EVALUATING THE IMPACT OF COMMERCIAL TAX INCENTIVES IN FRANKLIN COUNTY

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* The findings and conclusions of the report represent those of the authors and not necessarily those of The Ohio State University.

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Executive Summary

This study examines the impact of commercial tax incentives (specifically tax increment finance (TIF) projects). The two key questions are: (1) how have increasing TIF agreements impacted the county's public services and (2) have TIFs created a "race to reduce" within the county, where municipalities compete to offer ever-sweeter tax incentive packages to companies and developers.

Our analysis utilizes parcel-level detailed tax data, data on tax increment financing agreements, county agency budget data, and property transaction records from the Franklin County Auditor over the 2014-2019 period, which avoids both the Great Recession in the early part of the decade and the COVID-19 pandemic in 2020. We further employ the U.S. Census Bureau American Community Survey (ACS) to obtain demographic data at the tract and block level. Finally, we employ statewide data from the Ohio Department of Taxation.

The statistical methodology implements a propensity-score matching (PSM) algorithm to conduct a spatial analysis and apply our results to the county at-large to estimate the impact of TIF projects on nearby property values and county agency budgets. We also examine whether neighboring municipalities' use of TIFs affects a taxing jurisdiction's own decision to use TIFs.

Our conclusions are supported by analysis of property rate changes across the state and relationships between the propensity of Ohio's counties to employ TIFs and various economic outcomes. We offer answers to the two core questions posed above, split into several important observations:

How have increasing commercial and industrial TIF agreements impacted the county's public services and how does Franklin County's use of TIFs compare to the rest of Ohio?

a. Franklin County is among the top-four Ohio counties that extensively employ TIFs. The other three are Hamilton, Butler, and Union Counties. Other Ohio counties do not employ TIFs nearly as much as these four counties. Franklin County is behind only Hamilton County in per-capita TIF real taxable property value, but both counties are

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more than 4 standard deviations above the state average in TIF usage. Both metrics indicate Franklin County municipalities use TIFs at either a much higher frequency than other urban Ohio counties, award TIF agreements to much more valuable properties than other counties, or a combination of both.

- b. Franklin County agency spending is generally flat over the previous six years, after adjusting for population growth and inflation. Over that same period municipalities have approved more TIF agreements and abated more commercial and industrial real taxable property value each year.
- c. Our empirical results show that home values are lifted almost 9% on average if they are within 250 meters (a little more than two blocks) of a TIF district. There is no clear statistical pattern after 250 meters. These gains in nearby property values produce more property tax revenue, but the result far from offsets the direct foregone tax revenue of the TIFs themselves. This supports the idea that TIFs have been a net tax-revenue loss for county agencies reliant on property-tax funding.
- d. The results suggest that county agencies and other Franklin County jurisdictions have relied on differing approaches to maintain public services to offset lost property taxes. First is Central Ohio's rapid increase in local housing values and the resulting increase in property tax revenues, which offset some losses from foregone revenue to TIF agreements. Second, Franklin County jurisdictions have raised property tax rates at about twice the rate as the Ohio average since 2003. In 2020, Franklin County residential property tax rates averaged 120.54 mills compared to 98.13 mills for neighboring Delaware County and the state average of 95.43 mills. Given its high degree of abated properties, even though Franklin County jurisdictions and agencies raised property tax rates, the corresponding increase in property tax revenue was only about four-fifths the size of the property tax increase (e.g., for every 5% increase in property tax rates, actual revenues only increased about 4%). The city of Columbus only recovered property tax revenue at about one-half the rate of the increased property tax rates revenues and the revenues on property tax revenues are specified.

increased 1%). By contrast, for Ohio overall, every one percent increase in property tax rates produced about one percent more revenues.

- e. We find evidence that Franklin County jurisdictions rely more on other forms of taxation. Local sales tax rates have increased over time, while Franklin County local income taxes account for slightly over 3% of adjusted gross income, which about doubles the state average. This occurred even as Franklin County has higher per-capita personal income than the state average.
- f. After adjusting for inflation and population, the value of "non-TIFed" commercial and industrial property declined by over one-third since 2002, which is noteworthy given the county's steady economic growth, one may not have expected falling property values. This suggests that the rapid proliferation of TIFs has actually diminished the county's fully-taxed commercial and industrial property tax base. Given that residential property rates have increased by twice the state average, this means that tax burdens are increasingly being shifted from Franklin County businesses to its homeowners. One implication is that homeowners (voters) are likely increasingly resistant to further increases in local taxes, such as school levies.
- g. The patterns described in (f) strongly suggest that the county's taxpayers have—at least in part—subsidized the increased usage of TIF incentives by paying more taxes to receive generally the same per-capita public-service expenditures. Furthermore, we find no statewide statistical correlation between TIFs and economic measures such as increased GDP per capita, sales tax base, and personal income (income received by local residents including wages). This calls into question the overall economic benefit of TIFs for the average county taxpayer.

Have TIFs created what economists refer to as a "race to the bottom" within the county, where municipalities effectively compete by offering ever-sweeter property tax incentives to companies?

a. Franklin County municipalities consider their neighboring jurisdiction's behavior when deciding whether to enact TIFs. We find that the establishment of *two new TIFs in neighboring municipalities* (weighted by overlapping land area in a 2 mile radius)

correlates with the *jurisdiction entering into one new TIF agreement*. This "keeping up with the Joneses" through offering ever more attractive commercial tax incentives further exacerbate the losses from TIFs.

- b. The empirical evidence suggests a similar spillover response for commercial and industrial community redevelopment area (CRA) abatements. Specifically, for every two new commercial/industrial CRAs offered by neighboring jurisdictions, the jurisdiction also offers one additional commercial/industrial CRA (2 to 1).
- c. While these TIF and CRA agreements benefit private commercial enterprises, it is unlikely to benefit the average taxpayer since forgone revenue leads to fewer public services and/or shifted and increased tax burdens for other businesses and residents. While the data does not exist to consistently track the origin of the commercial enterprises who receive these subsidy agreements, this does suggest that municipalities are not entering into TIF and CRA agreements in a proactive manner by recruiting partners from outside of the county. In some cases, municipalities compete against each other when a company decides to relocate within the county. This represents a potential windfall for the firm through tax incentives while generating no net-new jobs or additional tax revenues for cities and the county at-large.
- d. Competition among neighboring jurisdictions is further shown by the county clusters that aggressive use TIFs in southwest and central Ohio. Other major counties, including Cuyahoga, rely very little on TIF agreements. If commercial incentive packages were indeed required to lure businesses to a region, we would expect to see more counties particularly those most eager for enhanced economic development activity—to aggressively implement them.

In the remainder of the report, we provide a more detailed background on TIF agreements and their use in Franklin County and Ohio. We then provide an in-depth description of the empirical method(s) used to arrive at our conclusions, our estimation results, followed by policy discussion of the associated economic implementations.

Introduction

In our preceding 2021 report for the Franklin County Auditor's Tax Incentive Review Council, we evaluated home sales data to appraise the impact of residential property tax incentives from Community Reinvestment Areas (CRAs) on Franklin County property values and on property tax collections. We found that residential abatement programs have cost municipalities more in forgone revenue than they have generated in increased property values. In this follow-up study, we explore the effect of *commercial* property tax incentives specifically, tax increment finance (TIF) projects—which have seen a dramatic increase in use in the county over the past 20 years. This report aims to answer three key questions to inform public discussion about the use of property tax incentives:

- 1. How does Franklin County's use of commercial TIFs compare to other Ohio counties?
- 2. How has increased use of commercial tax incentives impacted funding for county agencies supported by property taxes? We then follow up by appraising how local governments and agencies responded to changes in property tax revenue and whether and how new TIFs relate to statewide economic activity indicators such as GDP, personal income, and sales tax revenue.
- 3. Has Franklin County's commercial tax incentives created unnecessary competition between municipal governments?

