Do Enterprise Zones have a Role to Play in Delivering a Place Based Industrial Strategy?

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Abstract

We examine the body of evidence on Enterprise Zone policy with the objective of assessing the role it might play in a place based industrial strategy. We consider the extent to which zones can generate additional economic activity in the areas on which they are targeted and the factors that influence this. We conduct an extensive review of the voluminous literature from the UK and US experiences, consolidating the evidence into one place. We examine this evidence according to impact type (e.g. property impacts, labour market impacts, etc.) and zone type (e.g. rural zone, industrial site, etc.). From this review we identify two gaps in the empirical knowledge that we address in turn and undertake new research on several US Enterprise Zones to gain evidence on their economic additionality. The article concludes by considering other hitherto poorly explored pathways by which zones may help an area to adapt to change and embrace longer term economic futures.

Industrial Policy Enterprise Zones Additionality Restructuring

1.0 Introduction

Enterprise Zones began as an experiment. They are now well into their fourth decade and remain a popular policy option for economic development across the globe. Most recently, numerous governments and researchers have issued statements with newfound or renewed support for Enterprise Zones (EZs), their numerous derivative programs, and place-based policy more generally (HM Government 2017; Austin, Glaeser, and Summers 2018; Farole, Goga, and Ionescu-Heroiu, 2018).

The 'return' of EZs to the limelight of economic development policy merits a return to the voluminous body of literature on their impacts. Further underlying this has been new evidence strongly linking economic transformation and economic divergence in the UK, US, and elsewhere to differences in business performance (Economic Innovation Group 2017; Martin et al. 2018). Additionally, there is a renewed appreciation for theoretical foundation of Enterprise Zones, which calls for utilization of economic potential, in broader industrial and regional policies throughout the world (Farole et al. 2018). Both of these research trends now lend further credence to the ability and long-term impacts of thoughtful and strategic industrial policy. The question is what role EZ policy can play in assisting a *comprehensive* place-based strategy.

There is mixed evidence on the effectiveness of zones – it varies based on program governance, the outcome being measured, and the evaluation approach utilized (Tyler, 2013; Granger, 2015; Tyler, 2015; Hooton, 2016). What we need now is new research that consolidates the ample evidence on Enterprise Zones to illustrate that variation according to programme characteristics and different outcomes of interest, particularly those other than (un)employment levels (What Works Centre for Local Economic Growth, 2016). Moving beyond the question of 'if they can stimulate economic development', research should now seek to understand in which scenarios are they most effective and how can they best fit into a broader strategy.

The authors do precisely this, offering the first comprehensive review of enterprise zones examining how zone effectiveness varies according to program design and outcomes. Additionally, it moves beyond simply a review by offering new empirical estimates on the additionality of zones according to a variety of outcomes – population, poverty, employment (both resident and non-resident), income, and firm/establishment creation – using well-established evaluation techniques and comprehensive controls in three case studies. From these first two contributions, we then seek to push forward the conversation on zones, their new form/model which emphasizes investment attraction, and their role as part of a broader development strategy (Granger, 2015).

The article brings together the extensive evidence base that now exists on the impact of Enterprise Zones around the world and finds that, on balance, they can help build economic momentum but that there is little evidence that they can change the absolute growth/development trajectory of a targeted area on their own; however, they can add positively to the margins in areas undergoing absolute growth/development and slow decline in areas undergoing absolute decline. Furthermore, our analysis shows that areas targeted by place-based policy initiatives (i.e. areas with zones) can indeed 'swim against the current' by exhibiting positive economic growth even in cities with overall economic decline. However, one of our main observations is that traditionally the assessment of the additional impact of zones has been far too much focused on the *short-term employment* demand creation effects that they bring to local areas and thus emphasizing short-run displacement effects. In relation

to the needs of a local area industrial strategy it is also important to consider the *longer-term contribution* that zones can make to local economic development when they are delivered as part of a coherent land use restructuring plan for the areas concerned that enables them to transform their physical infrastructure, particularly in relation to connectivity. Previous evidence and the findings presented here point to the long-term role and impacts of zones, built over time through sustained, year-over-year improvements to an area for a variety of outcomes. The evidence speaks to zones' role as this sort of long-term restructuring tool and we conclude the article by considering hitherto poorly explored pathways by which zones may help an area to adapt to change and embrace longer term economic futures.

Section 2 presents the paper's literature review and analysis of the existing evidence. Section 3 details the paper's empirical methodology and Section 4 presents the results. Section 5 moves into the discussion on EZ's role in broader local development strategies. Section 6 concludes.

2.0 Literature review

The EZ concept originated in the United Kingdom from Peter Hall in the late 1970s and reached widespread prominence principally in the United States at the state level in the 1980s and later at the national level in the 1990s (Hall, 1981; Ferrara, 1982; Hirasuna and Michael, 2005). They generally seek to stimulate economic activity by removing barriers to markets and businesses through government/policy action, such as through the elimination or reduction of taxes and zoning restrictions (Ferrara, 1982; Hirasuna and Michael, 2005). Their theory recognizes that government barriers may not be the only or even primary causes of economic laggardness, but still believe that the removal of governmental barriers may be enough of a catalyst to overcome any other barrier as well (Ferrara, 1982; Hirasuna and Michael, 2005).

The largest EZ implementation is the United States federal program, which has created 2145 unique zone locations (of any type/version) in the country since its start in 1994 through 2011 (HUD, 2018). Approximately 18 percent of those were/are located in urban areas, 80 percent were/are in rural locations, and the remaining two percent are not classified either way (HUD, 2018).[1] In addition, a HUD report in 1991 documented an additional 2260 state enterprise zones in 34 states (HUD, 1991) and, more recently, Beck (2001) identified 3,500 unique zones (federal and state) in the US. In the UK, there are several dozen EZs and internationally, there are countless more zone programs, such as the *Zones Franches Urbaines* in France (Ministry of Housing, Communities, and Local Government, 2018).

