax abatement, but a device for earmarking or sequestering revenue, that is one of many property tax incentives benefiting business (Kenyon, Langley and Paquin 2012).

As with CRAs and EZs, the Board of County Commissioners establishes a TIF district by declaring that private investments within the district serve a public purpose and that the designated area meets other characteristics designated by law. The TIF declaration must also specify the percentage of increment diverted to the PILOT (75 to 100 percent) and the number of years the TIF is in place (10 to 30 years). Jurisdictions that overlap the TIF district, including school districts, must fully approve the TIF arrangement and allowances are provided for various forms of compensation agreements for jurisdictions affected by the incremental property tax revenue going to the PILOT and not them.

In 2015, Ohio abated $5.4 billion in property value through tax increment financing, which totaled 51 percent of all real property abated by all programs. Franklin County abated $1.9 billion in property value through tax increment finance, or 72 percent of all abated real property value (Ohio Department of Taxation 2015).

Ohio municipalities can establish **Community Urban Redevelopment Corporations (CURCs)** (Ohio Rev. Code § 1728.01 - 1728.13) and provide property tax incentives for improvements related to development or redevelopment of blighted areas in "impacted cities." CURCs can be for profit or non-profit corporations, governed by a board of directors, that operate under a community development plan that requires approval by the municipality. The process includes filing articles of incorporation with the secretary of state, stating the objective of the corporation and declaring that it will serve a public purpose. Under this program, the municipality, with the approval of the city board of education or school district, may abate up to 100 percent of the value of improvements for qualified projects. Land can be exempted from taxation if the city can demonstrate that it will use the land as part of an urban renewal plan (DeWine 2015).

Qualifying projects are subject to a financial agreement between the CURC and the municipality. The term of the project may not exceed 20 years. CURCs may purchase or lease public property and a municipality can issue bonds and enter contracts for urban renewal projects. The term of exemption is limited to 30 years for residential dwellings of up to three units, and is limited to 20 years for other improvements. The CURC pays an annual "service charge in lieu of taxes" laid out in a written agreement with the city which is like PILOTS paid under TIF. These payments, which may not exceed the amount of property taxes that would be paid without an exemption, are billed semi-annually and are earmarked to the city's urban tax equivalent fund. The county treasurer may secure a lien on the improvements, if necessary, to collect the contracted payments (DeWine 2015). CURC abatements accounted for most property value abated in the late 1980s and early 1990s, but as other abatements grew, the importance of CURC diminished. Franklin County municipalities have not abated any property under this program since 2006. Statewide, property value abated through CURC accounted for less than 1 percent of all abated value in 2015 (Ohio Department of Taxation. 2015).

Counties and municipalities provide **Environmental Protection Agency (EPA) Abatements** (Ohio Rev. Code § 3746 and § 5709.87) to promote brownfield clean up. Also called Remediated Brownfield Site Tax Exemptions, these abatements exempt the value of affected land and/or structures. Examples of contamination include land contaminated by petroleum based products and buildings with hazardous materials such as asbestos. Only properties certified by the Ohio EPA in the state's Voluntary Action Program (VAP) are eligible. Under VAP, companies that voluntarily investigate and remediate environmental contamination receive protection from lawsuit by the EPA. Once the EPA enrolls a property, it issues a memo to the Department of Taxation and Department of Development and to the county. The Ohio Department of Taxation then issues the county a "final determination" instructing the county to abate increases in qualifying land or structure value (County Commissioners Association of Ohio 2016 and Wirthman 2011).

Municipal Urban Renewal abatements (Ohio Rev. Code § 725.01 ~ 725.11) exempt the value of improvements in an urban renewal area (blighted) of a municipality, constructed under a development agreement and deemed to serve a public purpose. State statute exempts up to 75 percent of the assessed valuation for qualifying improvements for all taxing districts, or up to 100 percent of the value only with the express approval of the board of education or school district, unless it has waived its right to approve exemptions. Owners benefiting from the abatement must make semi-annual service payments in lieu of taxes which are deposited into an urban renewal debt retirement fund, enforceable by attaching a lien on the property. The urban renewal debt retirement fund is used to repay state debt incurred for urban renewal projects. Municipalities with an urban renewal debt retirement fund may also issue urban renewal bonds and use revenues for urban renewal projects. The service payments must equal the amount that would have been paid on the improvements without the exemption.

Municipal Urban Renewal exemption was used in Franklin County in 2015 but accounted for less than 0.4% of abated value ($9.7 million). Prior to 2014, no property was abated under the program in Franklin County since 1996. In 2015, Municipal Urban Renewal accounted for 2.4 percent of all property value abated statewide (County Commissioners Association of Ohio 2016; Ohio Department of Taxation 2015).

Job Creation Tax Credits (JCTCs) (Ohio Rev. Code § 122.17 and 122:7-1), governed by the Ohio Tax Credit Authority, are refundable job creation tax credits against state individual income tax, corporate income taxes, or insurance premiums tax. JCTC abatements have a maximum duration of 15 years.

Eligible business owners must apply to the authority to enter a JCTC agreement. The applicant must demonstrate that the project will create/retain jobs, is economically sound, and that the incentive is a major factor in the decision to go forward with the project. Agreements spell out the incentive duration (up to 15 years), the requirement to operate at the location for at least 7 years or three years after the end of the incentive (whichever is greater), the benefit amount (a set percentage of payroll),[5] annual reporting requirements, compliance requirements including a claw back provision, and a provision restricting relocation of jobs within the state to meet job targets. Annual reports can be filed online. As of March 2017, Franklin County had 114 active ("servicing") JCTC agreements, representing $652.5 million in investment, 12,462 new jobs, and 14,267 retained jobs. Combined, the tax incentives provided through these agreements, if all requirements are met, are worth over $79 million in Franklin County (Ohio Development Services Agency 2017a and 2017b).

In 1999, the U.S. Department of Housing and Urban Development approved a redevelopment plan for the City of Columbus and designated the **Columbus Urban Round II Empowerment Zone.** The area is 13.96 square miles and includes 21 Census tracts spanning seven zip codes with a 1999 population of 64,000 (Columbus Compact Corporation 2017).[6] [7] The tracts were chosen for inclusion based on criteria including economic distress, opportunity potential, and population. Businesses within the empowerment zone became eligible for a variety of federal economic development tax abatements such as employment credits, and increased depreciation deductions (Columbus Compact Corporation 2017 and Internal Revenue Service 2004).

Some municipalities abate municipal income taxes as a form of business incentive. Municipal income taxes are paid by employees through an automatic withholding from their paychecks by the employer. The employer then makes the payment to the local government. Some municipalities return a portion of this tax to the business in the form of a rebate for a set number of years if the business meets performance requirements. Sometimes these are called **performance based incentives.**[8] The City of Dublin provides an example of how such incentives work in Franklin County (City of Dublin 2017). In January 2017, the Dublin City Council approved performance-based incentives for two companies looking to expand in the city: Sarnova Inc. and Denso International America, Inc. The city entered an agreement to provide for Sarnova Inc., a medical product company, a 22 percent withholdings abatement for five years. The company, in exchange for the incentive, planned to sign a 7-year lease to expand its operations at a nearby site in the city, creating 44 new jobs and retaining 190 current employees. Sarnova had considered expanding elsewhere in Central Ohio. The city capped the benefit at $13,000 over the five-year term. In an agreement with Denso International American, Inc., an automotive parts supplier, the city agreed to a 12 percent withholdings abatement for five years capped at $53,000. The company, which had considered expanding in Michigan, planned to renew its existing

[5] Before 2015, benefits were calculated based on employee withholdings rather than on payroll. The change in basis does not alter the value of individual agreements.
[6] Columbus Compact Corporation indicates the population within the zone has shrunk to about 54,000.
[7] A map of the Empowerment Zone areas is available from HUD at https://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/economicdevelopment/programs/rc/tour/oh/columbusEZ
[8] According to interviews with economic development officials in Franklin County, many municipalities offer such an incentive, but there is no formal program and the incentive has various names.

lease and sign a new lease for a second office in the Dublin adding 13 new jobs by 2022 and retaining 37 employees (Newpoff 2017).

Appendix D

Review of Related Studies

This appendix provides further detail on previous literature related to the two key questions of this study: the economic impact of property tax abatements, and the extent to which property tax abatements shift taxes to those taxpayers not receiving an abatement.

Economic Impact Studies. One goal of our study is to determine whether the use of property tax abatements in Franklin County, Ohio yields the desired outcome of generating economic activity. Wassmer (2009) and Kenyon, Langley, and Paquin (2012) offer comprehensive reviews of the information needed to appropriately assess the economic impact of property tax abatement. These documents discuss the theoretical impact of future property tax abatement on business location decisions, the types of abatements used by sub-national governments in the United States, ways to assess their effectiveness, and a summary of recommendations and policy options. A critical question is whether the economic activity in question (increases in property value, increased investment, retained or increased jobs or payroll) would have occurred even without the property tax abatement. If the development in the abating jurisdiction would have occurred at the same magnitude with or without the abatement, then the revenue foregone stands as wasted public funds. However, as Wassmer and Kenyon et al. point out, this question is difficult to answer. A form of statistical (regression) analysis provides the best shot at offering an accurate answer.

Economists generally expect that the impact on economic activity from property tax abatement will be greater when looking at jurisdictions within a metropolitan area, as opposed to jurisdictions across an entire state, or comparing states themselves. Location by a business or household in different jurisdictions within a metropolitan area (or county) provides similar access to desired markets (for both business and households), and laborers and other input suppliers (for business). Thus, these important factors affecting location are less important, and the degree of property taxation is more likely to be a deciding factor. This, coupled with the action-orientation of local officials desiring to do something to increase their jurisdiction's economic activity, result in property tax abatement being a tool widely used by local governments in metropolitan areas (Kenyon, Langley, and Paquin, 2012).

As Wassmer (2009) notes, Bartik (1991) surveyed the pre-1991 statistical (regression) studies that estimated the intra-metropolitan effect of abatement on economic activity and found that a one-percent decrease in a jurisdiction's property taxes resulted in a 1.5 to 2 percent increase in economic activity. Later work by Anderson and Wassmer (2000), however, shows this effect likely diminishes over time within a metropolitan area as local policymakers in non-abating jurisdictions see that they are losing economic development to abating jurisdictions and begin to offer abatements themselves. Anderson and Wassmer also discovered that within a metropolitan area, commercial abatements are less likely to sway location decisions than manufacturing abatements likely because commercial activity is less "footloose" in desired location. Swenson and Eathington (1998), and Bollingern and Ihlanfeldt (2003) find the same for property tax abatement designed to alter the location of housing activity in a metropolitan area.

