Opportunity Zones and Private Investment: Evidence from U.S. Commercial Real Estate

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Abstract

Place-based policies aim to stimulate economic development in disadvantaged areas. A provision of the Tax Cuts and Jobs Act (2017) established Opportunity Zones (OZs) to spur private investment in low-income census tracts. Using comprehensive data on commercial real estate transactions in the United States from 2013 through 2023, we employ a multivariate regression discontinuity design that exploits sharp statutory eligibility thresholds to study whether OZs increased investment in eligible census tracts. Our preliminary results show statistically insignificant effects of OZ eligibility on commercial investment across industrial, office, and retail sectors. We document suggestive but heterogeneous effects on multifamily housing investment. Thus far, it is difficult to conclude that the OZ legislation had a clear positive effect on investment in economically distressed communities.

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Keywords: Opportunity zones, investment, tax policy, poverty

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1 Introduction and Motivation

Rising geographic disparities in economic well-being have prompted renewed policy interest in targeted, place-based interventions. Decades of research document that neighborhoods shape long-run individual outcomes, including childhood earnings trajectories and health, and that disadvantaged communities can become trapped in persistent poverty (Chetty, Hendren, and Katz, 2016; Chyn, 2018). Yet migration rates between low- and high-income regions in the United States have fallen sharply, reducing the natural mechanism through which geographic inequality would otherwise self-correct (Ganong and Shoag, 2017). These trends motivate exploring whether tax-based incentives can attract private capital to distressed places.

Enacted as part of the Tax Cuts and Jobs Act (TCJA) of 2017, the Opportunity Zone (OZ) policy represents the most ambitious and flexible place-based investment incentive in U.S. history. By allowing investors to defer and partially exclude taxes on capital gains reinvested through Qualified Opportunity Funds (QOFs) into designated low-income census tracts, the program sought to channel private capital toward economically distressed communities without the approval requirements, caps, or outcome restrictions that characterized prior efforts such as the New Markets Tax Credit (NMTC) or federal Empowerment Zones.

Whether OZs increase investment in designated areas, and whether such investment translates into improved economic outcomes for residents, are the central empirical questions motivating this research. As of 2020, investors had placed at least $48 billion into QOFs (Coyne and Johnson, 2022), yet the causal impact of the program on investment flows and downstream outcomes remains uncertain. Prior studies have produced mixed findings on outcomes such as employment and housing, relying heavily on difference-in-differences designs that may be confounded by non-random OZ selection and pre-existing investment trends.

This proposal describes a study with three principal contributions. First, we provide a rigorous causal estimate of whether OZs stimulate private investment, the program's primary stated objective. Second, we extend the analysis through the end of 2023, allowing the

investment response more time to materialize. Third, we address methodological shortcomings in the existing literature by implementing a multivariate regression discontinuity (RD) design that exploits the sharp eligibility thresholds built into the program's statutory design, thereby avoiding the parallel-trends assumption that prior work cannot credibly support.

2 Opportunity Zones: Program Background

The OZ provision allowed state governors to designate up to 25 percent of eligible census tracts as Opportunity Zones. A tract was eligible if it met at least one of three conditions: (i) a poverty rate of at least 20 percent; (ii) a median family income below 80 percent of the applicable area median; or (iii) contiguity with an eligible designated tract and median income below 125 percent of that tract's median. Eligibility was determined using data from the 2011–2015 pooled American Community Survey, published prior to the TCJA's passage, making tract-level eligibility status effectively pre-determined and immune to strategic manipulation.

Of approximately 75,000 census tracts nationwide, roughly 42,000 met the eligibility criteria, and 8,764 were ultimately designated as OZs in July 2018. All states and about two-thirds of U.S. counties contain at least one OZ. Selected tracts are substantially more economically distressed than eligible-but-not-selected tracts on average: lower median household incomes ($40,824 vs. $51,258), higher poverty rates (30.6% vs. 21.4%), and higher unemployment rates (6.3% vs. 4.9%).