The full literature set on EZs and their impacts is rich and nearly four decades old. On the theoretical side, Butler's *Enterprise Zones*: *Greenlining the inner cities* from 1982 laid out the theoretical foundation and rationale for enterprise zones, building out the argumentation underlying why zones can and will help revitalize depressed micro-geographic areas. And the earliest relevant empirical work (evaluation) is a study of Virginia's state EZ program in 1984 from the Virginia Department of Housing and Community Development (1985).[2] Building off these works, there have been dozens of studies on EZs *themselves* and many more on place-based policy and other related topics with direct relevance for EZs.

While the full set of literature on or relevant for EZs is quite extensive, the authors have identified only 61 pieces of research that have conducted empirical evaluations of EZs or that

[1] The incentives of these zones have remained in effect through the 2017 tax year and were extended for 2018 in March 2018, 2018 (see IRS Form 8444 at https://www.irs.gov/forms-pubs/about-form-8844).

[2] There are a few earlier documents on EZs available; however, the Virginia study appears to be the first to conduct an actual evaluation of the program with an analysis of impacts.

have conducted a review of empirical research with an overall conclusion on zone effectiveness – a substantial number, but a relative paucity of evidence given the potentially large body of case studies to draw upon.[3] Of these empirical studies, 28 (46 percent) reached a positive overall conclusion on the effectiveness of zones, 16 (26 percent) found concluded zones were unsuccessful/ineffective, and 17 (28 percent) concluded zones had mixed impacts. However, this breakdown is an oversimplification because many of the individual reports examined multiple case studies and multiple outcomes. As illustrated by Tyler (2013), analysis of zone impacts should not be limited to binary conclusions, but rather understand how and why zone impacts have varied.

In fact, the authors have determined that within those 61 studies there were 144 unique evaluations of 36 case study locations across multiple countries and zone types. This includes assessments of the national programs in the United States, the United Kingdom, and France and dozens of subnational locations. Table 1 provides a list of these case studies and the Online Appendix provides a full list of research titles.

Table 1: Case Study Locations from Empirical EZ Research

Case Study	**Number of Studies Examining Impacts in Case Study**
California	18
New York City	11
USA	10
Atlanta	9
Florida	8
New Jersey and United Kingdom	7 in each
Baltimore, Pennsylvania and Virginia	6 in each
Chicago, Detroit and France	5 in each
Indiana and Philadelphia	4 in each
Cleveland, Colorado, Kentucky and Maryland	3 in each
Connecticut, Danville, DC and Ohio	2 in each
England, Europe, Los Angeles, Louisville, Lynchburg, Manchester, Newport News, Norfolk, Paris, Portsmouth, Roanoke, Saltville, Swansea and Texas	1in each

Within these evaluations, evidence on EZ effectiveness has been largely mixed and contentious with methodological and theoretical critiques lobbed at both sides. Indeed, the studies at face value can have directly contradictory overarching conclusions on zone effectiveness. This is most clearly illustrated by the pair of studies from Busso and Kline (2008) and Busso, Kline, and Gregory (2013), which found positive results, and the pair from Hanson and Rohlin (2011; 2013), which found unsuccessful and potentially negative results despite them all examining the same program and using similarly sophisticated methodologies.

We illustrate this variation more clearly in Tables 2 and 3 by breaking down the body of empirical evaluation literature on EZs by their finding for specific outcome measures. This simple exercise reinforces the observation on the mixed evidence on EZ effectiveness. Across all metrics, there are varying degrees of program success according to the empirical evidence that exists. As the What Works Centre for Local Growth critically pointed out, employment is the most prominent outcome measure in the EZ literature with 38 instances of analysis in the 144 evaluations reviewed. Of those studies that examined employment impacts, 58 percent

[3] The comprehensive review of the What Works Centre for Local Growth (2016) identified 58 studies with robust impact evaluations of EZs.

found EZ programs to be effective while 11 percent found them to have negative impacts and another 26 percent found them to simply be unsuccessful. Analysis of firm impacts are also prominent with evaluations on new firm creation, existing firm growth/expansion, and firm locational choices comprising 35 instances of analysis.

Despite the variation in measured performance, across the different metrics that researchers have analyzed, only two demonstrate less than a 50% success rate among empirical evaluations – EZ impacts on industrial activity and EZ impacts on existing firm (re)location decisions. Again, this is from a comprehensive body of empirical work, but relatively limited number of case studies. The authors interpret this as evidence that EZs are largely successful even across different case studies, methodologies, and outcome metrics, but that success has been far from assured in program implementations up to now.

Table 2: Number of Empirical Studies by Outcome Measure and Conclusion

	Industrial Activity	Commercial Activity	Employment	New Firms	Firm expansion/ growth	Firm (re)location	Income	Property	Capital Investment
Mixed	2		2	1	2		1	1	1
Negative	1		4	1	3	5			
Positive	1	4	22	9	6	5	7	8	6
Unsuccessful	1		10	1	1	1	3	1	1
Total	5	4	38	12	12	11	11	10	8

Table 3: Percent of Empirical Studies by Outcome Measure and Conclusion

	Industrial Activity	Commercial Activity	Employment	New Firms	Firm expansion/ growth	Firm (re)location	Income	Property	Capital Investment
Mixed	40%		5%	8%	17%		9%	10%	13%
Negative	20%		11%	8%	25%	45%			
Positive	20%	100%	58%	75%	50%	45%	64%	80%	75%
Unsuccessful	20%		26%	8%	8%	9%	27%	10%	13%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note: Combined row totals may not exactly equal 100% due to rounding.