Hultquist (2014) is a more recent statistical analysis that relies upon the technique of multiple regression to assess the economic impact of property tax abatement in Ohio. Using data from all zip codes in the

state, his study examines the influence of corporate franchise and/or personal income tax credits granted to businesses making capital and labor investments through Ohio's Job Creation Tax Credit (JCTC) program as well as property tax abatements granted through the Enterprise Zone (EZ) program over the five-year period between 2000 and 2004.[9] The key variables used to examine impact from these two incentives programs are annual change in employment and wages in aggregate and for the manufacturing or trade/transportation sector specifically. Controlling for both zip-code and year-specific effects, Hultquist seeks to ascertain the influence of the cumulative incentive intervention by estimating the impact of the cumulative dollar amount of credits and abatements offered at the start of the year on the change in employment or wages.

Hultquist 's findings indicate that the cumulative value of JCTC and EZ incentives exerts no influence on change in aggregate employment in a zip code, and have only a modest positive influence on wages. When disaggregating the JCTC and EZ incentives, he finds that a $1 million increase in EZ abatement in a zip code is associated with a measly one-twentieth increase in a manufacturing job within the zip code. A $1 million increase in tax credits through the JCTC is associated with a $45 million increase in trade/transportation wages and nearly 900 jobs.[10]

In a final set of regression analyses, Hultquist alters the dependent variable to equal the change in a zip code's employment or wages in the either the manufacturing or trade/transportation sectors, less the respective change due to firms that have received incentives in last two years. Thus, he specifically tests for the spillover, rather than the direct, impact of these incentives. For manufacturing, he now finds that JCTC and EZ incentives offered in a zip code up to an observed year reduce the change in manufacturing employment and wages for firms not receiving the incentive and in the zip code. However, the opposite is true for the transportation/trade sector and the use of JCTC.

Fiscal Impact Studies. Some goals of our study of property tax abatement in Franklin County, Ohio are to examine the following: (1) the fiscal effects on school districts from the granting of abatement initiated by an overlapping jurisdiction, and (2) the burden of property taxation shifts to unabated properties. These examinations are a form of "fiscal impact analysis" and thus it appropriate to examine previous works that discuss this form of analysis in general, and that use this form of analysis for property tax abatement.

As described in Morgan (2010), a fiscal impact analysis (FIA) of a new development project considers both the fiscal costs and benefits to the host jurisdiction. Fiscal costs could initially include additional infrastructure expenditure (water, sewer, roads, utilities, etc.) and financial assistance resulting from the project. Future fiscal costs generated by a new development might include expenditures for education, public safety, parks/recreation, public health, and social services. A new development project could also

[9] Hultquist (2014, 207) states that JCTCs and EZs are "the two primary spatially targeted economic instruments used within the state of Ohio." However, he uses data from 2000 to 2004, and Ohio's 2005 tax reform significantly reduced the use of enterprise zones, as described elsewhere in this report. Hultquist does not consider CRAs, which we found to be the most important property tax abatement program in Franklin County during our study period.

[10] As Hultquist (2014, 219) notes, this magnitude difference between the influence of JCTC and EZ incentives is due to the typical JCTC firm tax credit being about $150,000, while the typical EZ firm property tax abatement is about $5.5 million. Thus, he appropriately cautions against making out-of-sample projections for the values of these incentives.

generate fiscal benefits to the jurisdiction it resides in: increased local property, income, and/or sales tax revenues and revenue from fees, user charges, and/or intergovernmental revenue. Since the fiscal costs and benefits of a development project occur over time and with differing annual values, Morgan (11) suggests using available software applications to calculate the discounted net present value of the expected stream of annual fiscal benefits less fiscal cost.

Edwards and Huddleston (2010) discuss how planners in Wisconsin cities have used the available software applications to conduct fiscal impact analyses (FIA). Through a survey and interviews of these planners, they find that planners generally view FIA as a valuable tool. The FIA process includes: (1) characterizing the project; (2) choosing an appropriate multiplier to determine ripple effects of the project through the local economy, and; (3) calculating the discounted net present value of the fiscal impact. In simulations for seven Wisconsin cities for the same project characterization, using a reasonable range of multiplier values, Edwards and Huddleson find that the software programs used to produce FIA calculations yield a wide range of results from fiscal surplus to deficit. They conclude that the use of FIA analysis to inform policymakers of the fiscal desirability of a development project should be done with care, appropriate caveats, and the use of sensitivity analysis that reports a possible range of fiscal impacts if key assumptions (especially the chosen multiplier) of the analysis vary.

Paulsen (2009) offers a conceptual overview of the effects of land development on municipal finance. He finds the direct fiscal impacts calculated by the traditional FIA just described are only a portion of the fiscal impacts expected from new land development in a jurisdiction. Paulsen's concept is that revenues flowing from the land development, less expenditures flowing into the land development, yield direct fiscal impact. Indirect fiscal impact to the jurisdiction from a new development arises from three other sources: (1) change in a jurisdiction's distribution of land uses and hence tax base; (2) effects on the local real estate market, and; (3) change in local-employment-to-population ratio that results in additional land development.

Hicks and Faulk (2016) present one of the few analyses that attempts to assess the aggregate fiscal impact of property tax abatement. They calculate the reduction in property tax revenue due to abatement for each of the 92 counties in the State of Indiana in 2011 by multiplying the effective (average) property tax rate in the county by the assessed value of property base abated in the county. This is an imperfect calculation because it fails to account for property tax rate rollbacks if property base growth exceeds inflation, and the fact that some property would not be constructed but for abatement and because the actual rate of property taxation for some abated property is different from the average rate. Still, it offers an estimate of how the fiscal impact of abatement varies across the state's counties. Hicks and Faulk fit a simple regression line onto the 92 counties' log of effective property tax rate graphed against log of abated share of property. They find that a doubling of abatement increases the effective property tax rate by about 12 percent. In a similar analysis, they estimate that a 10 percent increase in abatement use in a county only yields about a two percent increase in the county's property tax base. Hicks and Faulk conclude that these fiscal impact findings are enough to question the efficacy of abatement use and hence they suggest greater scrutiny in granting abatements.

The public interest group Good Jobs First (n.d.) offers a summary of how the granting of abatement by a jurisdiction that overlays a school district can undermine the school district's fiscal situation. Undermining occurs because abatement of property value, often a school district's largest tax base, often results in greater expenditure when the development draws new students to the district, while

concurrently generating a loss in property tax revenue to fund it. This summary draws extensively from a Good Jobs First study commissioned by the National Education Association (NEA 2003). Particularly relevant to our analysis is the NEA's case study of Ohio. Unfortunately, values for specific fiscal impacts on Ohio's school districts are not entirely applicable because the study (using 1998-99 data) predates the state's change to an Evidence-Based Model of School Finance now in use. Noteworthy though is the praise that this study bestows upon Ohio's abatement practices regarding the advisory role the affected school boards play in granting abatement for local economic development decisions. The NEA's conclusions for the rest of the country draw from Ohio's practices and the NEA recommends that school boards have full veto power or receive full compensation for abatements granted by overlying jurisdictions, and that states do more to measure the fiscal impact of abatements on public schools.

The Franklin County Auditor's Office, as reported by *The Columbus Dispatch* in December 2015 (Bush 2015, Franklin County Auditor 2015a, Franklin County Auditor 2015b), also offers a relevant tax shift study. This report contends that more than $300 million was shifted from abated properties in Franklin County, Ohio to other taxpayers over the period from 2010 to 2014. This abated value included property abated in CRAs and EZs, but did not include tax increment finance. The average tax abatement for the 3,237 properties receiving a CRA or EZ abatement was estimated to be $93,450. Tax liability for the 423,800 properties not receiving an abatement increased by an estimated $712.

This study relied on values of abated property collected by the auditor's office and reported to the Ohio Department of Taxation. The assessment ratio, the 10 percent residential property tax rollback, and the effective property tax rate for each school district were used to produce the estimate. However, this methodology made no account for the possibility that the offering of abatements could increase the market value of property in a school district, thereby contributing to an offset, or even reversal, of the estimated tax shift.

Appendix E

Regression Analysis

The purpose of this description is to offer background information on regression analysis and show how it is applied to detect the fiscal and economic influence of property tax abatement in Franklin County, Ohio.

Overview of Approach

An important component of this analysis is the statistical technique of multiple regression analysis. Multiple regression analysis is appropriate for use in a policy analysis that requires the teasing out of the independent influence of one explanatory factor on an outcome (or dependent) variable of interest, when variance in the outcome variable is due to multiple causal (independent) factors.[11] For those unfamiliar with this technique, consider the physical experiment of setting two petri dishes with a seed in the same environment, but only placing fertilizer in one of them. This allows for the determination of the independent influence of fertilizer on seed growth, because the experiment effectively controls for everything else that determines seed growth. Such an experiment is not possible for the determination of how property tax abatement exerts a fiscal or economic effect on a jurisdiction because multiple things are different across the jurisdiction besides abatement activity alone. Thus, it is necessary to gather, as best as possible, information on factors that influence the fiscal or economic dependent variables under consideration, effectively control for their influence using multiple regression analysis, so the independent influence of property tax abatement is better estimated.

The appropriate use of regression analysis requires that the analyst begin with a model of general factors expected to influence the outcome of interest. Then the analyst gathers measurable variables to represent each of the general causal factors. This stage requires great care in the selection of these variables, as the exclusion of a relevant causal factor can result in an "omitted variable bias" where the calculated influence of the explanatory variables does not represent the desired measure of their influence on the outcome variable holding constant the influence of other explanatory factors.[12]

A concern in cross-sectional regression analysis (where data are drawn from a group of designated jurisdictions or geographical areas for one point in time) is "heteroscedasticity."[13] A further concern in time-series regression analysis (where data are drawn from a jurisdiction or geographical area over

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[11] See Charles Wheelan's 2013 book on *Naked Statistics: Stripping the Dread from the Data*, published by Norton, for a highly readable review of the basic statistics necessary to understand multiple regression analysis (for which he discusses specifically in Chapter 11 of the book). Also, see Michael Bailey's 2016 book on *Real Stats: Using Econometrics for Political Science and Public Policy* published by Oxford University Press for a complete textbook, geared to those with limited statistical literacy, on the application of regression analysis. Wikipedia also offers background information on regression analysis at https://en.wikipedia.org/wiki/Regression_analysis .