These are timely questions for the public to consider as high-profile incentive programs have dominated recent local news headlines. In early 2022, the city of New Albany <u>annexed</u> <u>more than 1,600 acres</u> from Jersey township as part of a planned investment by Intel to build a semiconductor factory. New Albany further provided a <u>30-year 100 percent property tax</u> <u>abatement for Intel</u>. Ohio has promised Intel <u>more than \$2 billion</u> in additional incentives, not counting hundreds of millions of dollars in mainly state sales tax exemptions for Intel and its suppliers.¹ While policymakers stress the benefits of tax incentives, it is natural to wonder

¹ The breakdown of Ohio incentives for Intel is approximately <u>\$1.941 billion in total divided between building new</u> <u>infrastructure, an expanded 30-year employment tax credit, and \$600 million in direct grants</u>. Jobs Ohio provides an additional \$150 million in grants to Intel. The state is also providing an additional <u>hundreds of millions of dollars</u> <u>in tax breaks</u> (mainly sales tax and commercial activity tax reductions) for Intel and its suppliers. This does not include federal subsidies that Intel is likely to receive, primarily from the 2022 Chips for America Act, which

whether such large tax incentives are a net benefit to the public. Tax incentives and subsidies represent lost tax revenue for local public services, including mental health services, alcohol and drug addiction services, parks, schools, libraries, and children's services. In sum, *Ohio governments could have used this foregone revenue for other purposes, including improved public services or general tax reductions for residents, which may have produced more economic benefits than the TIFs themselves.*²

Policymakers typically claim that the positive effects of these business incentives outweigh their public cost because they improve otherwise blighted areas and attract companies with "good" jobs, both directly from the "new firm" and potentially by attracting suppliers of the new firm. Regarding local government revenue, they claim that the benefits from the physical investments and related new jobs improve the local income tax base as well as the value of nearby land, which in turn generates more *net* revenue for county services and public schools. Essentially, this claim amounts to the idea that tax incentives mostly or totally pay for themselves. This contention has rarely been tested because of difficulties obtaining accurate data, let alone complications in statistically modelling their impacts. TIFs potentially have spillover effects that affect neighboring property values. To estimate these property-value spillovers, we build on the latest economic literature and apply it to Franklin County to develop a full picture of the overall net impact of commercial property tax incentives—namely TIFs.

Another consideration is whether the positive effects of commercial property tax incentive programs are net gains for the county at-large. Approximately 10 years ago, for example, <u>Bob Evans relocated its headquarters</u> along with over 400 jobs from south Columbus to New Albany after receiving a property tax abatement of \$8.29 million over 15 years. Columbus and Upper Arlington, both Franklin County municipalities, competed aggressively

provides <u>\$52 billion in subsidies to semiconductor manufacturers and another</u> <u>\$24 billion in tax credits</u> for national semiconductor investment.

²Economists note that there are there are other opportunity costs to such incentives. One is that jobs and other economic activity that would have occurred *without* the incentives is now "crowded out" due to higher land and labor costs. For example, building the massive \$20 billion Intel facility will mean that other local construction projects will be delayed or cancelled given the existing shortage of local construction workers, which reduces Intel's net employment impact. Further, Partridge et al. (2020) find strong peer-reviewed evidence that overall business start-ups decline in response to state and local government incentives, which is worrisome given that start-ups are the largest net source of new jobs.

against New Albany to retain/recruit the restaurant's corporate headquarters. This striking example of internal competition, where tax incentives effectively reshuffle business locations within the county *without creating new wealth or jobs*, while reducing property tax revenue.

Our analysis proceeds as follows. First, we provide a brief overview of how Ohio's tax increment finance (TIF) program function. Then, we summarize historical expenditures by Franklin County agencies and estimate how these budgets have been impacted by greater reliance on commercial TIF projects. We consider changes in other forms of taxation, such as the sales tax base, as well as estimating how TIF projects have contributed to higher property values. We also analyze the effectiveness of TIFs using statewide data and testing for correlations with economic activity such as GDP per capita, personal income per capita, and employment. Finally, we statistically examine "tax competition" within the county to estimate the degree to which a given city's offering of TIFS is influenced by the creation of TIFs in neighboring jurisdictions.

Tax Increment Finance (TIF) in Ohio

Ohio local governments can implement TIFs as an economic development strategy regulated by <u>state</u> <u>law</u>. Unlike direct abatements from Community Redevelopment Areas (CRAS), TIFs work by locking in a property's taxable value at the time that the TIF ordinance is passed. After a renovation, increased property taxes that would otherwise be collected on the assessed value *beyond the initial value* is instead made as "Service Payments" to a separate fund that is earmarked for constructing public infrastructure. The types of public infrastructure that can be constructed is specified by the ordinance creating the TIF.

Although Service Payments replace additional property taxes for TIF parcels, there are also additional possible tax incentives for private commercial landowners. In the TIF ordinance, local governments may also exempt up to 75% of the value of **private** improvements from real property taxes for up to 10 years. If local governments seek to exempt a greater amount from property taxes, they must obtain the approval of the local school board(s). School board approval allows for a property tax exemption of up to 100% of the value of private improvements for up to 30 years.

TIF projects can be designated on a per-parcel basis or local governments may establish "incentive districts." These districts may encompass parcels composing up to 300 contiguous acres and must exhibit one of the qualities of economic distress enumerated by the Ohio Revised Code (O.R.C.).³ The Service Payments from incentive districts may be used to improve infrastructure anywhere within the district, even if some individual parcels do not directly benefit from the improvement. Municipalities with over 25,000 residents may not create incentive districts whose real property valuation exceeds 25% of the entire municipality's total real property value.

Franklin County TIFs compared to other Ohio counties.

Franklin County has seen a dramatic increase over the past two decades in the use of commercial TIFs. To assess whether Franklin County is effectively using commercial TIFs, it is necessary to assess how the county stands in relation to the rest of the state because all Ohio counties operate under the same state laws regarding their creation.

According to Ohio Department of Taxation data, Franklin County has cumulatively abated more real taxable property value per capita, in dollar terms, than nearly any other Ohio county **(Figure 1 Panel A).** The cumulative total of Franklin County TIF incentives, which includes foregone taxes on the same property year-over-year for the length of the TIF agreement, is over \$17 billion in real taxable property value between 2009 and 2019. This is the highest dollar figure and fourth highest per-capita amount in Ohio. Given that Franklin County is the most populous state county, such a finding is not unreasonable.⁴ Yet, the county's jurisdictions use TIFs disproportionately more than most Ohio counties—i.e., Franklin County had 11% of the state's population, but its share of Ohio's total TIF incentives in 2018 was 40%.⁵

³ The TIF must meet at least one of the distress criteria. Pages 137-138 of the <u>Ohio Economic Development Manual</u> from the state's Attorney General office lists seven different criteria to define distress—e.g., if the TIF district is fully comprised of unimproved land, it meets one of the "distress" criteria. The incentive deal for Intel differs due to new state law that allows for more attractive incentive rules for the semiconductor industry.

⁴ For comparison, Cuyahoga County had an <u>estimated 2021 population</u> of 1.249 million, while the corresponding values for Franklin and Hamilton Counties were respectively 1.321 million and 826 thousand.

⁵ At the time of this writing, the Ohio Department of Taxation has only published statewide TIF property value data through 2018.