What are the reasons for this variation? It may be attributable to some degree to methodological approaches including data restrictions, inappropriate or insufficient counterfactual approaches, and other issues.[4] However, the authors put forward that researchers have already largely answered this question, if not directly so.

First, Kline and Moretti (2014) provide a theoretical explanation for variation in EZ effectiveness. They argue that even with the existence of geographically concentrated and inequitable market imperfections, it does not automatically imply that corresponding spatial targeting of policy is the best option; there can be tradeoffs between the welfare of the targeted area(s) and elsewhere. Variation in program performance is, perhaps unsurprisingly, inherent and based largely on local contexts, which will strongly influence specific outcomes.

Second, policy evaluators and researchers have clearly noted a set of lessons from individual program evaluations related to why EZ performance varies. If Kline and Moretti's observation

[4] See Hooton (2016) for a comprehensive look at this issue.

explains why performance variation exists, these more specific lessons explain how positive EZ impacts can be maximized. We summarize them as follows:[5]

Targeting

- Zone expansion can produce mixed results or lessen results of existing zones (Greenbaum and Bondonio, 2004)
- Zone performance varies based on industry mix within zone (UK Department of the Environment, 1987 and 1995; Kolko and Neumark, 2009)
- Incongruous zones are not effective; zones should be a contiguous area (Briant et al., 2013)

Outcomes

- Zones help creation of new businesses, but more likely to have negative or unsuccessful results for existing businesses (Givord et al., 2013)
    - Zones can cause displacement effects (Hanson and Rohlin, 2013)
    - Zone effects typically highly capitalized into rents, thus benefitting owners of property more than renters (Bond, Gardiner, and Tyler, 2013)

Sustainability

- Zones are unlikely to produce long-term, significant, sustainable impacts on their own (Neumark and Simpson, 2014)
    - Effects often lessen over time (Givord et al, 2012)
- Zones can cause capital substitution for employment over time (Lynch and Zax, 2011)

Governance

- Institutional capacity matters and greatly affects success (Tyler, 2013)
    - Evidence points to greater success in large cities where program management has more resource (Rogers and Tao, 2004)

The authors argue that despite the sizeable body of research on EZs and their long-term popularity, many have tended to think in binary terms, ignoring more nuanced lessons around EZ effectiveness. It is not a question of "Do Enterprise Zones work?" Zones can and do work when applied in optimal situations – ones which consider their foundational theory, strengths, and weaknesses. Zones also potentially have very real tradeoffs that must be weighed by local policymakers according to local contexts – for example, are employment gains and capital inflows sufficient to justify potential displacement and program costs?

These considerations must be made methodically and clearly understand how zones can supplement a broader local development strategy, one that draws on the EZ's strengths to maximize the potential for the local strategy's success. These considerations also point out the one glaring gap remaining in the empirical literature, which is what can policymakers reasonably expect in terms of outcomes over time. The authors address this issue in our empirical work.

[5] The citations provided are examples and do not represent all studies with this finding/conclusion.

3.0 Empirical strategy

The goal of our empirical work is to delve into the additionality of zones. Having examined zone impacts by outcome and area types, the authors find little analysis on how much impact policymakers can reasonably expect to achieve through EZs and none conducted in a systematic approach that examines multiple outcomes while controlling for key environmental conditions.

We argue that a comprehensive impact assessment of every zone is beyond the paper's scope. Consequently, we argue the right approach is a study that examines multiple outcomes over time in multiple zones in multiple contexts (i.e. citywide conditions), all while using well-established evaluation approaches.

The US Federal EZ program is a logical choice for this type of variation given its popularity as a research topic, its documented targeting approach, and its numerous theaters of implementation. With its four subtypes (Empowerment Zones, Renewal Communities, Enterprise Communities, and Enterprise Zones), the program offers several years and cities allowing for temporal and spatial variation while maintaining policy similarity.[6] Several datasets match these programs' targeting at the census tract or other micro-geographic level and offer a full set of annual observations for their varied periods of implementation. Also, the program provides a consistent policy implementation regime across cities, which helps control for differences in governance structures. Lastly, the zone concept has inspired numerous local programmes that the paper can draw upon to add additional policy, temporal, and spatial variation.

3.1 Case Studies

The paper adopts the popular difference-in-difference (DD) impact estimation model and the empirical approach of Busso, Kline, and Gregory (2013) as the basis for its analysis. It adapts and expands these with alternative counterfactuals designed to specifically examine additionality.

We selected our case study cities from the top 50 largest cities in the US based on population, first identifying those that had both a federal zone program and at least one other type of area-based initiative (ABI) within its jurisdiction. Among these, the paper looked for cities with midrange populations, area sizes, densities, GDPs, and unemployment to ensure similarity in potential resources.

We compared each potential city from 1990 through 2010, which covers the full set of implementation years for the US Federal Enterprise Zone program, to find cities with differing growth trajectories using population as a proxy for overall socioeconomic trends. Specifically, we looked for cities with each of the following patterns: 1) an accelerating rate of population growth over that 20-year period; 2) an accelerating rate of population decline; and 3) a net-neutral population change (from decreasing to increasing or vice versa). Using these criteria, the cities of Detroit, the District of Columbia (DC), and Miami met the conditions.