The tax incentive structure is notable for its flexibility and uncapped scale. Investors may reinvest any amount of unrealized capital gains into QOFs, defer those gains until the end of 2026, exclude 10–15 percent of the original gain (depending on holding period), and pay no capital gains tax on appreciation of the OZ investment itself if held for at least ten years. Compared to earlier place-based programs, OZs impose virtually no restrictions on investment type: residential, commercial, industrial, and mixed-use investments all qualify,

and the program requires no pre-approval from any government entity.

This flexibility is a double-edged sword. On one hand, it lowers transaction costs and may attract more total investment. On the other hand, it provides no mechanism to direct investment toward the activities most likely to improve resident well-being, and may result in a large share of tax benefits subsidizing investment that would have occurred absent the incentive.

3 Research Questions

This study addresses four interrelated research questions:

1. Does OZ eligibility increase commercial real estate investment in designated census tracts?
2. Are investment effects heterogeneous across property types (industrial, office, retail, multifamily housing), geography (urban vs. rural), or economic conditions?
3. Have investment effects changed over a five-year post-designation window, as knowledge of the policy and the policy's incentives have changed?
4. Have OZs shifted the type of investment in distressed areas? Here we are primarily motivated by the structure of the legislation that favors investments in multifamily housing in contrast to other business investment (retail, industrial and office).

Answering these questions matters both for evaluating the OZ program specifically and for informing the broader design of place-based investment incentives. OZs represent a new model that trades the targeted, vetted, capped structure of programs like the NMTC for maximum flexibility and scale. Although the OZ policy was recently made permanent under the OBBBA, rigorous evaluation of its effects remains consequential for several reasons. First, permanence makes it important to understand its expected future effects, and can inform potential future reforms to the law's eligibility criteria, investor holding periods, approval requirements, and other design features. Second, the fiscal cost of the policy continues

indefinitely, and understanding whether OZ investment reflects genuine marginal investment or primarily subsidizes activity that would have occurred regardless is essential for assessing whether that cost is justified. Third, and perhaps most importantly, OZs now serve as the leading template for large-scale, flexible, uncapped place-based investment incentives in the United States. Evidence on where this model succeeds and where it falls short will shape the design of future programs well beyond the OZ policy itself.

4 Data and Measurement

4.1 Commercial Real Estate Transactions

Our primary outcome data come from Real Capital Analytics (RCA), which maintains a comprehensive transaction-level database of U.S. commercial real estate investments. The RCA data capture approximately 95 percent of all commercial real estate transactions valued above $2.5 million nationwide, spanning 2013 through 2023. For each transaction, the database records the sale price, property address, transaction type (new construction, sale of existing structure, or redevelopment), buyer and seller characteristics, financing details, and property category (industrial, office, retail, multifamily housing, and other).

We aggregate transactions to the census tract–year level, constructing two primary outcome measures: (i) the count of transactions and (ii) the total inflation-adjusted value of transactions (in millions of dollars, deflated using the Personal Consumption Expenditures price index). The RCA data cover both the pre-designation period (2013–2017) and a five-year post-designation period (2019–2023), with 2018 excluded from both windows given that OZ designations were finalized and key investor regulations issued during that year.

4.2 Census Tract Characteristics

We draw on the American Community Survey (ACS) five-year pooled estimates for two purposes. First, we use the 2011–2015 ACS tract-level estimates of the poverty rate and me-

dian family income, the statistics used by Treasury to determine OZ eligibility, to construct our regression discontinuity running variable. Second, we use 2013–2017 ACS estimates of the labor force participation rate, employment-to-population ratio, unemployment rate, and industry employment shares as pre-determined covariates that increase precision without introducing post-treatment bias.

4.3 Summary Statistics

Prior to designation, selected OZs were more likely to receive commercial investment than eligible-but-not-selected tracts (50.3% vs. 38.7% had at least one transaction during 2013–2017), despite being more economically distressed. This pattern is consistent with governors selecting tracts that were better positioned to attract investment, and it directly motivates our regression discontinuity approach rather than a simple comparison of selected and non-selected tracts. See Table 1.