[12] See Wheelan (2013, pp. 217-219), and Bailey (2016, pp. 489-497) for descriptions of the common regression mistake of omitted variable bias. Wikipedia also covers this at https://en.wikipedia.org/wiki/Omitted-variable_bias .

[13] See Bailey (2016, pp. 67-68) for a description of the common regression concern of heteroscedasticity. Wikipedia also covers this at https://en.wikipedia.org/wiki/Heteroscedasticity .

time) is "autocorrelation."[14] If these two concerns are ignored, the conclusion drawn regarding whether a causal variable exerts a non-zero influence on an outcome variable may be incorrect (because the calculated standard errors for the regression coefficients are biased) and therefore should not be trusted as the basis of a policy recommendation.

The analyst can combine data from the same group of individuals/jurisdictions across multiple points of time to expand the amount of data available for a regression analysis where only a limited number of observations exist for a small number of jurisdictions or geographic areas. This "pooling" of cross section and time series data also allows for the control and measurement of non-observable "fixed-effect" factors that are constant across time for each individual/jurisdiction, but vary between the individuals/jurisdictions in the pooled regression analysis.[15] Pooling also allows for the same regarding "fixed-effect" factors that are constant across units of observation, but vary between times of observation in the pooled regression analysis. The policy analysis of property tax abatement discussed here uses a pooled data set and thus allows for the calculation of school district or census tract specific fixed-effects after controlling for other general factors driving differences in the dependent variables.

Our use of fixed effects (controlling for both year and city specific influences) panel data regression analysis to estimate the impact of CRAs and EZs on property and property tax rates is a "difference-in-differences method."[16] It does a superior job of controlling for many of the factors that could exert a fiscal or economic impact besides abatement. Thus, it allows us to be quite confident that when the regression analysis finds a fiscal or economic impact from abatement, it is truly happening.

The data set uses observations from the 16 school districts where more than half of their land area is in Franklin County, or all the 284 Census Tracts in Franklin County. For the 16 school districts, we use data gathered from the 18 years between 1998 and 2015. For the 284 Census Tracts, we use data from the 14 years between 2002 and 2015.

The appendix tables contain a typical way of recording regression results. The first column of the table describes the explanatory variables included in the regression. The second column includes the regression coefficient derived for the influence of a respective explanatory variable on the dependent variable, holding other explanatory variables constant. Recorded in the third column are the "standard errors" derived for each regression coefficient. The regression coefficient divided by its standard error yields a "t-statistic" used to determine if the respective regression coefficient is statistically significant from zero. The minimum standard for such determination in a two-tailed test is 90 percent confidence. We indicate this in the fifth column of the regression results tables by a system of asterisks. When interpreting regression results, understand that we generate a regression coefficient for every explanatory variable, but the value of this regression coefficient is only relevant if the value of its t-statistic indicates it to be statistically significant from zero with an acceptable level of confidence.[17]

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[14] See Bailey (2016, Chapter 13) for a description of the common regression concern of autocorrelation. Wikipedia also covers this at https://en.wikipedia.org/wiki/Autocorrelation .

[15] See Bailey (2016, Chapters 8 and 15) for descriptions of the regression use of panel data. Wikipedia also covers this at https://en.wikipedia.org/wiki/Panel_data .

[16] See Bailey (2016, pp, 268-75) for a description of the difference-in-differences method in regression analysis. Wikipedia also covers this at https://en.wikipedia.org/wiki/Difference_in_differences .

[17] See Bailey (2016, Chapter 4) for a description of the regression concept of statistical significance. Wikipedia also covers this at https://en.wikipedia.org/wiki/Statistical_significance .

Another way to think about whether a regression result indicates whether an explanatory variable exerts an effect on a dependent variable is to examine the "90% confidence interval" for the result. These confidence intervals are in the fourth column of the tables in each of regression result tables. For instance, look at the results in Appendix Table 2 to better understand this. Note the expected effect of the explanatory variable Abate_Percent on the dependent variable Ln_School_Mills_Real records has a regression coefficient value of -0.016. As indicated in the statistical significance column, we can be at least 99 percent confident that this effect, as measured, is different from zero (no) effect. Regression analysis also allows to state that with 90 percent confidence, this effect is between -0.022 and -0.0096. Thus, the policymaker interested in knowing how CRA abatement influence a school district's property tax millage rate can either use the point estimate of -0.016 (and be 99% certain this affect is different from no effect); or use the range of possible effects listed as -0.022 to -0.0096 (and be 90% certain that the effect falls within this range). In this report, we primarily talk about point estimates that we can be 90% confident are different from zero.

We transform some of the dependent variables used in the regression analysis by taking their natural log. We do this to account for the fact that the relationship between the dependent and independent variables is not linear (one-unit change in an explanatory variable always yielding the same specific unit change in a dependent variable). Instead, we model these expected cause and effects as a one-unit change in an explanatory variable resulting in a percentage change in a dependent variable.[18] Thus, a statistically significant regression coefficient (with an asterisk) indicates the expected influence of a one-unit change in the respective explanatory variable on the dependent variable in percentage terms. The exceptions to this is the transformation to natural log form of explanatory variables that also account for scale effects. We do this because of the large difference in scale between the smallest and largest units of observation in the data samples used. When both the dependent and explanatory variable are measured in natural log form, the regression coefficient represents the percentage change expected in the dependent variable after a one-percent change in the explanatory variable.

A Simple Model of What Determines a School District's Property Tax Rate

Since we want to understand how property tax abatement and other forms of relevant economic development incentives exert a fiscal and economic impact on a school district, we first think about the overall relationship between a school district's rate of annual property taxation, the dollar value of annual education expenditures its residents desire, and the market value of the property tax base that is taxed to raise the dollars needed for education expenditure. We represent this as:

(1) Property Tax Rate = Local Education Expenditures / Taxable Property Value

Once residents decide upon an amount of annual expenditure for their school district, they must tax property within the district at an annual rate that yields this revenue.

Upon seeing the relationship just described, it becomes clear that all three of the measures in equation (1) are co-related—meaning that if one changes, the other two are also likely to change. In statistical terms, there is an endogenous determination of the three variables described above. This presents a

[18] Specifically, one interprets the coefficient on an explanatory variable with a left-hand semilog function as follows. If the explanatory variable changes by one unit, holding other explanatory variables constant, the dependent variable will change by the coefficient value times 100 percent (Studenmund 2001, 209).

problem for regression analysis where only the dependent variable (here, property tax rate) can be dependent on the causal (independent) variables used to explain it.[19]

To turn equation (1) into a viable regression model, we need to describe the exogenous (independent) factors expected to influence differences in the two variables listed on its right side:

(2) Local Education Expenditures = f (Resident Characteristics that Influence Demand);

(3) Taxable Property Value = f (Property Tax Abatement, Other Property Relevant Incentives, Property Exempt from Taxation, Property Base Characteristics).

As described in equation (2), residential characteristics expected to account for greater demand for K-12 education in a school district can also increase the expected amount of observed education expenditures. As noted in equation (3), a school district's taxable property value changes with the degree of property tax abatement and other relevant incentives offered within the district. A key question examined is whether the use of abatement and other incentives cause an increase in taxable property value that would not have occurred without them, or do they just give away taxable property value, and thus reduce taxable property value? The degree of property exempt from taxation, furthermore, decreases its taxable property value. Characteristics of a school district's property tax base can also change its value.

The next step to yielding a viable regression model is specifying the available explanatory variables that represent the exogenous factors specified on the right side of equations (2) and (3). These are:

(4) Resident Characteristics that Influence Demand = f (Bachelor_Plus_Percent[20], Age19_Less_Percent, Enrollment);

(5) Property Tax Abatement = f (Abate_Percent, CRA_Pre94_Percent);

(6) Other Property Relevant Incentives = f (TIF_Abate_Percent, EPA_Abate_Percent);

(7) Property Exempt from Taxation = f (Exempt_Percent);

(8) Property Base Characteristics = f (Number_Parcels, Parcels_Percent_NonResidential).

As noted in equation (4), we expect that demand for K-12 education expenditure will be greater, the larger the percentage of the adult population over age 25 holding at least a bachelor's degree. The percentage of a school district's population of school age should also exert a positive influence on demand for K-12 public education, but it will also raise the cost of providing it.

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[19] See Bailey (2016, Chapter 9) for a description of the regression concept of endogeneity and the problems it generates. Wikipedia also covers this at https://en.wikipedia.org/wiki/Endogeneity_(econometrics) .

[20] We also gathered data on median household income in a school district, but exclude it here because of its partial correlation coefficient of 0.93 with bachelor degree holders. When both are included as explanatory variables in these regression analyses, neither exhibited statistical significance due to multicollinearity. See Bailey (2016, Chapter 5) for a description of the regression concept of multicollinearity and the problems it generates. Wikipedia also covers this at https://en.wikipedia.org/wiki/Multicollinearity .

In Equation (5), we account for the use of property tax abatements by the percentage of a school district's property tax base receiving a CRA or EZ abatement, and the percentage of CRA abatement using pre-1994 rules. The later explanatory variable offers a test of whether type of CRA abatement matters. Equation (6) accounts for the two other major types of property tax abatement used in Franklin County. The Environment Protection Agency (EPA) abatement encourages brownfield development. A tax increment finance (TIF) district retains its incremental growth in property tax revenue to spend on infrastructure to encourage revitalization.[21] We measure both EPA and TIF abatement as a percentage of the school district's total market value of property tax base receiving these respective abatements. In equation (7), we account directly for the percentage of a school district's property tax base exempt from taxation. Finally, equation (8) controls for differences in the number of parcels in a Franklin County school district, and the percentage of these parcels which are non-residential.

There are two points to highlight about our key explanatory variable: Abate_Percent. First, it includes both CRA and EZ abatements. Enterprise zone abatements were too small in quantity to run regressions using that variable alone. Second, this variable and variables like it, such as TIF_Abate_Percent, should be interpreted as a stock, not a flow. In other words, these variables measure the percent of property abated at a given time, not the new abatements approved in that year.

Using Regression Analysis to Detect the Fiscal Impact of Property Tax Abatement

We define the fiscal impact of property tax abatement in a school district as the effect it has on the district's property tax rate. Using the equations specified above, and substituting in the exogenous factors in equations (4) through (8) that influence the endogenous measures of education expenditures and taxable property value in equation (1), yields the regression specification:

(9) Property Tax Rate = f (Bachelor_Plus_Percent, Age19_Less_Percent, Enrollment,
Abate_Percent, CRA_Pre94_Percent, TIF_Abate_Percent,
EPA_Abate_Percent, Exempt_Percent, Number_Parcels,
Parcels_Percent_NonResidential).