In total, we analyze four zones. Detroit has two types of zone interventions with overlapping years of implementation and unique geographies. Consequently, the paper chose to treat them

[6] The US Federal EZ program was approved in 1993 with funding starting in 1994 for 71 approved sites in six cities. Each of the subtypes is targeted using census tract units with selection criteria based on poverty levels and deprivation. (Joint Committee on Taxation, 1981a/1981b; Ferrara, 1982; Hirasuna and Michael, 2005; Hebert et al., 2001)

as two unique zones. The District of Columbia and Miami also had two types of federal zones each, but in their cases the programs were transitioned between the types while maintaining the same geographies. Since there were no overlap years for the two in in DC and Miami, the paper treats the zones as one initiative per city. We also examine three additional local programs based on the enterprise zone concept, which serve as form of robustness test. Table 4 provides the EZ designation type and year of designation for each case study city.

Table 4: Case Study EZ and Local Intervention Years

	Local Intervention	Years	EZ Type	Years
Detroit	Renaissance Zones	1997-present	Empowerment Zone	1994-2011
			Renewal Zone	2002-2009
DC	H Street Retail Priority Corridor	2010-present	Enterprise Community	1994-2002
			Enterprise Zone	2002-2013
Miami	Targeted Urban Areas (TUA)	1997-2012	Enterprise Community	1994-2000
			Empowerment Zone	2000-2011

Note: For Miami and DC, the zones that were designated Enterprise Communities in 1994 were switched to an Empowerment and Enterprise Zone designation respectively, but maintained the same geography.

Source: Author's elaboration; information from US HUD and the cities of Detroit, DC, and Miami

Given its high citywide unemployment rate and its accelerating rate of population decline over the 20-year period of examination, Detroit serves as the 'worst-case' scenario for the paper's analysis. The city of Miami serves as the paper's 'best-case' scenario because of its accelerating population growth from 1990-2010. Washington, DC offers a more dynamic perspective for the paper's analysis – it reversed an approximate 5% population decline from 1990-2000 to a 5% population gain from 2000-2010, making the net change approximately neutral over the 20-year period.

3.2 Data

The authors utilized three datasets from the US government in the analysis. The first is from the Federal Financial Institutions Examinations Council (FFIEC) Census Reports, which provide demographic and economic data for 1990 and then from 1997-2012 for census tracts. The next is the Longitudinal Employer-Household Dynamics (LEHD) dataset, which provides household and employment data from 2002-2012 for census tracts, though only from 2010 for DC. Finally, the County Business Patterns (CBP) dataset provides zip code level business data from 1994-2011. These data provide sufficiently long date ranges for our analysis and allow us to match the geographic units of the zones in our analysis.[7] It is important to note that census tracts were only implemented nationwide in 1990 and for two of the variables, those from the CBP, the paper could not find observations lower than the zip code level. The authors chose eight output variables based on previous measures analyzed in the literature and data availability. Table 5 summarizes these the key details of these.

[7] The local, non-zone initiative in Miami also allows for such matching while the other two local programs require composite analysis areas.

Table 5: Output variables

Variable Name	Description	Dataset	Unit of Analysis	Observation Years	Direct program relevance
Population	Population in the area	FFIEC	Tract	1990,1997-2012	EZs; RZs; *Overall Measure*
ResidentJobs	Number of jobs in the area worked by residents of the area	LEHD	Tract	2002-2012	EZs; TUAs; RZs
NonResidentJobs	Number of jobs in the area worked by non-residents of the area	LEHD	Tract	2002-2012	EZs; TUA; RZs
Employment	Total employment (count) of the area	CBP	Zip	1994-2012	All
Establishments	Number of firms in the area	CBP	Zip	1994-2012	All
AreaPovertyRate	Percent of area population living in poverty	FFIEC	Tract	1997-2012	EZs; RZs
PovertyPctTotal	Area's impoverished population as % of city's total population	FFIEC	Tract	1997-2012	EZs; RZs
MedianIncome	Median Family income of area	FFIEC	Tract	1997-2012	All

Source: Author's elaboration

3.3 Methodology

We construct four observation groups for each incentive – 1) a treatment area, 2) a geographic buffer based on 1st order contiguity, 3) a geographic buffer based on 2nd order contiguity, and 4) and a non-treatment control area. We geocoded all spatial units within each city to one of these four groups using categorical variables.

The paper constructed analysis areas by overlaying maps of each initiative onto maps of census tract and zip code boundaries using ArcMap GIS software. We marked as the treatment area for each zone tracts that were either completely encompassed by or partially overlapping the zone. We then marked census tracts that bordered the treatment area with 1st degree contiguity as the first buffer control zone and those that bordered with 2nd order contiguity as the second buffer zone. We assigned each buffer zone tract to the appropriate intervention using indicator variables. In some cases, a unit belonged to more than one intervention and received an additional indicator variable to mark this. We assigned to the non-treatment zone all tracts not

assigned to an analysis area or a buffer area. When using zip codes, because they are too large, we use treatment and non-treatment designations only.

Detroit had two tracts and Miami had six tracts with targeting overlap by their zone program – we marked these units using an additional set of dummy variables. We used the same procedure for tracts with overlap in the buffer control areas. This allowed the paper to conduct analysis that both included and excluded the overlap units to ensure any potential influence of double targeting was identified; however, that exclusion/inclusion made no major difference to coefficients or significance. The paper chose the more conservative approach and reports results that exclude tracts with double targeting. In those few cases where tracts had multiple designations (i.e. being in a treatment area for one zone and a border tract for another) priority was given to treatment designation and then 1st buffer ring designation. Every program has overlap when using zip codes.