5 Identification Strategy

5.1 Limitations of Difference-in-Differences

The natural comparison group for evaluating OZ impacts is census tracts that were eligible for designation but not selected. Most prior studies employ a difference-in-differences (DiD) design comparing changes in outcomes between selected and eligible-but-not-selected tracts before and after the 2018 designation. However, as our preliminary analysis documents, both commercial and multifamily investment in selected tracts was growing *faster* than in eligible-but-not-selected tracts even before OZ designation, a clear violation of the parallel trends assumption on which DiD identification relies (see Figures 1 and 2). These pre-trend differences likely reflect the systematic differences in tract characteristics that guided governor selection decisions, and it implies that naive DiD estimates will be upwardly biased.

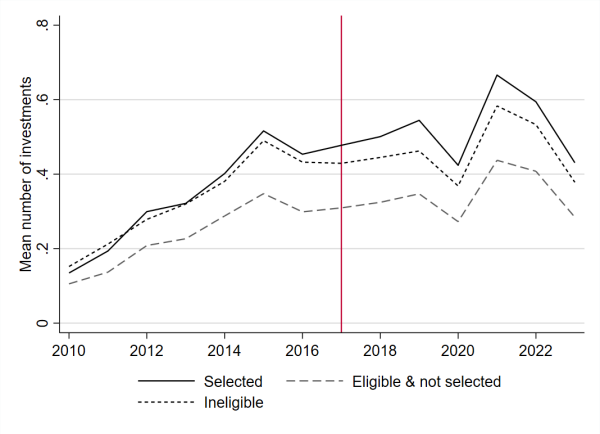
Table 1: Summary statistics, various years

	Eligible		Not Eligible
	Selected	Not Selected	
Tract characteristics (American Community Survey, 2013-2017)			
Median Household Income ($)	40,824	51,258	94,178
Poverty Rate	0.306	0.214	0.076
Unemployment Rate	0.063	0.049	0.032
Labor Force Participation Rate	0.586	0.613	0.658
Urban	0.763	0.785	0.902
Investment statistics, 2013-2017 (Real Capital Analytics)			
Commercial			
At least one transaction (%)	0.503	0.387	0.470
Mean number of transactions	2.170	1.470	2.052
Mean aggregate value of transactions (millions $)	26.4	19.7	32.0
Multi-family housing			
At least one transaction (%)	0.356	0.298	0.258
Mean number of transactions	1.008	0.800	0.580
Mean aggregate value of transactions (millions $)	17.6	15.3	17.2
Investment statistics, 2019-2023 (Real Capital Analytics)			
Commercial			
At least one transaction (%)	0.569	0.440	0.506
Mean number of transactions	2.659	1.749	2.325
Mean aggregate value of transactions (millions $)	36.0	23.8	36.0
Multi-family housing			
At least one transaction (%)	0.481	0.370	0.328
Mean number of transactions	1.528	1.023	0.783
Mean aggregate value of transactions (millions $)	36.5	25.2	26.9
Number of tracts	7,727	33,131	30,813

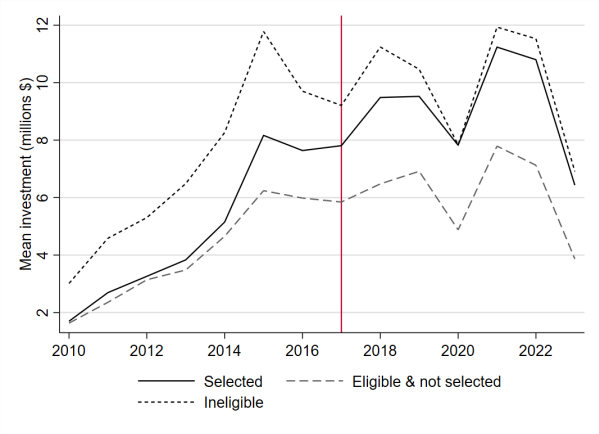
Sources: American Community Survey, 2013-2017, 5-year pooled sample; Real Capital Analytics, 2013-2023.

Notes: Excludes Puerto Rico.