In annual per-capita terms, only Hamilton County, which includes Cincinnati, has abated more real taxable property value per resident with TIFs (**Appendix Figure A**). As of 2018, Hamilton County's real taxable value of TIF projects was just under \$2,500 per resident, while in Franklin County, this figure was just under \$2,000 per resident. Notably, Cuyahoga County, which contains Cleveland, had real taxable property under TIF agreements of approximately \$500 per resident, as of 2018. This gap persists for other Ohio urban and adjacent suburban counties and suggests that jurisdictions in Franklin and Hamilton Counties are utilizing TIFs vastly more than the rest of the state.

This pattern is further confirmed when we compare other major-city Ohio counties to Franklin County and the state average (**Figure 1 Panel B**). To assess this, we use a z-score statistical approach. A z-score measures how much a value differs from the average value of a group after norming for standard deviation.⁶ For example, a z-score of 0 implies that a county abated property value with TIFs exactly equal to the state average. A z-score of 2 implies that a county abated 2 standard deviations more property value with TIFs. With this, Franklin County and Hamilton County utilized commercial TIFs much more than the rest of the state. For Franklin County, annual z scores range from between 3 and 5 standard deviations above the state average for TIF property value per capita.

It can be difficult to compare across counties in only dollars or per-capita terms because they may also have significantly different commercial and industrial tax bases. To further assess how Franklin County compares to the state, we calculate the percentage of Class 2 (commercial and industrial) taxable value for each county for each year between 1999 and 2018 and the amount of taxable real Class 2 property value per capita that is unabated (both adjusted for inflation). These results are shown in **Figure 2, Panel A** and **Panel B** respectively.

Figure 2 shows that the four "high-TIF" counties remain large outliers in terms of commercial and industrial TIF agreements. Hamilton County (Cincinnati) and Franklin County (Columbus) as well as their immediate neighbor (Butler and Union counties). As of 2018, these four counties each abate over 20% of their total class 2 real taxable property value with TIF

⁶ Z-Score is calculated by using the formula $Z = \frac{x-\mu}{\sigma}$ where μ is the sample mean, x is the county's value, and σ is the sample standard deviation.

agreements, while the next highest county (Cuyahoga) abates under 10%. The point is that TIFs are not very intensively used in the other 84 Ohio counties. It is intriguing when these trends began. Dating to 1999, Hamilton County has generally abated more than other Ohio counties. Franklin County abated less than 5% of its Class 2 taxable property value in 1999, but thereafter the county began an upward trend with its municipalities sharply increasing their use of TIFs through the first two decades of the century. As of 2018, Franklin County municipalities abated nearly 30% of its Class 2 commercial and industrial real taxable property value. Additionally, Union and Butler counties granted most of their TIFs on large projects in 2011, and 2010, respectively. Below, we explore how Franklin County public-agency funding has been affected by these TIFs as well as an analysis of whether these TIF projects affected the local economy.





Figure 1. A comparison of Franklin County real taxable property under TIF agreements from 2009 to 2019 compared to other Ohio counties with large cities. Panel A shows the total cumulative real value under TIFs per capita. Panel B shows the Z-score comparison. All figures are in 2018 dollars. Data Source: Ohio Department of Taxation



Figure 2. Panel (A) shows the annual percentage of real commercial and industrial taxable property value in each county under a TIF in each year. Panel (B) shows the taxable real Class 2 property value per capita that is not abated, adjusted for inflation to 2018 dollars.

Data Source: Ohio Department of Taxation

Tax Incentives & Franklin County Agency Funding

County Agency Expenditures Over Time

Franklin County provides many different social and public services. Among the more costly are Alcohol, Drug Abuse and Mental Health (ADAMH) services, Children Services, services for developmental disabilities (FCBDD), and county sheriff. **Figure 3** below shows the annual fiscal year raw expenditures (\$1,000s) for county agencies between 2015 and 2019, excluding courts and legal services and county-elected official offices. **Figure 4** shows the annual fiscal year expenditures on a per-capita basis. Both figures report the values in 2019 dollars.

Figure 4 shows that county-agency expenditures have changed very little over time. Some services, such as the Franklin County Board of Developmental Disabilities (FCBDD) have seen a slight decline, while others such as the Sheriff have increased. Some services have fluctuated up and down, such as Alcohol, Drugs and Mental Health services (ADAMH). Overall, the county has generally maintained public-service expenditures without significant increases. Despite the direct loss of property tax revenues from incentives, *the key question is whether tax incentives raise sufficient property and sales taxes to offset the direct tax losses from incentives.* One offsetting factor comes from the general increase in real estate values and sales taxes over time. Of course, the county's appraisal process means there is a lag between market growth in property values and property-tax revenue, though this does not affect our general discussion.



Figure 3. Raw expenditure (\$10,000) by county agency, 2015-2019. Data Source: Franklin County Auditor's Office.



Figure 4. Per-capita expenditures (\$) by major Franklin County agencies, 2015-2019. Data Source: Franklin County Auditor Office and U.S. Census Bureau.

Inflation Adjusted County Agency Expenditure Per Capita, 2015-2019

Much of the general growth in the real-estate and sales-tax bases is offset by the need for county agencies to raise expenditures to keep up with inflation and population growth. Yet, real estate values have increased much faster than the general inflation rate in recent years, especially post COVID-19.⁷ Thus, in cases when tax incentives are producing a net reduction in tax revenue, rapid growth in the property tax base or a growth in the sales tax base may have generated sufficient increases in economic activity to offset the net-cost of incentives. Even if this were the case, it is important to note the incentives' opportunity costs—i.e., these sources of increased revenue could have instead been used to increase and expand county public services rather than as an offset for commercial tax incentives.

We now explore the possibility that incentives offered by TIF agreements correlate with an increased sales tax base. A common argument supporting commercial and industrial tax incentives is they sufficiently increase economic activity to generate higher property tax added sales tax revenue for state and/or local governments. If so, this positive effect would need to be considered in the cost-benefit analysis. We explore this correlation with a technique known as robust regression, which assesses the correlation between the percentage change in sales tax revenue from 2010 to 2019 and the cumulative real property value under TIF agreements for each county in the state.⁸ The robust regression results, shown with a fitted trend line in **Figure 5**, suggest that increasing TIF incentives are not statistically associated with increased sales-tax base in Ohio counties. In other words, many counties in the state have seen much higher increases in their sales tax bases while abating far less property value. Thus, we generally ignore sales taxes in our analysis of the costs and benefits of TIF incentives.

⁷For example, using data from the <u>Columbus Realtor Association</u>, the median Franklin County home price sale rose by 7.4% per year over the 2011-2021 period, while the average price increased 6.7%. Over the 2015-2019 period we consider in this analysis, the median Franklin County home price increased 7.0% per year and the average increased by 5.9%. For comparison, using the <u>S&P Case Fair Home Price Index</u> from the Federal Bank of St. Louis FRED database, the average national home price increased 6.4% between July 2011 and July 2021, while the average price increased 5.0% between July 2015 and July 2019. In both periods, the increase in Franklin County median home prices were well above the corresponding <u>national inflation</u> rate of 1.9% over both the 2011-2021 and 2015-2019 periods.

⁸ Trendlines were generated using Robust Linear Regression. This statistical technique iteratively regresses to account for outliers and ensure that one county with extreme results or TIF policy does not shift the results disproportionately (Huber, 1964).



Figure 5. Robust regression of percentage change in sales-tax base on TIF property value per capita. Source: Ohio Department of Taxation.

We now turn to the effects of tax incentives on property values due to spillover effects. Property taxes make up a much larger share of Franklin County's total tax revenue than sales taxes.⁹ We explore the claim that TIF incentives, primarily through generating improved infrastructure and increased amenities such as retail businesses, contribute to overall higher neighborhood property values. If this applies, then at least some offsetting property-tax revenue can be used to offset the direct tax loss from the TIF.