Regression analysis calls this a "reduced-form" specification because only exogenous and independent variables are included in equation (9) as causal right-side variables.

Given this basic regression specification, and the desire to use panel data in its estimation, we first tested whether the use of "fixed" or "random" effects is appropriate. At the 99 percent confidence level, the appropriate Hausman test indicated fixed effects. Next, we tested for the presence of autocorrelation in the regression using the Wooldridge test and found it present with greater than 99 percent confidence. Additionally, a Breusch-Pagan / Cook-Weisberg test for heteroscedasticity indicated its presence with 95 percent certainty. Therefore, the appropriate regression process to use in STATA is "xtpcse" (that controls for "AR1" autocorrelation specific to each panel and heteroscedasticity) with two sets of school district and year dummy variables to account for fixed effects.

The dependent variables used to detect the fiscal impact of property tax abatements are as follows: (1) the actual mills assessed on real property in a school district (School_Mills_Real); (2) the effective

[21] See Appendix C for further explanation of TIFs and EPA abatements.

property tax rate on residential property (Residential_Effective_Real_Rate); and (3) the effective property tax rate on non-residential property (NonResidential_Effective_Real_Rate).[22]

Appendix Table 1 contains descriptive statistics for all variables used in the fiscal impact regression analysis based upon 288 observations drawn from the 16 school districts with half of their area in Franklin County during an 18-year span. Tables 2 through 4 report the regression results. A concern to consider is the possibility that the explanatory variables used to measure different forms of abatement (CRA_EZ_Abate_Percent, TIF_Abate_Percent, EPA_Abate_Percent) are highly correlated, or if one of these changes the other changes in a similar manner, either up or down. We checked for this by calculating the pairwise correlation coefficients between these four variables and found them at levels low enough to not likely yield concerns.

As noted in Appendix Table 2, a one percentage point increase in the percentage of a school district's property tax base granted an abatement (say from the observed mean of around three percent to four percent) results in about a 1.6 percent decrease in a school district's property tax millage rate.[23] A similar finding is also found in Appendix Table 3, where a one percentage point increase in a district's level of abatement results in a 0.32 decrease in the effective property tax rate on residential property. As shown in Appendix Table 4, however, we find that abatement has no statistically significant impact on the effective rate of real property taxation on nonresidential property. We also tried a regression that contained the one-period lagged values of the different abatement types and found those not to exert a statistically significant influence. Thus, they were dropped from the final specification.

Interestingly, a one percentage point increase in the percentage of a school district's property tax base granted a TIF abatement (say from the observed mean of around 1.4 percent to 2.4 percent), results in in about the same 1.6 percent decrease in a school district's property tax millage rate (Appendix Table 2). However, TIF abatements are not statistically significant in either Tables 3 or 4, where the dependent variables are effective property tax rates, rather than actual school millage rates. EPA abatement also exerts no measurable fiscal impact in a Franklin County school district.

Using Regression Analysis to Detect the Economic Impact of Property Tax Abatement

We define the economic impact of property tax abatement in a Franklin County school district, or Census Tract, as the effect it has on taxable property value. For a school district that sets its own property tax rate, an algebraic manipulation of equation (1) yields:

(10) Taxable Property Value = Local Education Expenditures / Property Tax Rate.

From this, the reduced form regression, resulting after the appropriate substitutions from equations (2) and (3), is:

(11) Taxable Property Value = f (Bachelor_Plus_Percent, Age19_Less_Percent,
Enrollment, Abate_Percent, CRA_Pre94_Percent, TIF_Abate_Percent,
EPA_Abate_Percent, Exempt_Percent, Number_Parcels,

[22] In Ohio, the effective property tax rate is the total nominal rate for a local government or tax district once tax reduction factors have been applied, but before certain property tax measures are taken into account. For a fuller explanation see Appendix B.

[23] The regression finding indicates with 90 percent confidence this effect falls within a 2.2 to 0.96 percent decrease.

Parcels_Percent_NonResidential).

We measure taxable property for both school districts and Census Tracts in Franklin County as the market value of real property in the relevant entity. The data used to estimate equation (11) for school districts is the same as described in Appendix Table 1.

Testing for the presence of fixed over random effects, autocorrelation, and heteroscedasticity, we again find their presence in this regression with a different dependent variable, but the same set of explanatory variables. Thus, we employ the same regression technique as earlier. Appendix Table 5 contains the school district based results for our economic impact analysis. Regarding the economic impact of property tax abatement on school districts in Franklin County, we find that a one percentage point increase in the percentage of a school district's property tax base granted an abatement (say from the observed mean of around three percent, to four percent), results in about a 1.5 percent increase in the value of a school district's real property tax base.[24] A **one-tenth of a percentage point increase** in the percentage of school district's property tax base granted an EPA abatement (say from the observed mean of around 0.03 percent, to 0.13 percent), results in about a 0.73 percent decrease in the value of a school district's real property tax base.[25] TIF abatement is found to exert no measurable economic impact on a Franklin County school district.

As an additional test of the economic impact of property tax abatement, we also gathered data from the 284 census tracts in Franklin County in 2015 back to 2002. These are not governmental jurisdictions and thus levy no property taxes. What they do offer is a unit of observation that results in many observations within Franklin County, and thus ideal for examining the economic impact of property tax abatement on the market value of the property tax base. Referring to the earlier set of equations, we can only estimate the taxable property value relationship in equation (3) and check how property tax abatement, other property relevant incentives, property exempt from taxation, and other property base characteristics influence it. Appendix Table 6 contains descriptive statistics for the variables included in census tract estimation of equation (3).

We find the presence of fixed over random effects, autocorrelation, and heteroscedasticity in this regression making it necessary to use the same regression technique used earlier. The census tract based results for our economic impact analysis are in Appendix Table 7. Like the regression using school district data, we again discovered that abatement exerts a positive influence on the market value of property, just not as large. A one percentage point increase in abatement in a census tract yields about a 0.6 percent increase in the market value of property.[26] TIF abatement yields a positive influence on the market value of property in a Census Tract, whereas in a school district it exhibited no effect. A one percentage point increase in TIF abatement yields about a 1.2 percent increase in the

[24] The regression finding indicates that with 90 percent confidence this effect falls within a 1.3 to 1.8 percent increase.

[25] The regression finding indicates that with 90 percent confidence this effect falls within a 0.2 to 1.2 percent decrease. Note that the simulation reported here is only based on a one-tenth of a percentage point increase in EPA abatement; whereas, previously simulations based on a one percentage point increase. The reason for this being that EPA_Abate_Percent values only range from zero to 0.69, and a full one percent change would be outside the observed sample.

[26] The regression finding indicates that with 90 percent confidence this effect falls within a 0.38 to 0.81 percent increase.

market value of property in a census tract.[27] Though EPA abatement earlier exerted a negative impact on the market value of a school district's property tax base, no economic impact existed in our regression analysis using the smaller unit of a Census Tract.

Note that we also tried a regression that contained the one-period lagged values of the different abatement types and found those to exert no statistically significant influence and dropped them from the final specification. In addition, we ran regressions using data from both school districts and census tracts and a different dependent variable equal to the dollar amount of building investment in a given year (from building permit data), as a percentage of the total market value of taxable property in the unit of analysis under consideration. We chose not to report these results because we never found that abatement exerted a statistically significant influence on this measure of the flow of economic activity. This was even the case when we lagged the measures of abatement activity for one, and even two years (that is, included a previous year's amount as an additional explanatory variable). This non-finding could be a result in inaccuracies in the building permit data used.

Findings

The regression analysis reveals that the previous decades of property tax abatement use have exerted both positive fiscal and economic impacts in Franklin County. In school districts, a one percentage point increase in the use of abatements exhibited about a 1.5 percent increase in the market value of the district's property (economic impact), and about a 1.6 percent decrease in the district's property tax millage rate for schools (fiscal impact). We detected a second fiscal impact in the form of a one percentage point increase in abated values as a percent of a school district's property tax base yielding a 0.32-point decrease in the effective property tax rate on residential property. The effect found regarding abatement and the effective property tax rate on non-residential property is not statistically significant from zero. For Census tracts, the same increase in abatement correlates with a 0.6 percent increase in the market value of the tract's property (economic impact).

We also found that the greater the TIF abatement present in a Franklin County school district over the observed decades, the lower was the district's property tax millage rate. Specifically, a one percentage point increase in TIF abatement as a percentage of property value results in about a 1.6 percent decrease in the school property tax millage rate (fiscal impact). Using Census Tract data, a regression investigation of the economic impact of TIF abatement on the market value of property yielded a one percentage point increase in TIF use resulting in about a 1.2 percent increase in property value.

The only fiscal or economic impact of EPA abatement detected in our regression analyses of Franklin County was a one percentage increase in its use correlating with a 7.3 percent decrease in a school district's property value—possibly from detecting the greater presence of brownfields in school districts using more EPA abatements.

Caveats

Keep in mind two important caveats when considering the policy implications of our regression results. One standard caution regarding regression analysis is that "regression does not necessarily imply causation. Causality must be justified, or inferred, from the theory that underlies the phenomenon that

[27] The regression finding indicates that with 90 percent confidence this effect falls within a 1.1 to 1.4 percent increase.

is tested empirically" (Gujarati 2006, 134). It is possible that each of our statistically significant results could warrant an alternative interpretation. For example, our finding that increased use of abatements reduced the school millage rate could mean that local governments with lower millage rates make greater use of property tax abatements. But as Gujarati implies, this is less likely because theory would not support the need for a jurisdiction with a low rate of property taxation needing to offer more abatement to attract economic activity. In fact, the opposite is more theoretically likely, as we imply in the interpretation of our findings.

The second caveat is the potential for omitted variable bias. Given the multiple forms of economic development incentives used in Franklin County, it is unreasonable to assert with certainty that we have not omitted a critical control variable. In the interviews conducted for this analysis, the four important economic development incentives in Franklin County mentioned often were CRAs, TIFs, JCTCs, and municipal income tax abatements (sometimes called performance incentives). We were unable to obtain data on JCTCs or municipal performance incentives, which could be a concern for the strict interpretation that greater CRA abatement increases a jurisdiction's property tax base and subsequently decreases its property tax rate, if JCTCs or municipal income tax abatements are the incentives really causing this.

Data Sources

Data from Franklin County Auditor's Office (FRANKLIN_CO)

Almost all of the data analyzed in this report come from datasets provided to the report's authors from the Franklin County Auditor's office. For the analyses, seven separate datasets were first combined to create a parcel-level annual dataset for 1998-2015, and then the parcel-level data were summed to the level of school districts, cities, and Census tracts for the analyses described in the report.