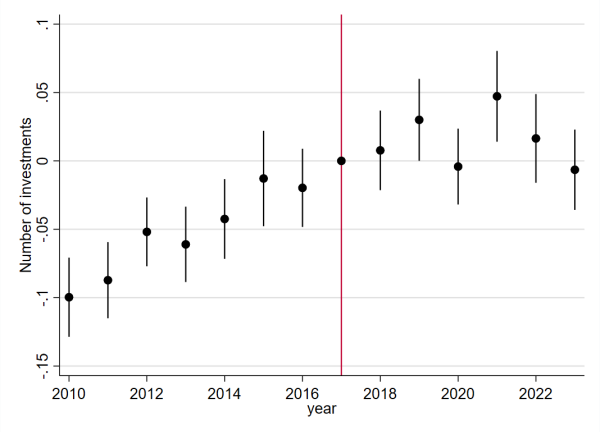
Figure 1: Mean number and dollars of commercial investments by census tract type and difference across census tract type, 2010-2023



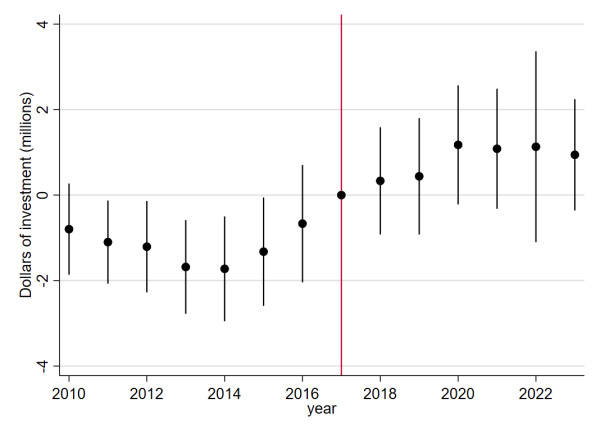
(a) Number of investments



(b) Dollars of investment



(c) Difference in number*



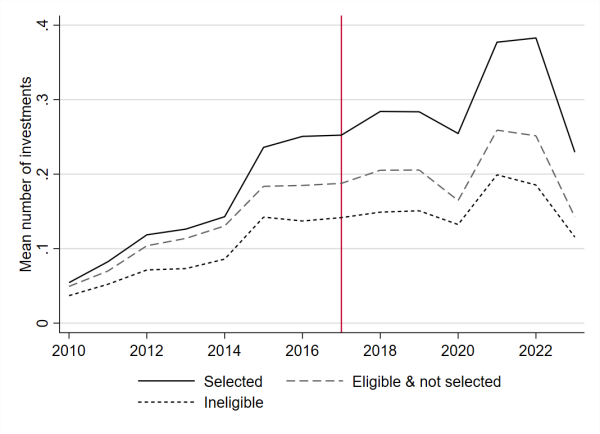
(d) Difference in dollars*

Sources: Real Capital Analytics; American Community Survey, 2011-2015 5-year pooled sample; U.S. Department of the Treasury.
Notes: Number of investments is number of commercial investments made during the year, and dollars of investment is the sum of all dollars of commercial investment (in millions) made during the year. Dollars values are adjusted for inflation using the Personal Consumption Expenditures price index. The vertical line at 2017 represents the last year prior to designation of Opportunity Zones. *In subfigures (c) and (d), the black dots represent the difference in investment between tracts selected as Opportunity Zones and tracts eligible but not selected as Opportunity Zones, relative to the difference in 2017. The black vertical lines centered at each black dot represent the 95 percent confidence interval corresponding to each difference in differences point estimate.

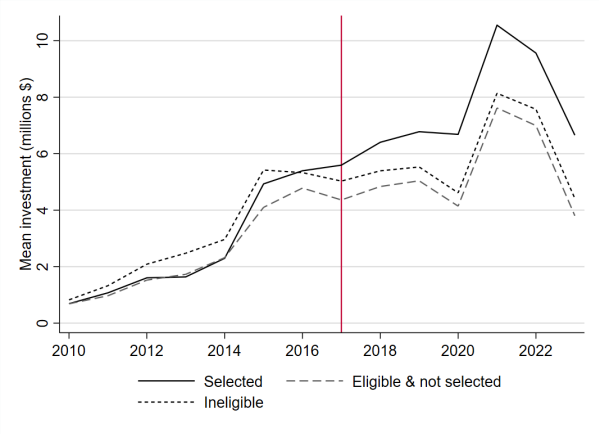
5.2 Regression Discontinuity Design

We instead exploit the eligibility thresholds embedded in the OZ statute as a source of quasi-experimental variation. Census tracts were eligible for OZ selection if and only if they met at least one of two primary eligibility conditions: a poverty rate at or above 20 percent, or