Statistical Methods & Results

To assess whether tax incentives are a net property-tax revenue gain or loss for county agencies, we first estimate their spillover impact on nearby property values. When a new TIF is created, county agencies lose money from these parcels in forgone revenue: taxes that would have been collected but are now sequestered by the TIF. However, if the TIF improves an area of a city with low property values by improving infrastructure and attracting new businesses, then it is possible

⁹ During calendar year (CY) 2020, Franklin County charged \$2.4 billion in property taxes but collected only \$308 million in sales and use taxes for county jurisdictions, not including \$134 million collected for COTA (see FY 2021 Annual Report of the Ohio Department of Taxation, Tables 45, 48, 49). In mid-2020, the Tax Foundation reported that the average Ohio local sales tax rate was 1.42% versus 1.25% Franklin County Sales Tax Rate plus another 0.5% sales tax rate for COTA for a total of 1.75%.

that a TIF indirectly generates more property tax revenue from nearby parcels than it forfeits from the TIF parcel. It is essential to understand A) if these spillover effects exist, and if they do exist, B) the size of these spillovers before we can accurately assess the net impact of commercial tax incentives.

To test for existence and size of spillover effects, we construct a model using data from the Franklin County Auditor on property sales between 2014 and 2019. We identify all commercial properties with a TIF agreement in each year and link these to nearby non-TIF residential property sales. We compare these property sales against similar properties that are sold in the same year but located further away from the TIF. An illustration of our framework is shown in in **Figure 6.**



Figure 6. How propensity-score matching is used estimate spillover impacts. Properties A, B, and C were all sold in the same year that the TIF parcel was actively abated. Property A falls within the buffer zone nearby the TIF. Our algorithm then matches Property A to the most comparable of either B or C, depending on housing characteristics (sq. footage, lot size, age, bedrooms, bathrooms) and immediate-neighborhood demographics (race, age, education level, incomes). This allows us to estimate the price premium (if one exists) for Property A due to its proximity to the TIF.

To ensure an "apples to apples" comparison of counterfactual properties, we use a statistical methodology known as propensity score matching (PSM). For differing distances from TIF property, PSM identifies "control homes" with the same major characteristics as Property A in Figure 6 (e.g., similar house size, age, numbers of bedrooms and bathrooms and similar neighborhood characteristics such as median household income, racial composition, educational attainment, etc.). Essentially, this makes sure that we are comparing properties whose only major

observable difference is whether the properties are within a specific distance of a TIF. Our model thus estimates whether home buyers value being very close to a TIF property. The estimation results from this model are shown in **Table 1.** We test sales at various distances from the TIF, increasing the distance with each iteration of the model.

	Log Linear			
	0-250m	251-500m	501-750m	751-1000m
	(1)	(2)	(3)	(4)
Nearby Commercial TIF	0.0840^{*}	-0.0236	0.0033	0.0041
	(0.0470)	(0.0288)	(0.0224)	(0.0198)
Year fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes
Census block fixed effects	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes
Ν	786	1,280	1,564	1,978
R ²	0.7466	0.8450	0.8447	0.8576
Adjusted R ²	0.6492	0.7958	0.7962	0.8209
Residual Std. Error	0.2601 (df = 567)	0.2211 (df = 971)	0.2312 (df = 1191)	0.2207 (df = 1572)
F Statistic	7.6645^{***} (df = 218; 567)	17.1852^{***} (df = 308; 971)	17.4176^{***} (df = 372; 1191)	23.3753^{***} (df = 405; 1572)
Notes:			***Sign	ificant at the 1 percent level.
			**Sign	ificant at the 5 percent level.

Table 1: TIF Property Value Spillover Analysis

*Significant at the 10 percent level.

Cluster robust standard errors

Table 1. Statistical regression results showing the effect of proximity to a TIF parcel on the sales price of homes. Note that estimation is log-linear so that 100 times the reported "nearby TIF" coefficient is approximately equal to the expected percentage change in property value [to derive the exact percentage, one must take exp(coefficient)]. The dependent variable is log residential sales price and the control variables are property's age, acreage, number of bathrooms and bedrooms, and neighborhood demographics including age composition, racial composition, and education levels. We only report the key results in the Table. The full set of results are in Appendix Table A.1. See our <u>2021 report</u> to the auditor for a discussion of the empirical model and choice of control variables.

Model 1's results show that buyers are willing to pay a premium in sale price if the property is *within 250 meters* (about 2 city blocks) of a TIF project. The size of this price effect after adjusting for using log-property price is approximately 8.8% and statistically significant.¹⁰ However, beyond 250 meters—we do not detect a positive or statistically significant effect on home prices. This implies that homes very near (within 250m) a commercial TIF project also benefits from the improvements while those farther away are statistically unaffected TIF (in terms of home values).

¹⁰Statistical significance roughly refers to the probability that the model is detecting an actual effect and that the observed impact is not due to random chance or coincidence from the sample of houses that were analyzed. Significance levels of 10%, or more often 5%, are used as a "rule of thumb" to determine whether there is sufficient confidence in the results to generally rule out whether they were solely due to chance.

We further test our results by controlling for the fact that each neighborhood inherently contains a different amount of commercial and industrial property. It is possible that our result is influenced by property sales in high-commercial neighborhoods differing from property sales in low-commercial neighborhoods. In other words, the amount of residential spillover is affected by whether there are already an existing commercial/industrial base in the neighborhood. We determine the percentage of commercial/industrial parcels in each census tract using spatial data available from the Franklin County auditor and re-run our matching algorithm and models, controlling for commercial/industrial activity. These results are reported in Table 2.

Table 2: Spillover Analysis, Controlling for Commercial/Industrial Share of **Neighborhood Properties**

		Log Linear			
	0-250m	0-250m 251-500m 501-750m 751-10			
	(1)	(2)	(3)	(4)	
Nearby Commercial TIF	0.0655*	-0.0073	0.0064	-0.0074	
	(0.0382)	(0.0246)	(0.0198)	(0.0182)	
Tract Percentage of Commercial/Industrial Parcels	0.1770^{**}	0.1646**	0.1166**	-0.2703***	
	(0.0816)	(0.0674)	(0.0560)	(0.0560)	
Year fixed effects	Yes	Yes	Yes	Yes	
Month fixed effects	Yes	Yes	Yes	Yes	
Census block fixed effects	Yes	Yes	Yes	Yes	
Control Variables	Yes	Yes	Yes	Yes	
Ν	786	1,280	1,564	1,978	
R ²	0.7562	0.8188	0.8500	0.8563	
Adjusted R ²	0.6689	0.7616	0.8023	0.8201	
Notes:		**	*Significant at th	ne 1 nercent level	

****Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Cluster robust standard errors

Table 2. Statistical Regression Model results showing the effect of proximity to a TIF parcel on the sales price of homes, but including a control for the percentage of commercial and industrial parcels in each Census Tract. Note that estimation is loglinear so that 100 times the reported "nearby TIF" coefficient is approximately equal to the expected percentage change in property value [to derive the exact percentage, one must take exp(coefficient)]. The dependent variable is log residential sales price and the control variables are age of the property, acreage, number of bathrooms and bedrooms, and neighborhood demographics including age composition, racial composition, and education levels. Only key results are reported in the Table. See our 2021 report to the auditor for a discussion of the empirical model and choice of control variables.

As the table indicates, the proximity to a TIF project remains a statistically significant contributor to sale price, but slightly less so at 6.8%. We utilize the higher of the two estimates (8.8%) in the

remainder of the analysis to represent an upper bound of increased property values from TIF spillovers.

