The Impact of Opportunity Zones on Commercial Investment and Economic Activity

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Background: Place-based policies

- Increased attention by policymakers and academics to geographic disparity in economic well-being, and to place-based policies that can help people living in distressed areas.
- Neighborhoods help shape the long-term outcomes of children (Chetty et al, 2018)
- The usual historic pattern of income convergence among regions has stalled or even reversed in recent decades. (Berry and Glaeser, 2005; Ganong and Shoag, 2017)



Share of Movers, 1980-2018

Data Source: U.S. Census Bureau, Current Population Survey, Historical Migration/Geographic Mobility Tables

Background: Opportunity Zones (OZs)

- The Tax Cuts and Jobs Act (TCJA) of 2017 included a provision that offered tax incentives for investing capital into certain areas called Opportunity Zones (OZs).
 * Tax Incentives
- Goal: Revitalize economically distressed local economies.
- Qualifications: Areas with sufficiently low median incomes or sufficiently high poverty rates were eligible for selection as OZs.
- Not the first federal policy aimed at distressed communities but the largest in scope (cost about \$4-5 billion over the first 18 months. NMTC is around \$1.5 billion a year)

Goals of this project

- Big picture question: Do we see evidence of increased economic activity?
 - Commercial investment (prices and transactions)
 - New business formation
 - New business loans
 - Commercial diversity
 - Consumer spending

Unfortunate caveat

- We expected 2020 to be the first year in which OZs would really take off (if ever). Treasury had finalized the rules, December 2019 was the final period to invest and receive the full tax benefits.
- Now we have to take into account Covid-19 and not clear how the pandemic is interacting with OZ investment.

Empowerment Zones (EZs)

- State EZs show little to no effect on employment, housing prices especially in the longer run. Greenbaum and Engberg (2000); Kolko and Neumark (2010); Neumark and Young (2021)
- Federal EZs seem to have done better with more positive effects on employment and wages (Busso, Gregory and Kline, (2013)
- International EZs: "Zone Franche Urbaine" in France. Urban layout matters. Briant et al (2015)

New Markets Tax Credit (NMTC)

- Eligibility similar to OZs, though investments must be pre-approved by public authorities (unlike OZs)
- Survey evidence that the credit leads to marginal investment. Gurley-Calvez et al.(2009); Abravanel et al.(2013)
- Modest impacts on employment Freedman (2012)

- Much of the existing research on EZs and similar type designations is based on experiences during the 1990s or earlier (except for NMTC)
- First time that such place-based policies that allow uncapped private investment into areas throughout the country have been implemented.
- Wide flexibility in terms of the type of investment

- There are approximately 75,000 total census tracts in the United States, containing around 1,200 to 8,000 residents.
- Must meet at least one of three requirements:
 - (a) Official poverty rate of at least 20 percent
 - (b) Median income below 80 percent of the median income in the state or metropolitan area
 - Contiguous with a census tract meeting one of the conditions in (a) or (b) and have a median income less than 125 percent of the qualifying census tract.

NOTE: A contiguous tract can only be selected if its neighbor under (a) or (b) is selected.

- All U.S. census tracts fall into one of three groups: (1) not eligible, (2) eligible and not chosen and (3) eligible and chosen.
- Each state governor designated up to 25 percent of eligible census tracts as OZs.
- The final list of designated OZs was officially published by the U.S. Treasury on July 9, 2018
- Just over 42,000 were eligible to be OZs, and just over 8,700 were actually designated as OZs

Summary Statistics–American Community Survey, 2011-2015, 5-year pooled sample

	E	Not Eligible			
	Selected	Not Selected			
Num. Tracts	7,901	33,415	31,867		
Median Household Income (\$)	36,628	46,495	83,915		
	(12,992)	(15,352)	(29,956)		
Poverty Rate	28.6	20.2	7.4		
	(12.8)	(11.1)	(4.5)		
Unemployment Rate	6.3	4.9	3.2		
	(3.6)	(2.9)	(1.6)		
Labor Force Participation Rate	58.6	61.3	65.8		
	(10.1)	(9.9)	(8.8)		
Urban	0.89	0.90	0.97		
Education					
Less than HS	.21	.16	.06		
HS	.32	.31	.22		
Some College	.29	.31	.30		
College	.18	.21	.42		