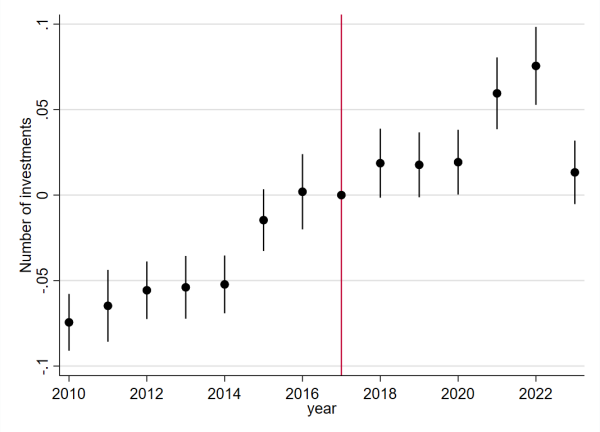
Figure 2: Mean number and dollars of multifamily housing investments by census tract type and difference across census tract type, 2010-2023



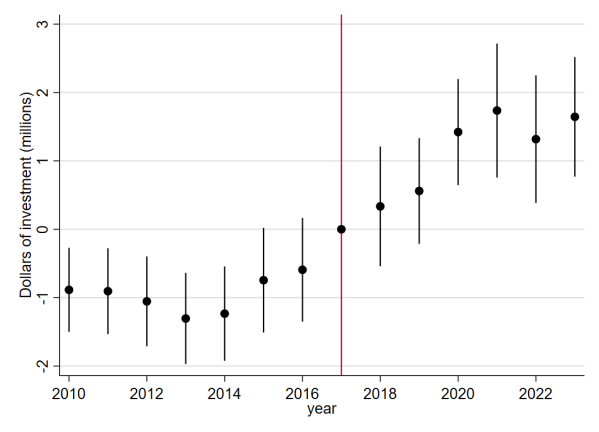
(a) Number of investments



(b) Dollars of investment



(c) Difference in number*



(d) Difference in dollars*

Sources: Real Capital Analytics; American Community Survey, 2011-2015 5-year pooled sample; U.S. Department of the Treasury.
Notes: Number of investments is number of multifamily housing investments made during the year, and dollars of investment is the sum of all dollars of multifamily housing investment (in millions) made during the year. Dollars values are adjusted for inflation using the Personal Consumption Expenditures price index. The vertical line at 2017 represents the last year prior to designation of Opportunity Zones. *In subfigures (c) and (d), the black dots represent the difference in investment between tracts selected as Opportunity Zones and tracts eligible but not selected as Opportunity Zones, relative to the difference in 2017. The black vertical lines centered at each black dot represent the 95 percent confidence interval corresponding to each difference in differences point estimate.

a median family income at or below 80 percent of the area (state or MSA) median. Tracts near but on opposite sides of these thresholds are plausibly similar in all relevant respects, differing only in whether they qualified for OZ designation.

Following Reardon and Robinson (2012), we construct a single combined running variable

that incorporates both eligibility conditions:

$$r_i \;=\; \max\left\{ \frac{P_i - 20}{20},\; -\frac{I_i - 0.8\, I_m}{0.8\, I_m} \right\}, \tag{1}$$

where P_i is the tract poverty rate, I_i is the tract median income, and I_m is the applicable area (state or MSA) median income. Tracts with $r_i \geq 0$ are eligible for OZ designation; tracts with $r_i < 0$ are ineligible. We estimate the intent-to-treat (ITT) effect of OZ eligibility on investment by comparing outcomes across the $r = 0$ threshold:

$$Y_i \;=\; f(r_i) \;+\; D_i\,\gamma \;+\; X_i\,\beta \;+\; \varepsilon_i, \tag{2}$$

where Y_i is the change in annualized investment from the pre-period (2013–2017) to the post-period (2019–2023), $f(r_i)$ is a polynomial in the running variable fitted separately on each side of the threshold, $D_i = \mathbf{1}[r_i \geq 0]$ is the eligibility indicator, and X_i is a vector of pre-determined tract characteristics. Differencing before and after designation removes time-invariant tract effects.