The paper develops four counterfactual approaches for each policy using its analysis areas. These are: 1) a geographic counterfactual with a DD measure, 2) a geographic counterfactual with a triple differenced (DDD) measure, 3) a mainstream counterfactual using non-treatment units with a DD measure, and 4) a mainstream counterfactual using citywide figures with a DD measure. These are respectively referred to throughout the analyses as: 1) DD Geo, 2) DDD Geo, 3) DD Non, and 4) DD City. Maps 1-6 (online) provide analysis maps for each.

3.3.1 Econometric methods

The paper calculates its impact estimates using a standard OLS form of the difference-in-difference econometric model. The specifications include common elements from the zone literature and additional controls. The primary term of interest is the coefficient on the binary treatment variable, β_1. The term estimates the mean impact from the intervention among targeted units that has *accumulated* since implementation. The analysis is for each city and policy separately rather than pooling units together.

The standard model specification for a *naïve* estimator uses a binary treatment indicator without area specific characteristics of the form:

$$Y_{it} = \beta_0 + \beta_1 T_{it} + u_z + v_t + \varepsilon_{it} \quad (1)$$

Where Y_{it} is the observed level of the outcome variable for unit (census tract) *i* at time (year) *t* and T is a dummy treatment indicator, which takes the value 1 for treatment in a particular year and 0 otherwise. The coefficient β_1 provides an estimate of the average program impact on the targeted area accumulated since program implementation.[8] The term u_z is a full set of group fixed effects for each analysis zone *z* (i.e. targeted area, 1st order buffer, etc.) within each city and v_t is a full set of year fixed effects.

The paper uses an expanded form of the naïve DD estimator that includes controls for current year and pre-treatment tract characteristics. It uses the following form:

$$Y_{it} = \beta_0 + \beta_1 T_{it} + \beta_2 X_{it} + \beta_3 P_{it_0} + u_z + v_t + \varepsilon_{it} \quad (2)$$

[8] In its functional form the treatment variable T is a full set of interaction variables defined as $A_{izt} \times T_{izt}$ with an equal to 1 in those years when treatment occurs and T equal to 1 if the unit belongs to an analysis group that will at some point receive treatment.

Where X_{it} is a vector of observed tract-level proxies for housing, deprivation, and economic potential in the year of observation. Additionally, P_{it} is a vector of pre-treatment tract-level characteristics for the start year of the programme.

The three DD approaches (DD Geo, DD Non, and DD City) use the expanded form given in equation 2. The triple-difference approach (DDD Geo) divides each case study city into a target 'zone' (the targeted area and 1st order buffer) and a non-treatment 'zone' (the 2nd order buffer and the non-treatment area) for each policy. The two areas in each 'zone' are differenced and then those measures (the sum for the two zones) are differenced through a triple interaction term. The DDD measure is functionally the same as the DD measure, but with added interactions.

3.3.2 Potential analysis issues

To account for adjustments in tract boundaries over time, the authors used geographic equivalency files to ensure that the tract codes used from year to year incorporate any changes in geocodes and boundaries. The identifying treatment designation used 1990 census bureau vintage geocodes. The master tract lists used for the cities are from the 2010 vintage. The paper uses a master list file of EZ designated tracts, the most recent documented list of designated tract geoID's found by the paper, from the US HUD (n.d.).

The paper's analysis approach incorporates data regionalization by grouping areas according to targeting, geographic contiguity, and area characteristics based on the design of the policies being studied. This allows the paper to account for the modifiable area unit problem (MAUP) and autocorrelation issues through the grouping of all units and the use of analysis area means (Viegas, Martinez, and Silva, 2009).

The paper finds the triple differencing approach to be unreliable in its tests and does not discuss the results. We argue this is related to noise in the data and potential flaws in the approach, which has two documented variations. We do report the triple difference regression results in our tables.

4.0 Results

Table 6 presents a list of significant results from the regressions by policy, counterfactual, and impact. Full regression results appear in Appendix Tables A1-A3.

Table 6: Summary table of significant impact results

Detroit Empowerment Zone										
		Results Found	**OLS sig. level**	**Diff. in mean p-value**	**Prop. Score ratio**	**Total Impact est.**	**Years of Impl. or Obs.**	**Avg. Annual Impact**	**Absolute avg. change in target**	**Absolute avg. change in city**
Poverty Rate	**DD Geo**	Good	99%	0.998	0.49	-0.047	16	-0.003	Decrease	Increase
	DD Non	Good	99%	0.000	0.59	-0.042	16	-0.003		
	DD City	Good	99%	0.000	0.76	-0.042	16	-0.003		
Poverty Population	**DD Geo**	Good	90%	0.013	0.49	-0.239	16	-0.015	Increase	Increase
	DD Non	Good	90%	0.002	0.59	-0.121	16	-0.008		
	DD City	Good	90%	0.043	0.76	-0.120	16	-0.008		
Employment	**DD Non**	Good	99%	0.981	0.59	0.009	18	0.001	Decrease	Decrease
	DD City	Good	99%	0.872	0.76	0.005	18	0.000		
ResidentJobs	**DD Geo**	Good	99%	0.501	0.49	0.099	10	0.010	Decrease	