Why do TIFs even have spillover price effects? One plausible theory is that TIF projects sequester funds and use them improve infrastructure in the immediate geographic area. Nearby homes benefit from the associated improved roadways, electrical infrastructure, and/or water and sewage infrastructure that raise property values (Brueckner 2001). Moreover, because tax incentives accompanying TIFs may be used to recruit businesses, it is possible that the incentive programs contribute to improved neighborhood amenities— more services and businesses for homebuyers to frequent. For example, the TIF may provide more retail and entertainment options. Indeed, Hanson and Rohlin (2011) find that federal empowerment zones (EZs) created in the 1990s are associated with new business establishments in targeted areas, especially in the retail and service sectors, though the cost per startup was extremely high.

Neighborhoods close to one another often share similar characteristics. For example, if the neighborhood immediately near the TIF is distressed, then neighborhoods immediately adjacent to the TIF neighborhood are also likely distressed. Because we compare property sales between similarly aged homes and neighborhood demographics and because TIFs must be placed in areas of "economic distress," the positive impact on home values likely occurs because of the additional infrastructure or business services created by the TIF, all else equal, which makes their immediate vicinity more desirable than immediately adjacent non-TIF neighborhoods. The estimated average price premium of 8.8% equals \$22,000 on a \$250,000 home in the immediate vicinity of a TIF. This pattern is consistent with peer-reviewed economic research on tax incentives and place-based economic development policies. It is well established that property tax changes capitalize into property values (Palmon and Smith 1998; Lang and Jian 2004). It is also well established that tax incentive zones can have spillover effects on nearby property values (Hanson 2009; Merriman 2011; Busso et al. 2013).

The Financial Impact of TIFs on Franklin County Agencies

County agency budgets are impacted by the total tax revenue foregone by TIF agreements. Yet, this is offset by gains in property taxes from nearby properties. The statistical

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results above indicate that TIFs increase residential home prices 8.8% within about 2 blocks. This offsetting positive revenue effect may more than offset the foregone TIF revenue.

To estimate the countywide positive TIF spillovers on property tax revenues, we apply our model's estimate to **all** county parcels. We assume an 8.8% gain in assessed real property value for all parcels within 250 meters of a TIF. We then sum the increased tax revenue across all nearby parcels to derive the positive property tax revenues attributable to spillovers. The total net revenue impact of all TIF projects is derived by subtracting the total forgone property tax revenue from all county TIF districts from the increased property tax revenue attributable to the TIF in nearby neighborhoods. These results are reported for 2019 in **Table 3** for selected county agencies.

We estimate annually that TIF agreements represent 5% to 6% net loss in revenues for county agencies that particularly depend on property taxes—i.e., Alcohol, Drugs, and Mental Health (ADMH) as well as Children Services. [FCBDD is not considered because of incomplete data.] The lost revenue effect declines to -0.8% for county agencies that receive general funds

Table 3. Estimated foregoi	ne and spillove	r property-tax	revenue from	TIFs for	Franklin	County
agencies, 2019.		· · •				•

Property Tax Funded Agency	Approved Budget*	Gained Revenue Estimated from TIF Neighborhoods**	Gain as % of Budget	Forgone TIF Revenue***	Forgone Revenue as % of Budget	Estimated Net TIF Effect as a % of Budget
Alcohol, Drugs, and Mental Health	\$102,791,141.00	\$312,422.90	0.30	\$5,473,151.00	5.32	-5.02
Children Services	\$204,510,443.00	\$705,604.00	0.35	\$12,336,380.00	6.03	-5.69
County General Fund	\$460,964,042.00	\$226,748.00	0.05	\$3,985,401.00	0.86	-0.82

*Source: Franklin County Office of Management and Budget, **Source: Model Estimates by summing the increased residential property tax revenue from all parcels within 250 meters of the TIF district, *** Source: Franklin County Auditor

allocated by the Franklin County Commissioners. The reason is that while TIF projects have positive impacts on nearby property values, the TIF projects themselves tend to be on large, high-value property that represent greater foregone revenue.

How do county agencies adjust to the net property tax loss from TIFs?

Several factors likely play a role in how agencies respond to forgone property tax revenue. The most obvious is rising property values related to the hot national real estate market (Santarelli 2022). As noted earlier, gains in Franklin County home values exceed both the national inflation rate and the national average increase in home values (though with the caveat that Ohio property tax rates are sometimes adjusted to collect a set amount of revenue defined in the original levy).

The second factor is that *Franklin County's local governments increased property tax rates to offset lost TIF revenue*. For example, between 2003, when TIFs were just taking off in Franklin County, and 2020, the county's average actual and average effective Class I property tax rates respectively increased by 25.41 and 20.05 mills, while the corresponding total increase for Ohio averaged 12.56 and 12.74 mills.¹¹ In other words, despite Franklin County's relatively robust housing market compared to the state (both in terms of *increased* values and in terms of greater average home prices), Franklin County raised their actual property rates about double the state average. Also, note that the average Ohio increase in residential (Class I) effective and actual property tax rates were about equal over the period, while Franklin County jurisdictions had to raise the (average) actual property tax rate by 5.36 mills faster than their average effective rate. This pattern, in part, likely relates to growing amounts of abated property in the county forcing disproportionately faster increases in actual millage rates to make up for lost revenue.

For the City of Columbus, the corresponding 2003-2020 increase in <u>(Class I) actual</u> <u>residential rates and effective rates</u> equaled 25.05 mills and 12.12 mills respectively. That is, Columbus increased actual rates more than twice rate of the increase in effective rates in order to collect the desired property tax revenue. This pattern is noteworthy because City of Columbus has been especially aggressive at enacting TIF projects relative to the rest of the county, as shown in **Figure 7**.

¹¹ Class I includes agriculture and residential properties. The actual property tax rate is the stated property tax rate while the effective rate is the amount of property taxes charged after any offsetting reductions including tax abatements and TIFs—i.e., how much property-tax millage did the government receive after the reductions.



Percentage of Franklin County TIF Project Assessed Value by City



This pattern is consistent with the City of Columbus being induced to raise property tax rates to offset the foregone revenue from the proliferation of TIF projects. Recall the results in **Figure 2 Panel B** that per-capita Franklin County non-TIFed commercial and industrial property values (adjusted for inflation) went from \$9,200 in 2002 to \$5,200 in 2018, illustrating the tremendous decrease in the property-tax base of commercial and industrial property. These trends illustrate that tax incentives likely led to increased property tax rates for the typical owner as well as a shift of the property tax burden to Franklin County homeowners.

Franklin County itself <u>increased sales tax rates in 2014 from 0.75% to 1.25%</u>, consistent with the need to make up for foregone property tax revenue. Though the county does not collect income tax revenues like many of its municipalities, note that in 2020, <u>local income tax collections</u> as a share of federal adjusted gross income (see Tables 22 and 40 of the 2021 Ohio Department of Taxation report) was 3.04% in Franklin County versus 1.60% for the state as a whole. Franklin County jurisdictions impose higher income taxes even as the U.S. Bureau of Economic Analysis reports that the county's per-capita income exceeded the state average by about \$1,600 in 2020. This is again consistent with Franklin County local municipalities offsetting lost property tax revenue with higher taxes elsewhere.

To be sure, there are a whole host of other factors in Franklin County's specific local tax regime including changes in levels of government services, intergovernmental transfers, and

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changes in state and local laws, but the general pattern supports the argument that forgone revenue from TIFs strain Franklin County local governments' ability to finance services.

Given that TIFs reduce overall revenues for county agencies, those agreements appear to be a *de facto* public subsidization of the underlying projects. While private landowners benefit from either the TIF or its positive spillovers for its immediate neighbors, taxpayers who do not live in the immediate vicinity or who do not own their own property do not receive these benefits, but appear to face increases in their net tax burden to maintain county and municipal services.