5.3 Design Validity

The RD design rests on the assumption that tract-level investment potential varies smoothly through the eligibility threshold. Several features of the program support this assumption. Eligibility thresholds were determined by ACS survey estimates published before the TCJA was enacted, so no census tract could have strategically positioned itself to qualify. A formal manipulation test (Cattaneo, Jansson, and Ma, 2018) fails to reject the null of no sorting at the threshold ($p > 0.94$). Pre-period investment trends and pre-determined covariates show no discontinuities at the cutoff, consistent with local randomization of eligibility status.

6 Preliminary Results

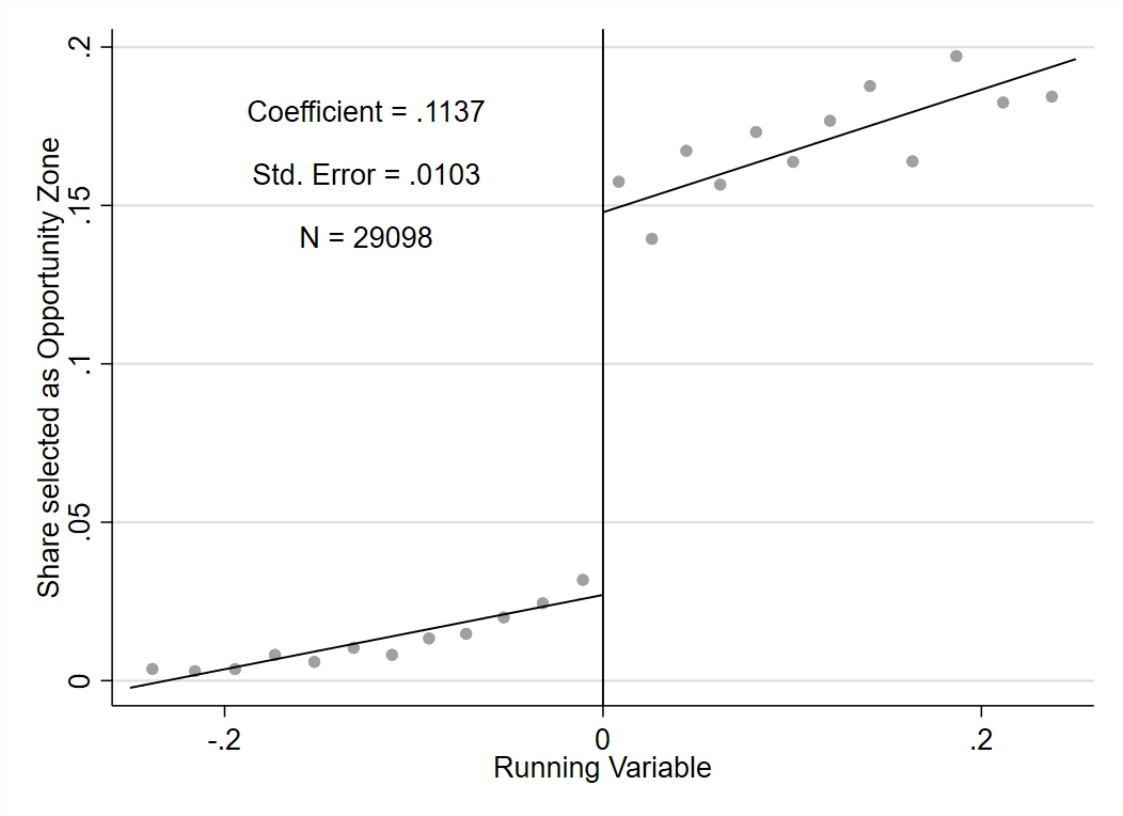
6.1 First Stage: Effect of Eligibility on Selection

A necessary condition for our design to be informative is that crossing the eligibility threshold substantially raises the probability of OZ designation. Our preliminary analysis confirms this: crossing the poverty-rate threshold (conditional on median income exceeding 80 percent of the area median) raises the selection probability by approximately 12 percentage points; crossing the median-income threshold (conditional on the poverty rate being below 20 percent) raises selection by approximately 11 percentage points. Using the combined running variable, the first-stage coefficient is 0.114 (SE = 0.010), confirming a strong and statistically precise first stage. See Figure 3.