	DD Non	Good	99%	0.000	0.59	0.005	10	0.001		Decrease
	DD City	Good	99%	0.000	0.76	0.007	10	0.001		
NonResidentJobs	**DD Non**	Good	99%	0.992	0.59	0.302	10	0.030	Decrease	Decrease
	DD City	Good	99%	0.831	0.76	0.654	10	0.065		
Detroit Renewal Zone										
Population	**DD Geo**	Bad	99%	0.078	0.58	-0.032	16	-0.002	Decrease	Decrease
	DDD Geo	Bad	99%	na	0.25	-0.127	16	-0.008		
	DD Non	Bad	99%	0.396	0.65	-0.031	16	-0.002		
Poverty Rate	**DD Geo**	Good	99%	0.999	0.58	-0.023	16	-0.001	Increase	Increase
	DDD Geo	Good	99%	na	0.25	-0.104	16	-0.007		
	DD Non	Good	99%	0.000	0.65	-0.026	16	-0.002		
	DD City	Bad	99%	0.995	0.83	0.060	16	0.004		
Poverty Population	**DD Geo**	Good	99%	0.001	0.58	-0.231	16	-0.014	Increase	Increase
	DDD Geo	Good	99%	na	0.25	-0.848	16	-0.053		
	DD Non	Good	99%	0.000	0.65	-0.122	16	-0.008		
Median HH Income	**DD Non**	Good	99%	0.001	0.65	0.061	16	0.004	Decrease	Increase
Employment	**DD Non**	Good	99%	0.000	0.65	0.007	18	0.000	Decrease	Decrease
	DD City	Good	99%	0.000	0.83	0.444	18	0.025		
Establishments	**DD Non**	Good	99%	0.000	0.65	2.272	18	0.126	Decrease	Decrease
	DD City	Good	99%	0.998	0.83	0.597	18	0.033		
ResidentJobs	**DD Geo**	Bad	99%	0.004	0.58	-0.042	10	-0.004	Decrease	Decrease
	DDD Geo	Good	95%	na	0.25	0.254	10	0.025		
	DD Non	Bad	90%	0.005	0.65	-0.222	10	-0.022		
Detroit Renaissance Zone										
Poverty Population	**DD Non**	Good	99%	0.000	0.57	-0.082	16	-0.005	Increase	Increase
	DD City	Good	99%	0.000	0.72	-0.081	16	-0.005		
Employment	**DD Non**	Bad	99%	0.987	0.57	-0.004	18	0.000	Decrease	Decrease
	DD City	Bad	99%	0.186	0.72	-0.014	18	-0.001		
Establishments	**DD Non**	Good	99%	0.000	0.57	0.001	18	0.000	Decrease	Decrease
	DD City	Good	99%	0.991	0.72	0.002	18	0.000		
ResidentJobs	**DD Geo**	Good	99%	0.093	0.92	0.136	10	0.014	Decrease	Decrease
	DDD Geo	Bad	99%	na	0.94	-0.474	10	-0.047		
	DD Non	Good	99%	0.000	0.57	0.051	10	0.005		
	DD City	Good	99%	0.000	0.72	0.072	10	0.007		

(Table 9 cont.)

DC Enterprise Community/Enterprise Zone										
		Results Found	**OLS sig. level**	**Diff. in mean p-value**	**Prop. Score ratio**	**Total Impact est.**	**Years of Impl. or Obs.**	**Avg. Annual Impact**	**Absolute avg. change in target**	**Absolute avg. change in city**
Median HH Income	**DD Geo**	Bad	99%	0.005	0.25	-0.253	16	-0.016	Increase	Increase
	DD Non	Bad	99%	0.000	0.09	-0.268	16	-0.017		
	DD City	Bad	99%	0.002	0.46	-0.444	16	-0.028		
Employment	**DD Non**	Bad	99%	0.996	0.09	-0.021	18	-0.001	Increase	Decrease
	DD City	Bad	99%	0.805	0.46	-0.073	18	-0.004		
Establishments	**DD Non**	Bad	99%	0.989	0.09	-0.002	18	0.000	Increase	Increase
	DD City	Bad	99%	0.776	0.46	-0.206	18	-0.011		
ResidentJobs	**DD Geo**	Bad	95%	0.006	0.25	-0.017	10	-0.002	Increase	Increase
	DD Non	Bad	90%	0.001	0.09	-0.208	10	-0.021		
	DD City	Bad	90%	0.014	0.46	-0.125	10	-0.013		
NonResidentJobs	**DD Geo**	Bad	99%	0.589	0.25	-0.020	2	-0.010	Increase	Increase

	DD Non	Bad	95%	0.327	0.09	-0.014	2	-0.007		
	DD City	Bad	95%	0.549	0.46	-0.009	2	-0.005		
DC H Street Corridor										
Employment	**DD Non**	Good	99%	0.016	0.13	0.061	2	0.031	Increase	Decrease
	DD City	Good	99%	0.143	0.65	0.093	2	0.047		
Establishments	**DD Non**	Good	99%	0.057	0.13	0.001	2	0.001	No change	Increase
	DD City	Good	95%	0.069	0.65	0.001	2	0.001		
Miami Enterprise Community/Enterprise Zone										
Poverty Rate	**DD Geo**	Good	90%	0.843	0.49	-0.042	16	-0.003	Decrease	Decrease
	DD Non	Good	99%	0.000	0.23	-0.049	16	-0.003		
	DD City	Good	99%	0.000	0.47	-0.053	16	-0.003		
Poverty Pop.	**DD City**	Good	90%	0.941	0.47	-15.004	16	-0.938	Decrease	Decrease
Employment	**DD Non**	Neutral	99%	0.967	0.23	0.000	18	0.000	Decrease	Decrease
	DD City	Neutral	99%	0.994	0.47	0.000	18	0.000		
Establishments	**DD Non**	Neutral	99%	0.838	0.23	0.000	18	0.000	Increase	Increase
	DD City	Neutral	99%	0.904	0.47	0.000	18	0.000		
ResidentJobs	**DD Geo**	Good	99%	0.810	0.49	0.067	10	0.007	Increase	Increase
	DDD Geo	Good	99%	na	0.35	1.608	10	0.161		
NonResidentJobs	**DDD Geo**	Good	90%	na	0.35	0.057	10	0.006	Decrease	Decrease
Miami Targeted Urban Area										
Population	**DD Geo**	Bad	99%	0.846	0.24	-0.051	16	-0.003	Decrease	Decrease
	DDD Geo	Bad	90%	na	0.13	-0.028	16	-0.002		
	DD Non	Bad	95%	0.299	0.34	-0.045	16	-0.003		
Poverty Pop.	**DD City**	Good	95%	0.000	0.67	-0.105	16	-0.007	Decrease	Decrease
Median HH Inc.	**DD City**	Bad	99%	0.000	0.67	-0.197	16	-0.012	Increase	Increase
Employment	**DD City**	Neutral	99%	0.287	0.67	0.000	18	0.000	Decrease	Decrease
Establishments	**DD City**	Neutral	99%	0.409	0.67	0.000	18	0.000	Increase	Increase
ResidentJobs	**DD Geo**	Bad	99%	0.128	0.24	-0.016	10	-0.002	Decrease	Increase
	DDD Geo	Good	95%	na	0.13	0.760	10	0.076		
NonResidentJobs	**DD Geo**	Good	99%	0.955	0.24	0.010	10	0.001	Decrease	Decrease
	DDD Geo	Good	95%	na	0.13	0.347	10	0.035		
	DD Non	Good	90%	0.947	0.34	0.010	10	0.001		
	DD City	Good	90%	0.967	0.67	0.009	10	0.001		