Share of census tracts designated as OZs by county in the continental United States



Source: U.S. Department of the Treasury

Palo Alto-All census tracts



Palo Alto–Selected census tracts



Source: Mastercard Center for Inclusive Growth and U.S. Department of the Treasury

Chicago–All census tracts



Chicago-Selected census tracts



Washington, DC–All census tracts



Washington, DC-Selected census tracts



- OZ eligibility depended on meeting at least one of:
 - 1. Official poverty rate of at least 20 percent
 - 2. Median income below 80 percent of the median income in the state or metropolitan area
 - 3. Contiguous with a census tract meeting one of the conditions in (1) or (2) and have a median income less than 125 percent of the qualifying census tract
- Use (multivariate) eligibility cutoffs to get "intent to treat" effect of being eligible as OZ
- Use "fuzzy" design to get "treatment on treated" effect of being selected as OZ

Distribution of census tracts across eligibility cutoffs



Sources: American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury.

Notes: Each dot represents a separate census tract. Census tracts qualifying based on the contiguity condition are excluded from figures. A small number of tracts did not meet the poverty or median income conditions in the 2011-2015 ACS but did meet the conditions based on the 2012-2016 ACS and thus were made eligible.

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OZ selection by difference between poverty rate and 20 percent threshold



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 based on a polynomial of degree 4 fitted separately to points on either side of the cutoff.

OZ selection by difference between MSA threshold and census tract median income



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 based on a polynomial of degree 4 fitted separately to points on either side of the cutoff.

Combine the poverty and income variables into a single running variable with a single cutoff point for eligibility.

In particular we construct the running variable *r*:

$$r_{i,m} \equiv \max\{\frac{P_i - 20}{20}, -\frac{I_i - 0.8 * I_m}{0.8 * I_m}\}$$

where P_i is the poverty rate and I_i is the median income in census tract *i*, and I_m is the median income in MSA or state *m*.

274 tracts were selected, despite a negative running variable.

- 197 are contiguous (okay)
- 49 qualified based upon the 2012-16 ACS (okay)
- 28 qualified due to a "technical correction" (168 tracts were eligible in this way)





The property was able to benefit after a lobbyist reportedly met with the Maryland's governor

National / TRD Staff

June 21, 2019 12:05 PM

Running variable manipulation test (Cattaneo, Jansson and Ma (2017))

Do not reject null of no systematic manipulation (p > .94)



	No controls		With controls	
Running variable	Estimates	Observations	Estimates	Observations
Poverty	0.155	7,720	0.155	7,720
	(.017)		(0.017)	
Income	-0.113	15,762	-0.111	13,555
	(.011)		(0.010)	
Combination	0.118	22,436	0.118	22,178
	(.008)		(0.008)	

Sources: 2011-2015; 2013-2017 5-year pooled sample; U.S. Department of the Treasury.

Notes: Poverty, income and combination running variables are defined in the text. Control variables include the labor force participation rate, employment to population ratio, the unemployment rate, and the share of workers employed in each industry, all based on the 2013-2017 American Community Survey.

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Outcomes: investment data 2010-2020

- - Transaction level data from Real Capital Analytics (RCA)
 - Universe of transactions valued at over \$2.5 million from 2010 through 2020
 - Numerous details on each transaction:
 - Focus on three outcomes:
 - 1. 0/1 investment (in the post period)
 - 2. number of investments (change from pre to post)
 - 3. dollars of investment (change from pre to post)

Selected tracts..