It is commonly believed that TIF agreements and tax incentives play roles in job creation, which may generate other forms of revenue for the county. We cannot directly measure income effects, such as increased wages or additional hiring by individual businesses from available data. However, our <u>2021 report</u> did analyze new business startups and found no significant link between TIF agreements and new business startups in the county. This is indicative that TIFs have little impact on net job creation through new businesses and may also imply that the beneficiaries of TIFs are more likely businesses that relocate operations from elsewhere in the county (or from adjacent counties such as Delaware County).

In conclusion, we find that the increasing number of TIF agreements has been an overall financial loss for county agencies.

Statewide Evidence of what TIFs Accomplish

The net benefits of tax incentives as an economic development tool are widely debated among economists. The value of tax incentives generally depends on several factors, including their effectiveness at creating jobs, whether those jobs (and wages) go to current residents rather than in-migrants to an area, and the opportunity costs involved in offering the incentives (e.g., reduced revenues for schools and other public services that in turn may reduce the area's qualityof-life) (Bartik, 2018). As noted in our 2021 report, peer-reviewed evidence on the effect of tax incentives on local economies is mixed with a general trend of little or no impact. Although we find that in Franklin County, the high rate of TIF incentives has generally been a net cost for county services, we now examine whether the intensity of TIF incentives across the state affect economic outcomes. In doing this, we examine correlations of various Ohio county economic outcomes with their intensity in their use of TIFs. To be sure, we caution that correlation is not causation, but these correlations will provide evidence whether TIFs are strongly affected by various economic outcomes.

We first examine the correlation between TIF activity and personal income across Ohio's 88 counties, in which TIF intensity is measured as cumulative TIF property value per-capita in 2018. U.S. Bureau of Economic Analysis (BEA) reports county-level personal income and gross domestic product (GDP) level. The difference between personal income and GDP is important to understand. Personal income is a measure of what residents actually earn, as compared to GDP, which measures the value economic production. Personal income includes wages, Social Security and other government transfers, business profits, dividends, rents, and other forms of income. GDP differs because production may be affected by net cross-county commuting patterns (e.g., Franklin County is a net destination of commuters meaning GDP is enhanced, but income leaks out due to the earnings of nonresidents). GDP also differs from personal income because profits and other income earned from production in Franklin County may leak out to owners elsewhere such as stockholders. Thus, personal income is more of a measure of local resident wellbeing and GDP is more of a measure related to local business activity and productivity

We first regress personal income in 2018 on TIF real property value per capita for each Ohio county. The results are shown in **Figure 8.** This "snapshot" shows the relationship between the intensity counties use TIF agreements with their per-capita personal income. Note that this does not represent causation. For one, relative rankings in county per-capita income are quite persistent.¹² The reported positive correlation then is likely associated with the notion that more prosperous counties can "afford" to use TIFs. For example, in Ohio, relatively more prosperous areas near Cincinnati and Columbus more intensively use TIFs than less prosperous rural Ohio counties and other Ohio major cities such as Cleveland and Youngstown.

To assess if TIF agreements play any role in *changes* in personal income, the percentage change in per-capita personal income between 2010 to 2020 is regressed on the cumulative

¹²For example, Delaware County had the highest Ohio per-capita income in both 2000 and 2020 and Perry County had the lowest in both years. More formally, the correlation between 2000 per-capita income and 2020 per-capita income is 0.91 across the 88 Ohio counties—which illustrates the persistence of relative per-capita income. Nonetheless, the Franklin County's per-capita income ranked 5th in 2000 at the dawn of the TIF era but the ranking fell to 13th in 2020 after the proliferation of TIF agreements.

property value under TIF agreements (see **Figure 9**). The near flat-line robust regression line suggests that the amount of TIF incentives the counties have offered over the decade has almost no correlation with rising personal incomes over the same period and that these increases in personal income may have occurred absent any TIF agreements.



2018 Personal Income Per Capita vs. 2018 TIF Property Value Per Capita

Figure 8. Robust Median Regression of 2018 per-capita personal income on 2018 real property value under TIF agreements. Robust regression is used because the 4 outlier counties with exceptionally high levels of TIF agreements would have excessive "leverage" in driving standard OLS regression results. In such cases, giving each observation equal weight produces more accurate results.



Figure 9. Robust regression of the 2010-2020 percentage change in per-capita personal income for Ohio counties vs. the cumulative per-capita property value (2018 dollars) that counties abated.

We similarly explore the correlation between percentage changes in per-capita GDP and cumulative per-capita TIF property values and again find no correlation (see **Figure 10**). Taken together, these regressions are suggestive that TIF incentives have had very little impact on Ohio production and incomes.



% Change in GDP per Capita (2010-2020) vs. Cumulative TIF Property Value

Figure 10. Robust regression of change in GDP per capita (%) over the decade 2010-2020 for Ohio counties vs. the cumulative property value per capita (2018 dollars) that the counties abated.

We find that there is a positive relationship between the percent change in wage-andsalary jobs between 2010-2020 and cumulative per-capita TIF property values (see **Figure 11**). Again, we caution that causation is not determined by these statistics. For instance, the positive link could be TIFs cause job growth, and prosperous economies employ TIFs because they can afford to do so, or some combination of both. As noted above, last year's report found that TIFs are associated with fewer business startups, which implies fewer jobs associated with new businesses. These startup findings are consistent with the results in Partridge et al.'s (2020) peer-reviewed study. Such findings are important because small business start-ups are associated with disproportionate increases in net new job creation as compared to relocation of established businesses or growth in existing businesses.

To assess whether our results are providing an accurate representation of the actual patterns, we employ what economists refer to as a falsification test. In this, we regress 1990-2000 percentage change in wage-and-salary growth on 2018 cumulative per-capita TIF values. Because 1990-2000 is well before the enactment of virtually all of Ohio's TIF agreements, if we find a positive relationship, given that future TIFs did not cause job growth decades before their implementation, it supports the pattern that prosperous economies are most prone to employ TIFs rather than TIFs cause job growth. As shown in **Appendix Figure C**, we find a positive link between 2018 TIFs and 1990s job growth. Thus, it suggests that at least some of the positive link we find is due to this non-causal correlation; counties which are already prosperous with growing employment are more likely to utilize TIFs. Indeed, for Franklin County, the pattern is consistent with this interpretation. Between 1990-2000, in the "pre-TIF" decade, Franklin County's wage-and-salary growth was 10.3 percentage points faster than the Ohio average, but during the "high-TIF" decade of 2010 to 2020, Franklin County job growth exceeded the state average by 8.6 percentage points. Though the difference in Franklin County's relative performance is small between the two decades, it is inconsistent with the notion that it is the proliferation of TIFs that caused job growth in Franklin County.



% Change in Jobs (2010-2020) vs. Cumulative TIF Property Value

Figure 11. Robust regression of 2010-2020 percentage change in wage-and-salary jobs in each Ohio county on the cumulative per-capita property value (2018 dollars) that counties abated. These results are compared to a falsification test in the Appendix that regresses 1990-2000 job growth on 2018 per-capita TIF abatements. Since 1990-2000 job growth did not directly cause 2018 TIF abatements, our finding that lagged job growth is positively associated with 2018 TIF agreements suggests that any positive job growth trend predates TIFs and are unlikely caused by the TIFs themselves.

Do Municipalities Compete to Offer Incentives?

This study's second core question is whether the proliferation of Franklin County TIF agreements is at least in part due to competition between municipalities that may be counterproductive. Local government officials ultimately decide on whether to implement TIF projects and forgo property tax revenue and they do not make these decisions in isolation. As evidenced in the Bob Evans case described above, often multiple cities engage in bidding for commercial and industrial activity. Nationally, this type of competition has recently been headlined by Amazon's "HQ2" multi-city competitive bidding process, which was largely based on a region's ability to offer tax incentives to one of the world's most profitable corporations. Local headlines have recently been dominated by high-profile Ohio incentive schemes, including the Intel campus in Licking County. We examine if there is evidence that this type of tax competition occurs at a much more local level, within the county.