The purpose of Table 6 is to focus on additionality, addressing four questions: 1) Does success depend on the overall trends of the locality in which it resides? 2) Can zones affect the economic conditions of an area in absolute terms? 3) If positive impacts are produced, what are reasonable expectations for them on an annual basis? 4) Do zones create permanent impacts that remain after the policy has been removed? Broadly speaking, the results confirm that zones can and do have mixed impacts (both positive and negative), which reinforce existing evidence in the literature.

The article finds no evidence that EZs (on their own) will stop or reverse broader decline within a targeted area. Based on the results from the tests here and in the previous literature, EZs have not been able to cause an area that is declining (as measured by the outcome variables) to enter into growth. They can slow the decline of an area or accelerate growth in an already growing area, but they do not appear powerful enough to change the fundamental trajectory even if they produce positive impacts.

At the same time, individual outcome indicators in EZs are able to 'swim against the current'. While rare, specific indicators can see absolute improvements even if that same indicator is in absolute decline in the city overall. For example, the poverty rate in Detroit's Empowerment Zone areas had good and significant impacts on poverty rate along with absolute declines (which is good) over the period of observation even though the city overall had absolute increases in poverty rate over the same period. So, not only can zones cause relative improvements, they can also experience absolute improvements in individual outcomes regardless of what is happening within the overall locality. These results suggest that EZ performance is closely linked to the target area's characteristics and trends, but less so to those of the city.

The range of positive impact estimates from the seven case studies ranges between a few percent of impact up to 227% in the case of Detroit's Renewal Zone.[9] On an annualized basis, the programs largely range from a few basis points to a few percentage points of impact. These results are in line with what has been found in the literature for other EZs (see Bondonio and Greenbaum, 2007, Busso and Kline, 2008, and Burnes, 2011 as examples) and the paper argues that such a range is a reasonable expectation for EZs, which are by design small and limited (Butler, 1982; Greenbaum and Bondonio, 2004).

Overall, based on the evidence in previous research and its own, more systematic investigation here, the paper finds the impacts of EZs to be generally modest. The scale of their impacts does not negate their efficacy and indeed the paper argues that an accelerated growth or decelerated decline in some outcome of about 1%-5% per year across a range of potential outcomes is reasonable, potentially sustainable, and a good result for many local policymakers.

5.0 A Path Forward – Zones in Local Economic Restructuring

One factor that has emerged from our review of the evidence on the achievements of Enterprise Zone policy is that virtually all evaluations have concentrated on the short-term employment creation effects of the policy. It is noticeable that there appears to be very little discussion of the benefits that a zone-based approach to local economic development might bring to the *long-term* economic restructuring of the local economy, particularly given that the evidence base points to the role of zones as an accumulative tool. This is a significant omission if one wishes to consider zones as part of a local industrial strategy where the obvious objective is to integrate a range of activities to secure a reorientation in the longer-term economic prospects of an area.

Even a basic review of the evidence on zones indicates that when governments have adopted a zone-based policy to encourage the regeneration of areas, the package of business incentives available matters. Governments that enact zones and invest substantially in supportive policies, such as new infrastructure support and accommodative land-use planning, enable the local area to embrace a new range of economic futures. Thus, we conclude the article by indicating how this has worked to good effect in recent British experience.

In 2011, the British Government produced a radical change to the Enterprise Zone model that offered local government in the United Kingdom the ability to finance new investment in infrastructure. The change gave the local development agencies Tax Incremental Financing powers that enabled local authorities to use future uplift in the value of their zone business

[9] There is an estimate of an impact of approximately 1500% for the reduction of poverty population in Miami's EZ areas, but when comparing this estimate to manual calculations and negative binomial estimates conducted as robustness checks, the paper believes this is due to noise in the data.

taxes to finance new infrastructure. As the Government announced (HM, 2011) this 'gave councils a direct stake in the local economy and new ways to support business growth'.

This new feature of British zones was little appreciated at the time, but in reality, it greatly enhanced the ability of local areas to invest in transforming the physical fabric and infrastructure in their area. The new powers allowed localities to accommodate the needs of new and growing sectors – such as those available in knowledge-intensive business services, information and creative sectors – in a way that had hitherto not been available given the limited resources available to them from their own tax base. The change thus allowed them to restructure their local economies and embrace a fundamentally different economic future from that they have been used to.