- 1. are more likely to be industrial
- 2. have lower total and per-foot price (median)
- 3. have older buildings
- 4. have more transactions than not selected but on par with ineligible

Total Investment in QOFs and OZs



FUNDS RAISED BY QOFS OOEs REPORTING REPORTING FOULTY EQUITY RAISED TOTAL QOEs \$24.40 billion 978 1.342 **Reported Equity Raised** Dec. \$25b 2021 \$24,40b \$20b 2021 une \$20.28b 2021 Dec. \$15b 2020 2021 Aug. \$15.16b 2020 Jan \$10b 2020 \$7.57b 2020 \$10.09b \$5b May 2019 2010 \$0

As of December 31, 2021

- Total investment 2017: \$410 billion; 2019: \$465.1 billion
- OZ investment 2017: \$42 billion; 2019: \$49.5 billion

Source: Novogradac

Control variables



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 based on a polynomial of degree 4 fitted separately to points on either side of the cutoff. 31 / 61

Outcome variable: probability of any investment during treatment period



Sources: Real Capital Analytics; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury. Notes: $\Delta = (July 1, 2018 \text{ to Dec. } 31, 2020) - (Jan 1, 2016 \text{ to June } 30, 2018).$

Each dot represents the sample average within each bin. Fitted lines are based on a polynomial of degree 4 fitted separately to points on either side of the cutoff.61

Outcome variable: Change in number of investments



Sources: Real Capital Analytics; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury. Notes: $\Delta = (July 1, 2018 to Dec. 31, 2019) - (Jan 1, 2017 to June 30, 2018).$ Each dot represents the sample average within each bin. Fitted lines are based on a polynomial of degree 4 fitted separately to points on either side of the cutoff.

Outcome variable: Change in dollars of investment



Sources: Real Capital Analytics; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury. Notes: $\Delta = (July 1, 2018 \text{ to Dec. } 31, 2019) - (Jan 1, 2017 \text{ to June } 30, 2018).$

Impact of OZ eligibility on commercial investment, (ITT)

Running	Any	Δ Number of	Δ Millions of
variable	investment	investments	dollars
Coefficient	-0.0112	-0.0033	-0.0721
Standard error	(0.0146)	(0.0098)	(0.1338)
95% CI (lb)	-0.0445	-0.025	-0.3691
95% CI (ub)	0.0128	0.0133	0.1555
Mean	0.2624	0.1972	1.8894
Ν	23,887	26,689	23,698

Notes: Linear fitting polynomial.

Sources: Real Capital Analytics, American Community Survey, 2011-2015, U.S. Department of the Treasury. Control variables include the labor force participation rate, employment to population ratio, the unemployment rate, and the share of workers employed in each industry, all based on the 2013-2017 American Community Survey.

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Upper bounds-Percent of investment gap filled



Outcome variable: probability of any investment–Urban v. Rural



Sources: Real Capital Analytics; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury. Notes: $\Delta = (July 1, 2018 to Dec. 31, 2019) - (Jan 1, 2017 to June 30, 2018).$ Each dot represents the sample average within each bin. Fitted lines are based on a polynomial of degree 4 fitted separately to points on either side of the cutoff.

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Outcome variable: change in dollars of investment–Urban v. Rural



Sources: Real Capital Analytics; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury.

Notes: $\Delta = (July 1, 2018 \text{ to Dec. } 31, 2020) - (Jan 1, 2017 \text{ to June } 30, 2018).$

Outcome variable: Investment in treatment period, 2019 levels



Sources: Real Capital Analytics; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury. Notes: Treatment period = (July 1, 2018 to Dec. 31, 2020).

Outcome variable: Impact of COVID-19, 2019 to 2020



Sources: Real Capital Analytics; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury. Notes: Treatment period = (2020 levels - 2019 levels).