The Franklin County Auditor's office provided six parcel-level datasets used for the analysis and a seventh dataset for taxing districts, which were merged together based on the parcel ID for each parcel:

1) Historical Value Control Tables from Tax System: These annual datasets include information on market values for each parcel separated into three components: Market Value = Base Value + TIF Value + Exempt Value. These datasets also include land use codes for each parcel, which were used to separate properties into six categories—industrial (land use codes 300-399), office space (447-450 and 470), apartments (401-403), other commercial (400, 404-446, 451-469, 471-499), residential (500-599), and other (100-299, 600-999).

2) CRA, EZ, and EPA Spreadsheets: These annual spreadsheets include information for each parcel that has received an abatement, including the type of abatement (CRA, EZ, or EPA), the name of the CRA zone, market value abated, and net tax savings.

3) CAMA Permit Tables: These annual tables include information for each parcel with a building permit, including the number of permits and the total amount of investment listed for the permits.

4) Historical Parcel Tables from Tax System: These tables include a school district code and city name, which were used to aggregate the parcel-level data to the level of school districts and cities.

5) Historical GIS Extract: This geodatabase includes geographic information for each parcel, which allows the data to be mapped in ArcGIS and to be analyzed spatially. The geocoded database was used to identify the Census tract for each parcel; it was then used to aggregate parcel-level data to the level of Census tracts. The historical GIS extract also includes annual data on the tax charge for each parcel, with the exception of condominiums which are mapped differently than other parcels.

6) Parcel Datasets from Auditor's Website: These datasets were used to fill in tax charges for condominiums missing data in the historical GIS extract. Data from the October spreadsheets were used for each year. These datasets are available on the Auditor's website: ftp://apps.franklincountyauditor.com/Parcel_CSV/.

7) Tax Rate Sheets for Taxing Districts: These datasets provide data on effective tax rates for each taxing district. The tax rate data was merged with the parcel-level dataset by using each parcel's tax district code included in the Historical Parcel Tables from Tax System.

Census Data (CENSUS)

For school districts, our regression analysis includes several socioeconomic variables from the 2000 decennial Census and the 2006-2010 and 2011-2015 American Community Surveys. We used linear interpolation to approximate annual values based on the three data points available for each school district. Values from the decennial Census were used for 1998-99, the 2006-2010 ACS was used for

2008, and the 2011-2015 ACS was used for 2013-15, and then linear interpolations were used to approximate values for 2000-2007 and 2009-2012.

In addition, we use annual data on school district revenues from the individual unit of government files from the Census of Government Finances and the Annual Surveys of State and Local Government Finances. These data are only available up to 2014.

State Data Sources (STATE)

For school districts, our regression analysis uses some of the data available in annual SD1 spreadsheets from the Ohio Department of Taxation, including data on school mill rates, enrollment, and total real property values. Total property values reported for each school district in the SD1 spreadsheets are like the sum of market values for all parcels in each school district that are reported in the datasets from the Franklin County Auditor's office, but not identical. To test our findings, we tried two similar regressions for school district property values: one where the dependent variable is total property value from the SD1 spreadsheets (schl_value_total), and a second where the dependent variable is the sum of market values for all parcels in each school district (market_value). The SD1 spreadsheets are available here: http://www.tax.ohio.gov/tax_analysis/tax_data_series/school_district_data/publications_tds_school.aspx.

Appendix F

Transparency of Property Tax Abatement Programs in Franklin County Cities

An examination of the publicly available information regarding property tax abatements in seven municipalities revealed a varying degree of program transparency. Some cities provided a fair amount of easily accessible information. However, they tended to focus more on the benefits of the programs than the costs. Part of the variation in transparency likely stems from the seven cities utilizing property tax abatements to different degrees. However, all cities could do more to make it clear to citizens the extent to which these incentives are being utilized as well as costs and benefits attributable to the incentives.

Columbus, the largest city of the group, has more active CRAs and EZs than the six suburbs. However, despite their considerable use of property tax incentives, their website does not contain much easily accessible information about their impact. Their webpage on economic development emphasized their commitment to revitalizing the downtown area using CRAs. However, there were no specific maps, requirements, or figures about the incentives being provided to businesses.[28] Additionally, a search for "CRA" on their website returned results about several CRA agreements with broken links.

Grove City also exhibits limited transparency about their use of property tax abatements. Their website featured a short paragraph about incentives, but had no mention about requirements or the extent to which they were being used.[29] However, they did feature a map of the four CRA zones and stated that one zone had recently been expanded.[30]

Hilliard's webpage on economic development had no mention of tax incentives, reporting that the position of Economic Development Director was currently vacant, potentially explaining the lack of transparency on their website.[31] Citizens can, however, find some information about CRA agreements voted on in the last year by searching for "tax abatements" and "CRA" on the website.

Compared to the other six cities, **Upper Arlington** uses property tax abatements the least. Their website offered a short description about property tax incentives for businesses and featured a map which listed seven existing CRA agreements and their respective locations.[32] The lack of detailed information about tax incentives is likely because they are not a main component of the city's economic development strategy.

Gahanna's website provided more detailed information about tax abatements that was organized clearly. Under the Strategy section of their website, citizens can find documents detailing the location, development strategy, and development incentives being used in each of the five Priority Development

[28] Information on Business Assistance in Columbus https://www.columbus.gov/development/economic-development/Business-Assistance/
[29]Business incentives in Grove City http://www.grovecityohio.gov/development/business-incentives/
[30] Map of CRA zones in Grove City http://www.grovecityohio.gov/wp-content/uploads/2015/04/groveCityCRAMap.pdf
[31] Economic Development in Hilliard http://www.hilliardohio.gov/work/economic-development
[32]Information on Business Incentives and Map of CRA agreements in Upper Arlington https://www.uaoh.net/category/subcategory.php?categoryid=31

Areas (PDAs) in their town.[33] The website stated that these PDAs were chosen based on input from their project steering committee, city staff, public engagement, and stakeholder meetings, which suggests that they have involved their citizens in creating a plan for the use of tax incentives in their town.

New Albany, like Columbus, uses property tax incentives extensively. Their webpage "City Finances & Budget" demonstrated the city's commitment to transparency by providing a link to a page where anyone can review every check that is written by the city.[34] Their economic development page also featured a clear listing of requirements for businesses that hope to receive property tax abatements.[35]

Westerville was the only municipality where we found detailed information about both the benefits and the costs of property tax abatements. However, we only found details about the drawbacks on Councilman Tim Davey's website, and not on the official city website. Davey's website had clear information about the potential drawbacks to relying on property tax abatements, namely, the extent to which they could narrow the tax base and shift tax burden onto residents and other businesses.[36] On the official Westerville website, a search for "CRA" returned a staff report written in October 2016 which stated that there were 159 properties included in CRAs which supported over 6,000 jobs with an average salary of $74,069.[37] The report only focused on the benefits which have come from the agreements and not on the revenue forgone.

Overall, the cities could make it easier for citizens to find information about tax incentives on their websites. It is understandable that these cities want to make themselves look as attractive as possible to potential businesses, but all taxpayers might want to have information which allows them to make informed decisions about whether property tax abatements will provide a net benefit to the town.

[33] Example of information about PDA #1 in Gahanna http://www.gahannaohiousa.com/Files/page-documents/Strategy/ED%20Strategy/07.%20PDA%201%20-%20West%20Gahanna.pdf
[34] New Albany Checkbook https://newalbany.ohiocheckbook.com/transparency#/2835/query=8B17AD9E1E4FF4C24BE488DB641538D3
[35] New Albany CRA Requirements: http://newalbanybusiness.org/incentives-and-permitting/
[36] Councilman Tim Davey's Website https://davey4council.zohosites.com/tax-abatements.html
[37] Westerville Staff Report http://sire.westerville.org/sirepub/cache/2/saxgld5h5hxsymciapxdfsw4/582220125201710415926 8.PDF

Appendix G

Description of Certain CRAs

This study examines CRA and EZ property tax abatements in Franklin County. Combined, in 2015 these programs abated $65.4 million in property tax liability. CRAs accounted for 90 percent of those tax savings. Given the importance of CRAs, this appendix reviews 10 notable CRAs in Franklin County to provide useful context for the data presented in the study: Columbus Front and West Streets (Nationwide Arena), Columbus Downtown, Groveport CRA #3, New Albany Oak Grove, Obetz Toy Road, New Albany Central College, Urbancrest, Grove City 2, Columbus AC Humko, and Gahanna 1. These 10 zones are among the 25 largest zones in the county as measured by abated value and tax savings. We selected zones that represent the variety of zones observed across the county in terms of type (pre-1994 or post-1994), property mix (commercial, industrial, and/or residential), scope (number of parcels), and geography.

Columbus Front and West Streets (Nationwide Arena)

Perhaps the most well-known CRA abatement in Franklin County is the property tax abatement granted by the City of Columbus to Nationwide Arena in 1998. The only abated property in the city's Front and West Street's Community Reinvestment Area (No. 049-00960-04), the 18,500-seat arena is the home of the NHL Columbus Blue Jackets. The City of Columbus created the zone in 1998 to accommodate an abatement agreement for the to-be-constructed arena. Per the abatement agreement (required for all post-1994 CRAs), the city exempted 99 percent of the value of new construction completed by December 31, 2001, for a term of 15 years.[38] Based on the arena's current assessment of $143 million, the tax savings on the full value was nearly $4 million per year. The arena has made payments in lieu of taxes (PILOTs) to Columbus City Schools averaging $586,000 per year (Weissberg 2017). The arena's tax status has been the subject of regular press coverage in recent years surrounding the public acquisition of the arena in 2012.

Nationwide Realty Investors, a private firm affiliated with Nationwide Mutual Insurance Company, developed the arena at an estimated cost of $200 million (Bush 2016). The actual market value of the property has been debated at length. Currently assessed at $143 million, the present and past owners contend that its market value is less than a third of its assessed value. In 2012, Franklin County Convention Facilities Authority, a public entity which also owns Greater Columbus Convention Center and the Hilton Columbus Downtown, purchased the arena for $42.5 million with financing from Nationwide and the State of Ohio. The sale was negotiated in an effort by the city to retain the Blue Jackets team which was unable to afford its lease with Nationwide and had discussed relocating. The maintenance and upkeep of the arena was to be funded by a portion of state and local casino tax fees which have come in well below projections leaving the arena cash strapped (Rouan and Sullivan 2016). In December 2016, upon expiration of Nationwide Arena's abatement, the legislature acted to explicitly

[38] The abatement expires 15 years from the completion date for each phase of construction. The abatement on the value of the final phase of construction expired December 2016.

exempt the now publicly-owned arena from taxation by amending a state statute regarding exemption of convention centers (Ohio Revised Code Sec. 5709.084) (Bush 2016). Per the 2015 annual ODSA report, the arena paid $764,050 in real property taxes with $3.3 million abated (Ohio Development Services Agency 2016c).