Methods

Unfortunately, nondisclosure agreements with the company mean that there is almost no publicly available data on the bidding and negotiation process accompanying a commercial- or industrial-location decision. Additionally, specific details of government incentive packages are typically kept secret or reported in an obscure manner. Nor does the public know details of other incentive packages offered by competing municipalities. Thus, it is impossible to know exactly why each private company makes the decision it does, which makes holding local policymakers accountable quite challenging. Even more complicating is the fact that TIF agreements are highly individualized and customized to the property and improvement areas within each municipality.

To overcome these difficulties, we exploit geography and time to estimate whether municipalities tend to approve more TIF agreements when their immediate neighbors have recently implemented TIF agreements. In essence, we assess whether there is a "keeping up with the Jones" effect in how municipalities create TIF projects.

We first define what it means to be a "neighbor" to a TIF municipality. To consistently achieve this for the county's taxing jurisdictions, we use a similar modeling procedure as before. We draw a circle with a 2-mile radius around the center of each municipality and measure the overlapping areas with each of its neighbors as a percentage. We then add up the change in TIF agreements in the neighbors over the previous year and weight them by the overlapping area. This generates an estimate of how many new TIFs a tax jurisdiction's neighbors created in the prior year proportional to how much property that neighbor has near the municipality in question. We then statistically examine whether neighboring cities grant new TIF agreements in response to how their neighbors grant new TIF agreements. We regress the change in TIFs on the change in neighboring TIFs and control for each jurisdiction's age, racial, income, and education characteristics, which may also influence the creation of TIFs. The regression results are shown in **Table 3**.

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	Change in Own TIFs	Change in Own CRAs			
	(1)	(2)			
Change in Neighboring TIFs	0.5606**	-0.0348			
	(0.2320)	(0.0225)			
Change in Neighboring CRAs	-0.0602	0.5703^{*}			
	(0.1615)	(0.3001)			
Year Fixed effects	Yes	Yes			
Control Variables	Yes	Yes			
Ν	113	113			
\mathbb{R}^2	0.8572	0.7146			
Adjusted R ²	0.8316	0.6635			
Residual Std. Error ($df = 95$)	43.8123	20.7052			
F Statistic (df = $17; 95$)	33.5401***	13.9919***			
Notes:	***Significant at the 1 percent level.				
	**Significant	**Significant at the 5 percent level.			
	*Significant at	*Significant at the 10 percent level.			
	Cluster robust standard errors				

Municipal Tax-Competition Analysis for TIFs and CRAs

Table 3. Abbreviated regression results at the taxing jurisdiction level. See Appendix Table A.2 for full results.

The results indicate that there is a positive and significant relationship between a jurisdiction creating a TIF and whether its neighbors created a TIF in the previous year—i.e., one new TIF created in a neighboring municipality is associated with the creation of 0.56 TIFs in the jurisdiction of interest. For traditional commercial CRA abatements, which must still be approved by local authorities on a project-by-project basis, the corresponding relationship with neighboring jurisdictions establishing CRAs is 0.57. More explicitly this implies that for every two commercial projects a city's Franklin County neighbors abate, this corresponds with the creation of just over 1 new CRA in the city itself. Table 3's results also indicate that jurisdictions do not respond in terms of creating TIFs if their neighbor approve a commercial CRA, and vice versa.

The results suggest a negative multiplier effect from approving commercial CRA abatements and TIF projects. Not only does the jurisdiction directly lose property tax revenue

from the CRA or TIF, but it induces neighboring jurisdictions to establish their own CRAs and TIFs that lead to property tax losses of their own and multiply the county's tax loss.

We explore whether the creation of TIFs specifically lead to spillovers across county borders. **Figure 12** shows a map of Ohio counties with their 2018 level of cumulative TIFs. The map indicates two clusters of greater TIF intensity. The first in southwest Ohio centered around Cincinnati and another centered-on Columbus in central Ohio. For the rest of the state, there is relatively little use of TIFs, meaning minimal spillover effects. Further, given that larger Ohio cities such as Cleveland do not use TIFs at nearly the same rate as Columbus and Cincinnati, the geographic distribution of TIF use raises the question whether local officials really need to offer such incentives to attract business in the state.



Real Taxable Property Value Per Capita Under TIF Abatement, 2010-2018



Figure 12. Ohio county map of 2010-2018 cumulative per-capita real taxable property under TIF agreements.

Conclusion

Overall, we find that the mass implementation of tax increment finance (TIF) agreements has likely been a net cost to county services in Franklin County and that the county is one of Ohio's four major county outliers in its heavy use of TIFs. Franklin County's rate of adoption for TIFs has outpaced the gains in class 2 property values, with the county now having far less unabated total real commercial and industrial property tax base than it did in 1999, after adjusting for inflation and population growth.

The statistical evidence suggests that the county has inherently relied on a combination of naturally rising property values, higher-than-average tax rates, and relatively large increases in property taxes to maintain county services. This pattern disproportionately shifts the cost of the county services onto homeowners from businesses. In the extreme, the county's higher than average property tax rates also contribute to an environment where it may be more difficult for other public entities, such as schools, to successfully seek additional funding through levies. Further, it is possible that county residents would have benefited more from expanded or new public services versus using higher taxes to subsidize the lost tax revenue from TIFs.

We also find evidence that TIFs contributed to rising property values in their immediate vicinity (within 250 meters), but not even close to enough to offset their cost in forgone tax revenue. We believe this is largely driven by several factors. The most obvious is that TIFs are tied to infrastructure improvements and that blighted neighborhoods with improved infrastructure are more attractive than comparable neighborhoods without improved infrastructure. This pattern can cause home prices to rise in the TIF neighborhood when compared to their immediate adjacent neighborhoods who do not receive the infrastructure benefits. Additionally, if TIFs are granted to commercial retail establishments, the opening of neighborhood restaurants, coffeeshops, bars, or shops represent an amenity to nearby residents, who in turn may be willing to pay more to live nearby the TIF project. We caution, however, that our evidence suggests that these benefits are paid for on the backend via higher property taxes and forgone revenue for county and municipal services that residents also utilize.

Although we estimate a very localized positive spillover effect of TIFs on property values, we find no evidence that TIF incentives are correlated with broader economic indicators across

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the state. We find no correlation between county TIF levels and GDP per-capita growth or with a county resident's personal income. While we find a positive correlation with job growth exists, our falsification test shows that this job growth trend predates the mass adoption of TIFs by nearly a decade, raising significant doubts that TIFs themselves have been a cause of the observed job growth.

Finally, we find that municipalities, particularly in the southwest and central parts of Ohio, tend to implement TIFs more often when their immediate neighbors have also recently enacted new TIF projects. This effect is plausibly driven by local officials believing that they need to do this in order to attract businesses that promise to create jobs in their jurisdiction. The results of this study suggest that such actions may not have their intended effects and should be exercised much more cautiously.

This study offers several takeaways for the public and policymakers. First, it calls into question the economic benefits of TIFs. The absence of correlation between TIFs, GDP, and incomes suggests that individual residents may not benefit as much as policymakers claim. This speaks to the need to enhance data collection and tracking for long-term accountability in TIF agreements. Are they meeting promised goals in employment, wages, and other spillovers? If not, then county jurisdictions should claw back some of the tax incentives.

Second, policymakers should consider the counterfactual when considering a new TIF. Rising property values may allow additional tax revenue to be spent in ways that benefit residents and impact the local economy more than place-based tax incentives directly aimed at companies. Such alternatives include workforce development, other investments in human capital, more school funding, or amenity and infrastructure investments at-large which make cities more attractive for businesses and their employees without relying on distortionary tax incentives and shifting tax burdens. While tax incentives are not always inappropriate when used judiciously and are applied in an evidence basis rather than based on wishful thinking. The alternative development policies provide more proactive ways to attract businesses or encourage startups without engaging in a "race to the bottom" of offering increasingly generous incentive packages to individual companies.