Many other outcomes...all show no impact at the discontinuity

- By type of investment: Retail, Industrial and Office
- By individual year in levels: 2017-2020
- Dropping contiguous (qualifying or just selected)
- Robust to different choices of fitting polynomial
- Robust to different bandwidth choices

LATE and external validity - investment in the control period



(a) Number of census tracts



(c) Number of investments



(b) Number of census tracts with any investment



(d) Dollars of investment (millions)

Heterogeneity analysis (poverty 0-10% and 10-20%)



(a) All tracts

Impact of Opportunity Zone Eligibility on Commercial Investment: Heterogeneity and Spillover Analysis, (ITT)

	Any	Number of	Millions of
	investment	investments	dollars
Poverty range: 0% to 10%	0.0003	0.0017	-0.2646
	(0.0504)	(0.0355)	(0.5004)
Ν	2,085	2,132	2,330
Poverty range: 10% to 20%	-0.0181	-0.0006	-0.0711
	(0.0247)	(0.0176)	(0.1977)
Ν	8,914	8,237	9,818
Spillovers: Uniform counties	0.0181	0.0117	0.1255
	(0.044)	(0.0212)	(0.3027)
N	1,927	2,004	1,930

Outcome variable: Change in dollars of investment



Sources: Real Capital Analytics; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury. Notes: $\Delta = (July 1, 2018 \text{ to Dec. } 31, 2019) - (Jan 1, 2017 \text{ to June } 30, 2018).$

$$Y_{i} = T_{i}\gamma + X_{i}\beta_{1} + \epsilon_{it}$$

$$T_{i} = D_{i}\delta + X_{i}\beta_{2} + \mu_{i}$$

$$D_{i} = \mathbf{1}[r_{i} \ge c]$$

$$(1)$$

$$(2)$$

$$(3)$$

- $Y_i = investment$
- T_i = binary treatment indicator (OZ selection)
- $D_i = OZ$ eligibility

 X_i = vector of observable, pre-determined census tract characteristics that are correlated with the outcome of interest: labor force participation rate, employment to population ratio, unemployment rate and share of workers in construction, manufacturing and retail.

Running	Any	Δ Number of	Δ Millions of
variable	investment	investments	dollars
Coefficient	-0.147	-0.041	-0.883
Standard error	(0.140)	(0.095)	(1.211)
95% CI (lb)	-0.450	-0.234	-3.452
95% CI (ub)	0.097	0.137	1.295
Mean	0.261	0.195	1.866
Ν	18,903	19,724	19,856

Notes: Linear fitting polynomial.

Sources: Real Capital Analytics, American Community Survey, 2011-2015, U.S. Department of the Treasury. Control variables include the labor force participation rate, employment to population ratio, the unemployment rate, and the share of workers employed in each industry, all based on the 2013-2017 American Community Survey.

Mastercard Data–Business activity and consumer spending 2017-2020

- Inclusive Growth Center (inclusivegrowthscore.com)
- 18 metrics from multiple data sources
- We use 4 of them:
 - 1. New business growth-number of new "point of interest" machines (Source: Mastercard Places)
 - 2. New business loan growth (Source: FFIEC)
 - 3. Commercial diversity-fraction of total industries in a census tract (Source: POI Provider)
 - 4. "Per-capita/Tract level spending growth" (Source: Mastercard GeoInsights)-at businesses located in the census tract, not necessarily spending done by residents that live in the tract.

Mastercard Data: Summary statistics

	E	Eligible	
	Selected	Not Selected	
Business and Spending Activity (Mastercard)			
New business growth rate (2018)	8.9	12.2	15.5
	(19.1)	(21.4)	(21.1)
Business loan growth rate (2017)	9.6	9.8	6.4
	(31.1)	(30.7)	(22.5)
Commercial diversity (2019)	20.2	19.4	22.4
	(9.8)	(7.5)	(7.5)
Per-capita spending growth rate (rank, 2017)	47.1	47.8	53.3
	(22.4)	(22.7)	(22.2)
Tract-level spending growth rate (rank, 2017)	51.8	50.4	49.1
	(20.9)	(20.9)	(21.4)
Number of tracts	7901	33,415	31,867

Mastercard Data Results: New business growth (2018-2019)



Sources: Mastercard Inclusive Growth Center; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury.