Columbus Downtown

The Columbus Downtown CRA (No. 049-18000-22) is the largest zone in Franklin County as measured by abated value, tax savings, and number of abated parcels. Originally established as Seneca Towers CRA in 1992, the zone was renamed the Columbus Downtown Residential CRA in 2002 (City of Columbus Ordinance 1345-02). In 2013, the City of Columbus amended the zone a second time in removing "residential" from the zone name and expanding zone eligibility to include commercial and industrial projects. Since 2013, new residential construction in the zone is eligible for a 15-year, 100 percent abatement on improvements; qualifying residential remodeling or renovation improvements are eligible for full abatement for a 10- to 15-year term. Nonretail commercial and industrial new construction is eligible for a 100 percent abatement on the value of new construction for a term of 15 years or on the value of qualifying remodeling or renovation for a period of 12 years (City of Columbus Ordinance 2649-2013). In 2015, 1,364 parcels within the zone realized tax savings of $9.7 million on over $400 million in property value. Columbus Downtown CRA is still primarily a residential zone, with residential and apartment property accounting for 88 percent of abated parcels and 92 percent of tax savings (Data from Franklin County Auditor's Office).

Groveport CRA #3

The City of Groveport has five pre-1994 CRAs. CRA #3 (No. 049-32606-03), established in 1991, is one of the most important non-residential CRAs in Franklin County. Within Groveport CRA #3 in 2015, 32 commercial and industrial properties realized $8.4 million in tax savings, the second highest amount among Franklin County CRAs. The 18 industrial properties saved $7.9 million and accounted for nearly 95 percent of abated property value in the zone (Data from Franklin County Auditor's Office). The City of Groveport expanded the land area of CRA #3 twice, once in 1992 and once in 2005 (City of Groveport Resolution No. 1-99 and No. 2005-007).

New Albany Oak Grove

Established in 1998, the New Albany Oak Grove CRA (No. 049-02915-02) is a post-1994, non-residential CRA zone with 11 active agreements abating nearly $200 million of property value (24 parcels) for tax savings totaling $6.6 million. In terms of tax savings and abated value, New Albany Oak Grove ranks as the third largest CRA in the county. Abercrombie and Fitch and Bob Evans Farms saw the highest tax savings in the zone in 2015, saving over $2.5 million and $1.1 million respectively (Ohio Development Services Agency 2016c). Both companies benefit from a 15-year, 100 percent abatement on new construction.

Bob Evans negotiated its agreement as part of a relocation incentives package in 2011. The Bob Evans company decided to relocate its Columbus headquarters to New Albany over objections from Columbus

officials who cried foul after losing the bidding war against New Albany and Texas which was expected to translate into a $600,000 annual revenue loss for the city. A spokesman for Michael Coleman, then mayor of Columbus, told the *Columbus Dispatch* the city had offered the company everything it asked for including an incentives package worth millions. "We felt like they misled us, the state and New Albany," he told the *Dispatch*. "We feel like they used us as leverage to gain a better deal from New Albany" (Turner 2011). The company promised to move 360 jobs from Columbus and create 150 new jobs over five years and invest over $30 million in its new facility. Besides the 15-year, 100 percent CRA abatement, New Albany offered the company income tax credits, a $1 million loan interest free for 10 years, and a credit on inspections and fees (The Raines Group 2011). In addition to the local incentives, the state awarded Bob Evans a $3 million R&D investment loan, a $2.4 million JCTC credit, a $1.05 million R&D tax credit, and other smaller incentives to retain the company in Ohio (Turner 2011). In 2015, the Bob Evans company announced plans to sell its headquarters and lease it back in order repurchase company shares as part of a plan to turn the company around (Eaton 2015). Bob Evans sold its struggling restaurant division to Golden Gate Capital in 2017 following a wave of store closings, but said both the restaurant division and its food division would remain at the New Albany headquarters (Malone 2017).

Obetz Toy Road

The Obetz Toy Road CRA (049-57862-02) was certified as a non-residential CRA in 2001 to provide exemptions for up to 12 years for improvements for existing commercial and industrial facilities and up to 15 years for new facilities. In 2015, the zone included 6 parcels, all industrial, with $115.5 million of abated value and $3.7 million in tax savings, making the Toy Road CRA the fourth largest zone in the county as measured by abatement value. Among the five largest zones in the county, the Toy Road CRA in Obetz has the fewest parcels. One company, Center Point Capital LLC, benefitted from over $3 million in tax savings in 2015. In 2003, the company negotiated a 15-year, 100 percent abatement (agreement #03-001) and has created 424 jobs. The agreement called for construction of 3.8 million square feet of distribution facilities in 8 to 10 buildings (Ohio Development Services Agency 2016c).

New Albany Central College

The Village of New Albany established the Central College CRA (049-02915-01) in 1996 (Resolution 20-96) to provide abatement for commercial properties of up to 12 years for improvements to existing facilities and up to 15 years for construction of new facilities. The village expanded the area in 1998 and 2008.[39] In 2015, the CRA included 9 industrial and office parcels with $83.3 million of abated value and tax savings of $2.8 million.

The two largest abatements within the CRA benefit Nationwide Mutual Insurance Company and Novus Services, Inc. (later renamed Discover Financial Services). Nationwide Mutual Insurance Company negotiated a 15-year, 65 percent CRA abatement agreement in 2009 for the construction of a 120,000 square foot data center, expected to cost $96 million and create 40 jobs. The project, with construction slated to begin in 2010, was expected to generate $470,000 annually in property and income tax

[39] Resolution # R-28-98 and Ordinance #O-42-2008

revenue (Ball 2008). In 2015, the company saved over $933,000 in property taxes on its nearly $100 million investment which had created 34 jobs. In 2015, Novus/Discover received $1.1 million in tax savings under its 15-year, 65 percent abatement under a 2012 agreement for the company's 97,900 square foot, $72 million expansion. The expansion promised to create 162 new jobs and retain 1,580 jobs at the site that may have moved had the company constructed the data center elsewhere. The expansion project also received other state and local incentives. The land was to be acquired by the county and leased back to Discover (Ball 2012a and 2012b). The company had received incentives when it constructed its original facility in New Albany in 2000 under a 1997 agreement (Ohio Development Services Agency 2016c).

Urbancrest

The Urbancrest CRA (049-04370-01), certified in 1996 is a post-1994 zone that, unlike the other CRAs described here, encompasses the entire Village of Urbancrest.[40] In 2015, the CRA provided over $2 million in tax savings for 33 industrial, office, and commercial parcels in 2015, abating $64 million of property value (Data from Franklin County Auditor's Office). ProLogis, an industrial development company that developed facilities in Grove City and Urbancrest, benefits from a 15-year, 75 percent abatement worth about $255,000 in tax savings annually (Ohio Development Services Agency 2016c).

Grove City 2

Grove City CRA #2 (049-32592-03) is an example of a zone originally established to provide residential and commercial abatements, but later amended to exclude residential development. The pre-1994 zone was certified in 1986 for abatement of residential and commercial improvements. The city amended the zone three times between 1988 and 1993 to add and remove certain parcels of land (Ohio Development Services Agency 2016c).[41] After the Seven Star Group proposed developing a theatre in the area, the city passed Ordinance C-68-96 in 1996 to annex the theater property contingent on the owners of Star Theater compensating South-Western Schools for the school portion of property taxes that would have been collected but for the abatement. The ordinance also fundamentally changed the purpose of the zone, limiting abatements to commercial and industrial facilities to encourage job creation. In 2015, the city abated $51.3 million of property value for 29 parcels (five industrial properties, five office properties, and 19 commercial properties) resulting in $1.7 million in tax savings.

Columbus AC Humko

Certified in 2006, the AC Humko CRA in Columbus (No. 049-18000-11) is a residential-only zone (Ohio Development Services Agency 2016c). The area was created to a facilitate a planned 300-unit single family residential development by AC Humko. In 2015, 365 single-family units saved $789,408 in property tax payments on $36.5 million of abated property value. Single-family residential units constructed within the zone are eligible for a 10-year, 75 percent property tax abatement of the value of new construction. Twice the City of Columbus amended the zone to extend its duration. Presently,

[40] Village of Urbancrest Ordinance No. 96-07
[41] Ordinances C-7-88, C-77-92, and C-19-93