Appendix Figures and Tables:



Figure A. The per-capita value of taxable real property abated for major Ohio urban counties and their fastest growing suburban neighbors. **Data Source:** Ohio Department of Taxation and U.S. Census Bureau



Figure B. The amount of taxable real property value abated (\$) per capita as a share of personal income¹³ for major Ohio urban counties and their fastest growing suburban neighbors. **Data Source:** Ohio Department Taxation and U.S. Bureau of Economic Analysis.

¹³ Personal income, estimated by the BEA, measures wages, Social Security and government transfers, business profits, dividends and other sources of income that residents actually receive.



Figure C. Robust regression of the 1990-2000 percentage change in the number of wage-andsalary jobs on the cumulative 2009-2018 per-capita TIF property value for Ohio counties.

Spillover A	Analysis			
	Log Linear			
	0-250m	251-500m	501-750m	751-1000m
	(1)	(2)	(3)	(4)
Nearby Commercial TIF	0.0655^{*}	-0.0073	0.0064	-0.0074
	(0.0382)	(0.0246)	(0.0198)	(0.0182)
Tract Percentage of Commerical/Industrial Parcels	0.1770^{**}	0.1646**	0.1166**	-0.2703***
	(0.0816)	(0.0674)	(0.0560)	(0.0560)
armslength	-0.0554	-0.0774**	-0.0368	-0.0307
	(0.0538)	(0.0357)	(0.0297)	(0.0252)
arms_buyer	-0.0265	-0.0166	-0.0614**	-0.0945***
	(0.0332)	(0.0339)	(0.0275)	(0.0254)
flip	0.0603	0.0779^{*}	0.0690	0.1165***
	(0.0425)	(0.0412)	(0.0433)	(0.0265)
area_a	0.0002***	0.0002***	0.0002***	0.0002***
	(0.00004)	(0.00004)	(0.00003)	(0.00002)
acres	0.1180	0.3157^{*}	0.2847**	0.4550***
	(0.3094)	(0.1840)	(0.1309)	(0.1186)
age	-0.0002	0.0003	-0.0014*	-0.0026***
	(0.0008)	(0.0011)	(0.0007)	(0.0009)
median_income	0.000001	-0.000001	0.000001	-0.000002
	(0.000001)	(0.000002)	(0.00002)	(0.000001)
pctwhite	-1.6193*	-1.8598***	-0.6793	-0.9958***
	(0.9821)	(0.5208)	(0.5140)	(0.3752)
pctblack	-2.0462	-1.5894***	-0.8680^{*}	-0.6376*
	(1.3664)	(0.5309)	(0.4891)	(0.3492)
pctunder17	1.6906	0.7896	-0.2068	0.2241
	(1.0321)	(0.7769)	(0.7383)	(0.5273)
pctover65	-1.4038	2.1107^{**}	1.0343	1.2671**
	(1.3083)	(0.9840)	(1.1775)	(0.5735)
pct_highschool_ged	0.9534	-0.0657	0.1034	0.3439
	(1.1727)	(0.8424)	(0.7237)	(0.6130)
pct_bachelors	0.1892	-0.2092	-0.7557	0.0628
	(1.2282)	(0.9066)	(0.7074)	(0.5976)
pct_advanced_degree	-0.5850	-0.0064	0.1241	0.1062
	(0.8725)	(0.9259)	(0.7237)	(0.6070)
pct_associated	3.5456	0.2605	-1.2106	2.1370**
	(2.6053)	(1.0647)	(1.1163)	(0.9664)
pct_some_college	-0.4937	-0.5248	0.7324	0.1771
	(1.3598)	(1.0316)	(0.6762)	(0.5805)
factor(bedrms)2	0.0697	0.0428	0.2555**	-0.0380
	(0.1058)	(0.1199)	(0.1230)	(0.1669)
factor(bedrms)3	0.0074	0.0895	0.2946**	0.0272
	(0.1327)	(0.1279)	(0.1162)	(0.1661)
factor(bedrms)4	0.0270	0.0793	0.3033***	0.0198
	(0.1320)	(0.1334)	(0.1173)	(0.1653)
factor(bedrms)5	-0.1958	0.0339	0.4132***	-0.0294

Spillover Analysis

	(0.1588)	(0.1598)	(0.1265)	(0.1715)
factor(bedrms)6		-2.6758***	0.1859	
		(0.7723)	(0.1134)	
factor(baths)2	0.1078***	0.0485	0.1023***	0.0552***
	(0.0304)	(0.0335)	(0.0205)	(0.0178)
factor(baths)3	0.1717***	0.0972**	0.0483	0.1102***
	(0.0426)	(0.0477)	(0.0533)	(0.0315)
factor(baths)4	-0.0424	0.0217	0.0442	0.0956
	(0.1804)	(0.1079)	(0.1745)	(0.0751)
factor(baths)5	-0.0225		0.4383***	-0.0261
	(0.1469)		(0.1655)	(0.0705)
Year fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes
Census block fixed effects	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes
Ν	786	1,280	1,564	1,978
R ²	0.7562	0.8188	0.8500	0.8563
Adjusted R ²	0.6689	0.7616	0.8023	0.8201
Notes:		***Significa	nt at the 1 n	arcant laval

Notes:

**Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Cluster robust standard errors

Table A.1. Full regression output from the regression of log of sale price on TIF proximity.

(Change in Own TIFs	Change in Own CRAs	
	(1)	(2)	
Change in Neighboring TIFs	0.5606**	-0.0348	
	(0.2320)	(0.0225)	
Change in Neighboring CRAs	-0.0602	0.5703*	
	(0.1615)	(0.3001)	
population occupied	0.0003	-0.0001	
	(0.0003)	(0.0001)	
median income	-0.000003	0.00001**	
-	(0.00001)	(0.00001)	
pctwhite	-236.7075***	-36.2543	
1	(91.4052)	(39.6123)	
pctblack	-305.8335***	-71.0894	
r	(95.8320)	(46.3352)	
pctover65	631.8715*	12,1728	
percention	(331.6292)	(153.3528)	
nctunder17	1 115 2830**	128 4072	
petunder 1 /	(448,4485)	(119.6675)	
net highschool ged	1 200 0600**	-0 7019	
per_mgnsenoor_geu	(571.6751)	(101.4264)	
nct hachelors	971 9903***	70 6459	
per_oueneiors	(351.3851)	(167.0505)	
not advanced degree	-529 1941	-194 3440	
per_advanced_degree	(740.4828)	(324,5067)	
not associated	694.0654	66 4420	
pet_associated	(934 6405)	(161, 3059)	
nat some college	326 4074	168 0521	
pct_some_conege	(328,8315)	(111 2000)	
Constant	(328.6515)	(111.2000)	
Constant	-03/.5101	-22.8625	
X7 T2 1 00 ·	(300.8393)	(01.1750)	
Year Fixed effects	Yes	Yes	
N	105	108	
R^2	0.8572	0.7146	
Adjusted R ²	0.8316	0.6635	
Residual Std. Error (df = 95)	43.8123	20.7052	
F Statistic (df = $17; 95$)	33.5401***	13.9919***	
Notes:	***Significan	t at the 1 percent level.	
	**Significant at the 5 percent level.		
	*Significant at the 10 percent level.		

Competition Analysis for TIFs and CRAs

Cluster robust standard errors

Table A.2. Full output from the regression of the change in tax increment finance projects on neighbors tax increment financing projects in the prior year.

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