6.2 Commercial Investment: Null Results

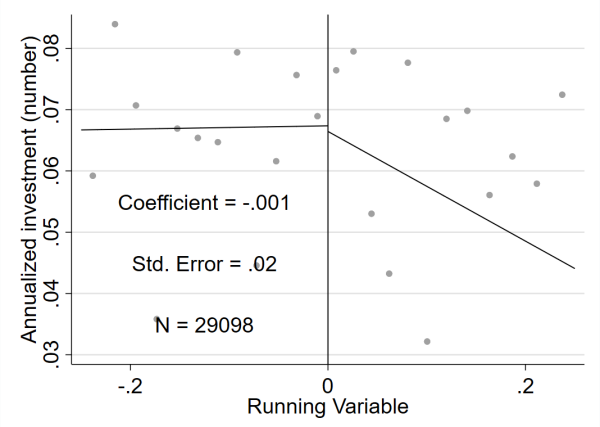
Figure 4 shows the ITT impact of OZ eligibility on annualized commercial investment (2019–2023 relative to 2013–2017). Across all commercial property types combined, OZ eligibility is associated with a reduction of 0.001 transactions per year (SE = 0.020) and a reduction of $0.043 million in annual investment (SE = 0.553). Neither estimate is statistically distinguishable from zero, and both are economically trivial relative to the pre-period mean. Estimates are similarly small and insignificant when examined separately for industrial, office, retail, and other commercial subcategories (see Table 2).

Figure 3: Share of census tracts designated as OZs by constructed running variable

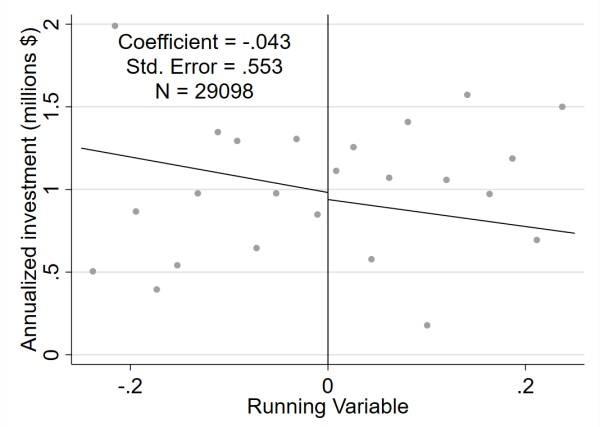


Sources: American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury.
Notes: Each dot represents the sample average within each bin. Fitted lines are linear fitted separately to points on either side of the cutoff. Running variable combines the poverty rate and median income eligibility conditions as defined in the text. The coefficient represents the effect of crossing the eligibility threshold on the probability of being selected as an Opportunity Zone. Standard error and number of observations in the bandwidth are reported.

Figure 4: Difference in annualized commercial investment between 2013–2017 and 2019–2023



(a) All census tracts: Number of investments



(b) All census tracts: Dollars of investment

Table 2: Preliminary RD Estimates: Impact of OZ Eligibility on Annualized Investment (Change: 2013–2017 to 2019–2023)

	Number of Investments		Dollars of Investment ($M)	
Investment Type	Coeff.	(SE)	Coeff.	(SE)
Commercial (Total)	−0.001	(0.020)	−0.043	(0.553)
Industrial	−0.004	(0.011)	−0.039	(0.381)
Office	0.007	(0.007)	0.121	(0.268)
Retail	−0.004	(0.008)	−0.099	(0.151)
Multifamily Housing	−0.001	(0.009)	0.055	(0.357)

Notes: All specifications include tract-level controls: labor force participation rate, employment-to-population ratio, unemployment rate, and industry employment shares (2013–2017 ACS). Bandwidth = 0.25 on the combined running variable. N = 29,098. Heteroskedasticity-robust standard errors in parentheses.