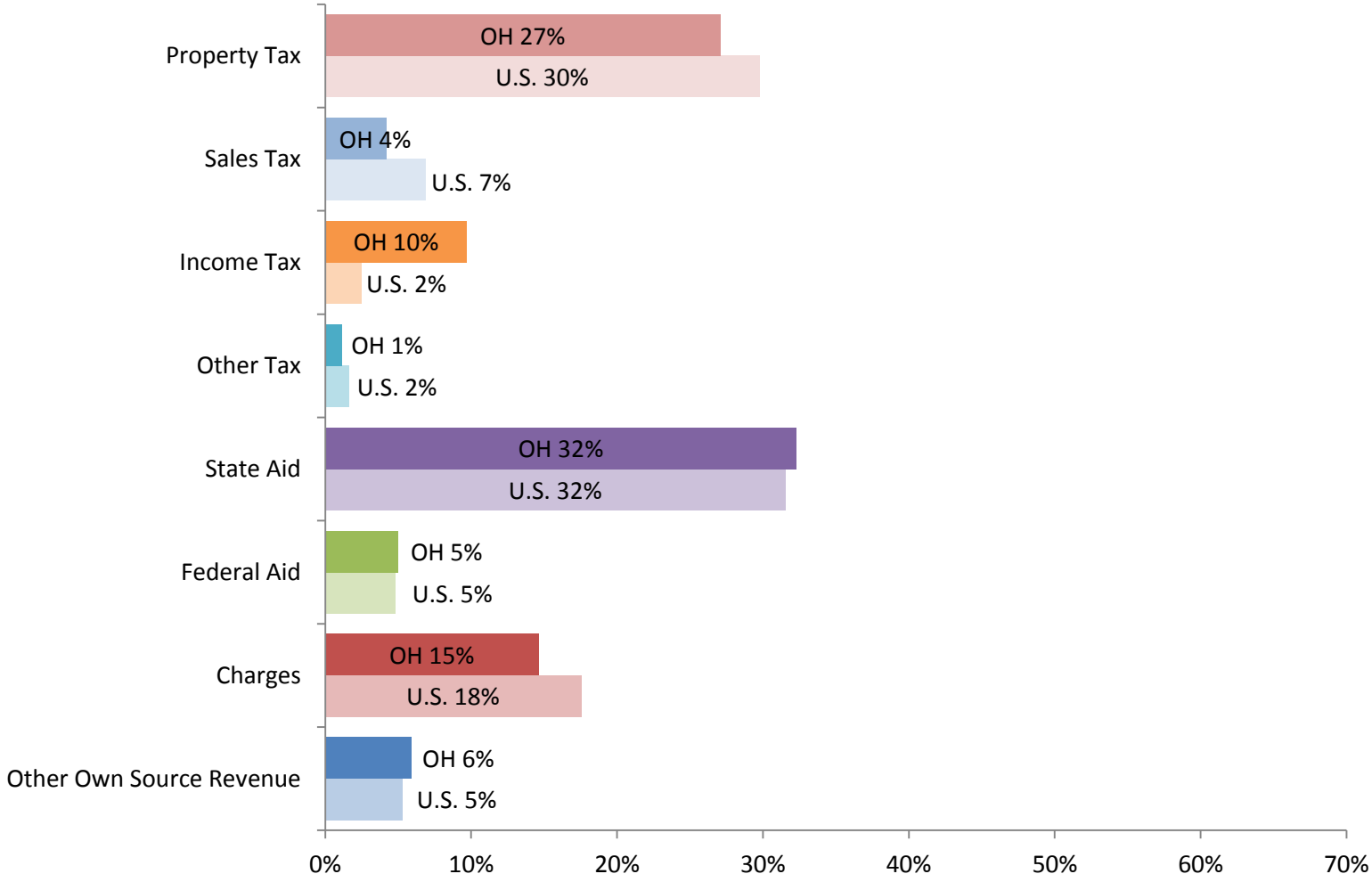
qualifying residential development completed by December 31, 2020 is eligible (City of Columbus Ordinance No. 3098-2015).

Gahanna 1

The Gahanna CRA #1 (049-29106-1P) is a post-1994 zone originally established in 1984, amended in 1984, 1992, 1994, and 1996 to expand the CRA boundaries, then amended and re-established in 2001 according to state law, having been previously amended twice since 1994. With its re-establishment as a post-1994 zone in 2001, the CRA added the requirement for approval of agreements within the zone on a case by case basis. The zone was expanded three more times since 2001.[42] [43] In 2015, the City of Gahanna abated 61 industrial, office and commercial properties, abating nearly $18 million in property value for $560,806 in tax savings. Although the CRA legislation permits abatement for residential properties, county data indicates no residential properties received abatement in the zone in 2015 (Data from Franklin County Auditor's Office). In 2014, the city approved[44] a 6-year, 75 percent abatement for construction of an 80,000-square-foot office and warehouse facility in the CRA. The tenants of the newly-constructed facility include a repository service for Ohio State University, Mainfreight USA, Inc. (a New Zealand-based logistics company), Cort Furniture Solutions, and Distributor Wire & Cable (Mark F. Taggart Company 2014; Weese 2016; and Ohio Development Services Agency 2016c).

[42] ODSA records indicate that this zone was established in 2000 and does not report any amendments but local records disagree.
[43] City of Gahanna Resolution No. 3-84
[44] City of Gahanna Ordinance No. ORD-0049-2015

Appendix Figure 1: Sources of Local Government Revenue, Ohio and U.S., 2013



Source: State-by-State Property Tax at a Glance

Appendix Table 1: Descriptive Statistics for Variables Used in School District Fiscal/Economic Impact Regression Analysis (16 Franklin County School Districts drawn from 18 years between 1998 and 2015)

Variable	Mean	Standard Deviation	Minimum	Maximum	Source
Dependent					
School_Mills_Real	38.29	7.89	22.95	55.76	FRANKLIN_CO
Property_Real_Market_Value_10M[1]	540.34	836.55	43.62	4,386.76	FRANKLIN_CO
Residential_Effective_Real_Rate	66.34	11.30	42.33	95.91	FRANKLIN_CO
NonResidential_Effective_Real_Rate	76.46	12.27	53.41	103.37	FRANKLIN_CO
Explanatory					
Bachelor_Plus_Percent	41.21	20.66	7.80	74.20	CENSUS
Age19_Less_Percent	27.70	3.06	20.70	35.00	CENSUS
Enrollment	11,331	15,090	1,069	70,720	STATE
Abate_Percent	3.01	4.55	0.00	18.33	FRANKLIN_CO
CRA_Pre94_Percent	42.27	43.24	0.00	100.00	FRANKLIN_CO
TIF_Abate_Percent	1.38	1.95	0.00	9.07	FRANKLIN_CO
EPA_Abate_Percent	0.03	0.09	0.00	0.69	FRANKLIN_CO
Exempt_Percent	10.59	7.90	2.75	43.98	FRANKLIN_CO
Number_Parcels	25,481	41,506	2,919	187,842	FRANKLIN_CO
Parcels_Percent_NonResidential	7.36	3.01	3.69	16.15	FRANKLIN_CO

[1]10M refers to these values being in tens of millions of dollars

Note: More information on each data source is in the Data Sources section of this appendix.

Appendix Table 2: Fiscal Impact Regression Results Using Franklin County School District Data
(16 Franklin County School Districts drawn from 18 years between 1998 and 2015)

Dependent Variable: Ln_School_Mills_Real.
School district and year fixed effects included, but not reported.
Panel specific heteroscedasticity and AR(1) autocorrelation correction applied.
Statistical significance measured in two-tailed test: *** > 99%, **95 to 99%, and *90 to 95%.

Explanatory Variable	Regression Coefficient	Regression Coefficient Standard Error	90% Confidence Interval	Statistical Significance
Bachelor_Plus_Percent	0.0091	(0.0051)	0.00073 to 0.018	*
Age19_Less_Percent	-0.026	(0.012)	-0.046 to -0.0060	**
Ln_Enrollment	0.37	(0.10)	0.20 to 0.53	***
Abate_Percent	-0.016	(0.0040)	-0.022 to -0.0096	***
CRA_Pre94_Percent	0.000079	(0.00029)	-0.00040 to 0.00056	
TIF_Abate_Percent	-0.016	(0.0052)	-0.025 to -0.0076	***
EPA_Abate_Percent	-0.040	(0.045)	-0.11 to 0.035	
Exempt_Percent	0.00028	(0.0016)	-0.0024 to 0.0030	
Ln_Number_Parcels	0.47	(0.19)	0.15 to 0.78	**
Parcels_Percent_NonResidential	-0.023	(0.0048)	-0.030 to -0.15	***
R-Squared	0.9977			
Observations	288			

Appendix Table 3: Fiscal Impact Regression Results Using Franklin County School District Data
(16 Franklin County School Districts drawn from 18 years between 1998 and 2015)

Dependent Variable: Residential_Effective_Real_Rate.
School district and year fixed effects included, but not reported.
Panel specific heteroscedasticity and AR(1) autocorrelation correction applied.
Statistical significance measured in two-tailed test: *** > 99%, **95 to 99%, and *90 to 95%.

Explanatory Variable	Regression Coefficient	Regression Coefficient Standard Error	90% Confidence Interval	Statistical Significance
Bachelor_Plus_Percent	0.0036	(0.20)	-0.33 to 0.33	
Age19_Less_Percent	-1.57	(0.59)	-2.53 to -0.61	***
Ln_Enrollment	22.85	(4.48)	15.48 to 30.22	***
Abate_Percent	-0.32	(0.18)	-0.62 to -0.021	*
CRA_Pre94_Percent	-0.00035	(0.012)	-0.020 to 0.19	
TIF_Abate_Percent	0.025	(0.23)	-0.36 to 0.41	
EPA_Abate_Percent	-0.69	(2.57)	-4.92 to 3.54	
Exempt_Percent	-0.031	(0.080)	-0.16 to 0.10	
Ln_Number_Parcels	5.19	(8.74)	-9.19 to 19.58	
Parcels_Percent_NonResidential	-0.48	(0.23)	-0.88 to -0.094	**
R-Squared	0.9794			
Observations	288			

Note: The dependent variable in Appendix Table 3 measures the effective tax rate for class I properties *in levels*, which shows a statistically significant relationship between Abate_Percent and the tax rate for class I properties. However, when the tax rate is measured *in logs* like in Appendix Table 2, there is no longer a statistically significant relationship between abatements and tax rates.

Appendix Table 4: Fiscal Impact Regression Results Using Franklin County School District Data
(16 Franklin County School Districts drawn from 18 years between 1998 and 2015)

Dependent Variable: Non-Residential_Effective_Real_Rate.
School district and year fixed effects included, but not reported.
Panel specific heteroscedasticity and AR(1) autocorrelation correction applied.
Statistical significance measured in two-tailed test: *** > 99%, **95 to 99%, and *90 to 95%.

Explanatory Variable	Regression Coefficient	Regression Coefficient Standard Error	90% Confidence Interval	Statistical Significance
Bachelor_Plus_Percent	0.18	(0.23)	-0.20 to 0.56	
Age19_Less_Percent	-1.35	(0.65)	-2.43 to -0.29	**
Ln_Enrollment	18.69	(4.95)	10.55 to 26.85	***
Abate_Percent	-0.097	(0.19)	-0.41 to 0.21	
CRA_Pre94_Percent	-0.0040	(0.013)	-0.026 to 0.018	
TIF_Abate_Percent	0.13	(0.26)	-0.30 to 0.56	
EPA_Abate_Percent	0.11	(2.71)	-4.34 to 4.55	
Exempt_Percent	-0.11	(0.09)	-0.25 to 0.035	
Ln_Number_Parcels	-0.05	(9.34)	-15.43 to 15.32	
Parcels_Percent_NonResidential	-1.07	(0.25)	-1.49 to -0.67	***
R-Squared	0.9788			
Observations	288			

Appendix Table 5: Economic Impact Regression Results Using Franklin County School District Data (16 Franklin County School Districts drawn from 18 years between 1998 and 2015)

Dependent Variable: Ln_ Property_Real_Market_Value_10M[1]
School district and year fixed effects included, but not reported.
Panel specific heteroscedasticity and AR(1) autocorrelation correction applied.
Statistical significance measured in two-tailed test: *** > 99%, **95 to 99%, and *90 to 95%.