Mastercard Data Results: New business loan growth (2018-2019)



Sources: Mastercard Inclusive Growth Center; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury.

Mastercard Data Results: Commercial diversity (2019)



Sources: Mastercard Inclusive Growth Center; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury.

Mastercard Data Results: Per-capita spending growth (Δ rank (2017-2019))



Sources: Mastercard Inclusive Growth Center; American Community Survey 2011-2015 5-year pooled sample; U.S. Department of the Treasury.

Running	New bus.	Business	Comm.	Spend growth	Spend
variable	growth	loan growth	div.	per capita	growth
Coefficient	-0.088	1.284	0.067	0.893	-0.717
Std. error	(0.441)	(0.680)	(0.211)	(0.851)	(0.874)
95% CI (lb)	-0.914	-0.031	-0.341	-0.538	-2.377
95% Cl (ub)	0.814	2.633	0.484	2.799	1.047
Mean	13.972	9.179	21.033	49.607	50.147
Ν	32,957	34,716	28,583	24,816	26,342

Notes: Linear polynomial

Mastercard Results: Impact of COVID-19, 2019 to 2020



Sources: Mastercard Inclusive Growth Center; 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 based on a polynomial of degree 4 fitted separately to points on either side of the cutoff.

Final Thoughts: Poverty 1980 vs. Poverty 2011-15



Source: Economic Innovation Group; 2010 Census and 2011-15 ACS, authors' calculations. Poor = Poverty rate > 20%.

Final Thoughts: Median household income 1980 vs. 2018 (in 2018 dollars)



Source: Economic Innovation Group, 2010 Census and 2014-2018 ACS

Conclusion

- The persistence of economic disadvantage in some areas in the United States, combined with reduced geographic mobility, has led to renewed calls for policies that can improve the economic circumstances of residents in struggling regions.
- No strong evidence that OZ tax incentives have statistically significantly increased commercial investment, business activity or consumer spending in selected tracts, on average
- Covid-19 doesn't seem to be a factor in this conclusion.
- Future (1): Working with Safegraph data to measure restaurant quality, employment outcomes, new business creation..or more
- Future (2): Longer time frame?
- Future (3): Hoping to get access to IRS data (IRS Form 8996) that could offer a more nuanced treatment variable.

Summary Statistics-Real Capital Analytics, 2011-2015

	Eligible		Not Eligible
	Selected	Not Selected	
At least one construction start (%)	7.8	5.1	8.4
Number of construction starts	1.5	1.5	1.5
	(1.1)	(1.2)	(1.1)
At least one sale transaction (%)	42.1	33.0	40.8
Number of sale transactions	3.6	3.2	3.6
	(6.1)	(6.0)	(5.8)
Median Census Tract Level Price (\$000)	8,767.6	8,896.0	11,555.7
	(17,830.6)	(17,880.7)	(25,998.3)
Median Census Tract Level Price/sq ft, \$	192.8	219.5	251.5
	(185.3)	(214.8)	(247.4)
Property Type (%)	, , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , ,	
Industrial	43.1	35.2	28.0
Office	25.8	25.8	33.4
Retail	31.1	39.0	38.6
Number of tracts	7,727	33,131	30,813

Notes: Conditional upon having at least one transaction over 2011-2015 Prices conditional upon sale. Excludes Puerto Rico.



- Investors can invest unrealized capital gains in OZs, via so-called "Opportunity Funds."
- Deferred (and excluded) capital gains taxes dependent upon the length of investment.
- No limit to fund investments [by individuals] and Opportunity Funds are similarly unlimited in the amount of invested funds
- Treasury rules: business must have at least 70% of its property located in an OZ
 >> Background-2