These null results are robust to a wide range of specification checks. Estimates remain small and statistically insignificant across polynomial orders 1 through 4 and bandwidth choices ranging from 0.05 to 0.50. Results are also robust to using the poverty and median income running variables separately (frontier RD approach), to excluding tracts in counties with a mix of eligible and ineligible tracts (spillover test), and to focusing on urban tracts or properties explicitly designated for redevelopment.

6.3 Multifamily Housing: Suggestive Effects

The one partial exception to the pattern of null results involves multifamily housing investment. When we examine annual estimates year-by-year rather than the averaged pre-to-post change, we find a statistically significant positive effect of OZ eligibility in 2018 (the year of designation): eligibility increased the number of multifamily transactions by 0.05 (39%) and dollars of investment by $1.7 million (51%). This effect dissipated in 2019–2020 but

re-emerged in 2022, when eligibility is estimated to have increased investment dollars by a statistically significant $1.4 million (29%). We interpret this heterogeneity cautiously given the intervening effects of the COVID-19 pandemic, but the pattern is consistent with investors viewing multifamily housing as the most tax-advantaged and least risky vehicle for OZ compliance.

Critically, we find no evidence that multifamily housing investment has spilled over into other commercial sectors. This limits the program's potential to spur broad-based economic development, particularly since multifamily housing investment may be concentrated in less distressed OZs where new housing demand exists, rather than in persistently poor communities where vacancy rates are already high.

7 Relationship to Existing Literature

Our study contributes to a growing empirical literature on the OZ policy and to the broader literature evaluating place-based policies in the United States.

Among OZ studies, the closest antecedents are Sage, Langen, and Van de Minne (2023), who use commercial transaction data and find that OZ designation raised prices for vacant land and redevelopment properties but not for built properties; Wheeler (2022), who finds a 2.9 percentage point increase in building permits in OZ tracts; and Freedman, Khanna, and Neumark (2023), who find no significant impact of OZ selection on employment, wages, or poverty rates once pre-trend differences are controlled. Our study advances this literature in three respects: (i) using a regression discontinuity design rather than difference-in-differences, directly addressing the pre-trend problem; (ii) extending through 2023, providing the longest post-designation window to date; and (iii) examining investment by property type to pinpoint where any investment response is concentrated. To the extent that we find no robust investment response helps to put many of these other studies within context. It is perhaps less surprising that unemployment and wages are not found to respond to OZ selection if

the primary mechanism of investment also shows no clear response.

Our findings also speak to the broader literature on place-based policies. The federal Empowerment Zone program, which tied incentives to employment outcomes, generated more positive results than state programs (Busso, Gregory, and Kline, 2013). The NMTC, which requires community development entity approval and caps annual investment, is estimated to generate 30–40 percent additionality relative to counterfactual investment (Abravanel et al., 2013). The more structured design of these earlier programs, despite their lower scale, may explain their greater effectiveness relative to the broad, uncapped, unstructured OZ incentive.

8 Expected Contributions and Policy Significance

The OZ policy was made permanent by the OBBBA, making it a key ongoing component of federal place-based policy in the United States. Rigorous causal evidence on whether the policy achieves its core investment objective is therefore both timely and consequential.

Our preliminary results suggest caution. Five years after designation, there is little evidence that OZ eligibility has increased commercial real estate investment. The investment response appears concentrated in multifamily housing, likely the most tax-advantageous and risk-controlled vehicle for QOF investors, rather than in the commercial and industrial activities most directly linked to job creation.

These findings carry implications beyond the OZ policy itself. They suggest that the broad flexibility of OZ incentives, which are uncapped, unvetted, and untied to employment or other outcomes, may reduce their effectiveness relative to more structured alternatives. Future place-based investment policies may benefit from incorporating approval requirements, investment caps, or explicit targeting criteria that align investor incentives with resident welfare. The full paper will offer an assessment of these design trade-offs, contributing to a policy-relevant evidence base at a moment when place-based policies are attracting

renewed scholarly and legislative attention.

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