Explanatory Variable	Regression Coefficient	Regression Coefficient Standard Error	90% Confidence Interval	Statistical Significance
Bachelor_Plus_Percent	0.016	(0.0021)	0.012 to 0.019	***
Age19_Less_Percent	-0.0053	(0.0051)	-0.014 to 0.0032	
Ln_Enrollment	0.17	(0.045)	0.10 to 0.25	***
Abate_Percent	0.015	(0.0014)	0.013 to 0.018	***
CRA_Pre94_Percent	0.00011	(0.000095)	-0.000047 to 0.00027	
TIF_Abate_Percent	0.0019	(0.0027)	-0.0025 to 0.0063	
EPA_Abate_Percent	-0.073	(0.030)	-0.12 to -0.02	**
Exempt_Percent	0.0093	(0.00094)	0.0077 to 0.011	***
Ln_Number_Parcels	0.59	(0.086)	0.45 to 0.73	***
Parcels_Percent_NonResidential	-0.0024	(0.0020)	-0.0056 to 0.00080	
R-Squared	0.9985			
Observations	288			

[1]10M refers to these values being in tens of millions of dollars

Appendix Table 6: Descriptive Statistics for Variables Used in Census Tract Economic Impact Regression Analysis (284 Franklin County Census Tracts drawn from 14 years between 2002 and 2015)

Variable	Mean	Standard Deviation	Minimum	Maximum	Source*
Dependent					
Property_Real_Market_Value_10M[1]	32.25	34.35	2.17	484.95	FRANKLIN_CO
Explanatory					
Abate_Percent	1.42	5.18	0	49.60	FRANKLIN_CO
CRA_Pre94_Percent	7.28	25.43	0.00	100.00	FRANKLIN_CO
TIF_Abate_Percent	1.38	5.42	0.00	76.42	FRANKLIN_CO
EPA_Abate_Percent	0.049	0.48	0.00	11.61	FRANKLIN_CO
Exempt_Percent	12.43	15.69	0.00	99.88	FRANKLIN_CO
Number_Parcels	1,466	815	15	6,506	FRANKLIN_CO
Parcels_Percent_NonResidential	12.78	16.75	0.071	100.00	FRANKLIN_CO

[1]10M refers to these values being in tens of millions of dollars

Note: More information on each data source is at the end of this appendix.

Appendix Table 7: Economic Impact Regression Results Using Franklin County Census Tract Data
(284 Franklin County Census Tracts drawn from 14 years between 2002 and 2015)

Dependent Variable: Ln_ Property_Real_Market_Value_10M[1]
School district and year fixed effects included, but not reported
Panel specific heteroscedasticity and AR(1) autocorrelation correction applied
Statistical significance measured in two-tailed test: *** > 99%, **95 to 99%, and *90 to 95%.

Explanatory Variable	Regression Coefficient	Regression Coefficient Standard Error	90% Confidence Interval	Statistical Significance
Abate_Percent	0.0059	(0.0013)	0.0038 to 0.0081	***
CRA_Pre94_Percent	0.000011	(0.00012)	-0.00019 to 0.00021	
TIF_Abate_Percent	0.012	(0.001)	0.011 to 0.014	***
EPA_Abate_Percent	-0.0013	(0.0031)	-0.0066 to 0.0039	
Exempt_Percent	0.0083	(0.00068)	0.0072 to 0.0094	***
Ln_Number_Parcels	0.38	(0.039)	0.31 to 0.44	***
Parcels_Percent_NonResidential	-0.0022	(0.00060)	-0.0032 to -0.0013	***
R-Squared	0.9965			
Observations	3,976			

[1]10M refers to these values being in tens of millions of dollars

Appendix Table 8: Market Values Abated through CRA and EZ Abatements, by City (2015)

City	Market Value Abated ($ Millions)	Abated Values as % Tax Base	Share of Total Abated Value for Each Property Type					Abated Values as % of Tax Base for Each Property Type				
			Industrial	Office Space	Other Commercial	Apartments	Residential	Industrial	Office Space	Other Commercial	Apartments	Residential
Bexley	12.5	0.85%	-	-	14%	-	86%	-	-	3.9%	-	0.78%
Canal Winchester	8.9	1.62%	68%	1%	31%	-	0.3%	19.9%	1.4%	2.4%	-	0.01%
Columbus	1,004.5	2.24%	12%	15%	15%	22%	37%	4.2%	5.3%	2.0%	4.3%	1.44%
Dublin	0.0	0.00%	-	-	-	-	-	-	-	-	-	-
Gahanna	24.9	0.89%	39%	38%	6%	-	17%	7.4%	6.4%	0.5%	-	0.20%
Grandview Heights	32.6	3.90%	6%	14%	38%	42%	-	10.1%	17.5%	14.3%	24.0%	-
Grove City	114.9	3.82%	57%	9%	33%	-	0.3%	18.3%	23.5%	7.8%	-	0.02%
Groveport	372.4	34.6%	96%	-	4%	-	-	52.3%	-	29.3%	-	-
Hilliard	31.4	1.11%	6%	81%	13%	-	-	1.4%	21.3%	1.2%	-	-
New Albany	285.7	12.4%	51%	40%	9%	-	-	63.6%	51.4%	14.7%	-	-
Obetz	255.4	40.6%	98%	0.02%	2%	-	0.03%	58.7%	5.1%	10.9%	-	0.04%
Reynoldsburg	0.0	0.00%	-	-	-	-	-	-	-	-	-	-
Upper Arlington	9.7	0.20%	-	28%	72%	-	-	-	3.1%	2.6%	-	-
Urbancrest	64.1	57.0%	91%	3%	5%	-	-	68.1%	80.7%	48.2%	-	-
Westerville	9.5	0.44%	4%	2%	89%	-	5%	1.4%	0.1%	3.8%	-	0.03%
Whitehall	8.0	1.10%	100%	-	-	-	-	17.7%	-	-	-	-
Worthington	2.3	0.14%	-	76%	24%	-	-	-	1.3%	0.4%	-	-
Unincorporated	9.2	0.14%	62%	-	38%	-	-	3.3%	-	0.7%	-	-

Notes:

Share of Total Abated Value for Each Property Type shows the distribution of abated values **across** all property types. In Bexley, for example, 86% of the city's $12.5 million in abated values is for residential properties.

Abated Values as a % of Tax Base for Each Property Type measures the share of the tax base that is abated **within** a single category of properties. In Bexley, for example, 0.78% of the city's residential tax base is abated.

Source: Analysis of data provided by the Franklin County Auditor's Office (See Appendix E for details)

Appendix Table 9: Number of Parcels with CRA and EZ Abatements, by City (2015)

City	Number of Parcels with Abatements						% of Parcels for Each Property Type that Receive Abatements				
	Industrial	Office Space	Other Commercial	Apartments	Residential	Total	Industrial	Office Space	Other Commercial	Apartments	Residential
Bexley	-	-	1	-	89	90	-	-	0.8%	-	2.06%
Canal Winchester	2	3	6	-	1	12	4.8%	12.0%	3.6%	-	0.04%
Columbus	29	32	35	61	2,343	2,630	0.2%	0.8%	0.2%	1.0%	1.00%
Dublin	-	-	-	-	-	-	-	-	-	-	-
Gahanna	14	48	4	-	13	79	10.3%	18.7%	1.4%	-	0.11%
Grandview Heights	1	4	4	3	-	12	3.7%	8.3%	2.3%	3.7%	-
Grove City	17	16	27	-	5	66	16.3%	17.0%	5.6%	-	0.04%
Groveport	23	-	15	-	-	38	18.7%	-	11.9%	-	-
Hilliard	3	3	2	-	-	8	0.8%	1.9%	0.5%	-	-
New Albany	8	22	5	-	-	35	40.0%	27.2%	2.6%	-	-
Obetz	17	1	4	-	1	23	17.9%	25.0%	3.4%	-	0.05%
Reynoldsburg	-	-	-	-	-	-	-	-	-	-	-
Upper Arlington	-	11	2	-	-	13	-	8.6%	1.1%	-	-
Urbancrest	19	12	2	-	-	33	70.4%	100.0%	3.6%	-	-
Westerville	1	1	5	-	4	11	2.2%	0.4%	1.4%	-	0.04%
Whitehall	1	-	-	-	-	1	3.4%	-	-	-	-
Worthington	-	18	1	-	-	20	-	8.3%	0.5%	-	-
Unincorporated Areas	5	-	1	-	-	6	1.6%	-	0.1%	-	-

Note: *% of Parcels for Each Property Type that Receive Abatements* measures the percent of parcels that are abated **within** a single category of properties. In Bexley, for example, 2.06% of residential parcels in the city have an abatement.

Source: Analysis of data provided by the Franklin County Auditor's Office (See Appendix E for details)

Individuals Interviewed

Armstrong, Kathy, Finance Director, City of Upper Arlington

Boso, Chuck, Development Director, Grove City

Chrysler, Jennifer, Director of Community Development, City of New Albany

Davey, Tim, Councilman, City of Westerville

Dorrian, Hugh, City Auditor, Columbus

Fuller, Chad, Finance Director, City of New Albany

Garside, Jr., Hugh W., Treasurer/Chief Fiscal Officer, South-Western City School District

Gilger, Colleen, Development Director, Dublin

Goebel, Alison, Executive Director, Greater Ohio Policy Center

Greenbaum, Robert, Associate Professor, John Glenn College of Public Affairs, Ohio State University

Hansard, Rasheda, Tax Incentives Manager, Office of Strategic Business Investments, Ohio Development Services Agency

Henderson, Joseph, Economic Development Director, City of Upper Arlington

Hill, Edward, Professor, John Glenn College of Public Affairs, Ohio State University

Jones, Anthony, Director, Planning and Development, City of Gahanna

Jones, Bob, Tax Incentive Manager, City of Columbus

Kessler, Ben, Mayor, City of Bexley

Lesser, Fran, Executive Director, County Auditors' Association of Ohio

Lewis, Brent, Assistant Finance Director, City of Upper Arlington

McAfee, Scott, Public Information Officer, City of New Albany

McGivern, Rick, Franklin County Auditor's Office

May, Shelley E., Real Estate Division, Franklin County Auditor's Office

Merrick, Michelle, Analyst, Franklin County Auditor's Office

Roth, Josh, Senior Program Coordinator, Franklin County Economic Development and Planning

Schimmer, Jim, Director, Franklin County Economic Development and Planning

Strasser, Daniel, Business Services Specialist, Ohio Office of Development Services

White, Robert C., Jr., President, The Daimler Group, Inc.

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