As Table 7 shows, local authorities in the United Kingdom historically have been heavily constrained in the discretionary resources that they have had available to undertake local economic development and heavily dependent on central government funding. In the United Kingdom the proportion of tax set at the local level is equivalent of 1.7% of GDP. That compares to 15.9% in Sweden, 15.3% in Canada, 10.9% in Germany and 5.8% in France. In fact, in England the proportion of total national tax revenues going to local government has actually been falling for forty years from just over 11% in 1975 to 4.9% in 2012. Simply, local authorities had a need to address considerable change in their physical fabric and labour markets, but forced to rely on relatively inadequate discretionary resources from central government.

Table 7. How British Local Areas Lack Tax Revenue Compared to other Countries. Proportion of Total Tax Revenue Raised by Local State.

Country	**1975**	**2012**	**Governance model**
United States	34.2	35.7	Federal
Canada	42.4	49.5	Federal
Germany	31.3	29.8	Federal
Switzerland	47.3	40.0	Federal
Spain	4.3	42.1	Decentralized
Sweden	29.2	36.9	Unitary
Japan	25.6	24.7	Unitary
Italy	0.9	16.4	Unitary
France	7.6	13.2	Unitary
United Kingdom	**11.1**	**4.9**	**Unitary**

Source: Martin, et al (2016). Towards a Rebalanced Economy?

The 2011 model change in U.K. Enterprise Zones change that situation, allowing a number of local areas in England to incorporate the benefits of the enhanced longer-term fiscal capacity that the zones have given them. It allowed them to enhance the attractiveness of their location and to restructure their local economic base in a manner more aligned with fundamental zone theory and the guidance of existing evidence.

The Birmingham zone in the West Midlands presents a classic case of how the zone policy is being used to finance a comprehensive reorientation of the traditional city industrial land use pattern by enabling extensive investment in new infrastructure financed by the tax up-lift expected from the zone.

New land uses in Knowledge Intensive Business Services and the creative industries have become possible in Central Birmingham partly because of new rail High Speed Two rail investment in the area. However, the ability to allow these new land uses has been constrained by the difficulty of removing the 'concrete collar' that had been put around the City Centre to accommodate the use of the motorcar from 1935 until 1963. By using the collateral provided by the land value uplift on Enterprise Zone sites owned by the City Council, it has been possible to address the infrastructure shortfalls and facilitate the longer-term goals of restructuring the economy of the area. It is one example, from the broader and successful new British zone model, indicating precisely the type of complementary role enterprise zones can play long-term strategic place-based policy.

A promising sign for the new model, and perhaps in partial recognition of how zones can benefit an area, the British Government has announced that in 2020 it will fully devolve the local business tax base and allow local authorities to retain 100% of the revenue received from business rates[10] (they have hitherto been constrained to a maximum of 50%). This offers a £26 billion dividend for local authorities wishing to use at least some part of this to promote economic development and offers precisely the type of complementary opportunity to the 2011 zone round needed to devise and implement longer term economic restructuring. It enables them to devise new financing TIF and other funded strategies to provide coherent local land use strategies based on transformational infrastructure. Moreover, HM Government has suggested that it will allow Local Enterprise Partnerships to add a premium to business rates to pay for new infrastructure. This power would undoubtedly be capped but some argue could be worth 2p per pound of rateable value. In this context, the enterprise zone model has a significant role to play in local industrial strategies in Britain in the years ahead and this British approach could play a significant role as a model for future zone implementation and governance internationally.

6.0 Conclusion

In this article, we have examined the contribution that Enterprise Zone policy can make to an industrial place-based local economic strategy. We began by bringing together the relatively large body of evidence that exists on the relative effectiveness of zones as agents of local job creation in areas that have suffered badly from economic decline. We then provided a new systematic assessment of zone additionality to close gaps in that literature and concluded with an illustrative discussion of the zone United Kingdom model. We find that zones can reasonably accelerate growth or mitigate decline, but not fundamentally alter an area's economic trajectory on their own. We also find zone performance is closely linked to the target area's characteristics and trends, but less so to those of the city.

Almost all of the focus of the previous evidence on enterprise zones has been on their ability to augment local demand, but we argue that in more recent years in the United Kingdom the emphasis has changed quite significantly and has offered a whole new approach to how the policy can be used in place based industrial strategy.

[10] The Government will abolish the uniform National Non Domestic Rating multiplier (or tax rate per pound of rateable value) with local authorities having the power to cut this to 'boost enterprise and economic activity in their areas'. It is anticipated that each authority will have the power to set its own multiplier

In the new model, the emphasis has shifted to a more supply side orientated model that combines the original model with a Tax Incremental Financing (TIF) approach to local economic development, which enables local areas to use zones to augment their existing resource base. This new model has offered particular advantages where local authorities seeking to undertake economic development have traditionally had very little access to local tax resources and heavy dependence on central government.

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Appendix A – Regression Results
Table A1: OLS impact estimates – Detroit

Detroit

Full OLS Regression Impact Estimates

	Empowerment Zone				Renewal Zone				Renaissance Zone			
	DD Geo (1b)	DDD Geo (2b)	DD Non (3b)	DD City (4b)	DD Geo (1b)	DDD Geo (2b)	DD Non (3b)	DD City (4b)	DD Geo (1b)	DDD Geo (2b)	DD Non (3b)	DD City (4b)
Population	-0.025	-0.001	0.001	0.008	**-0.032*** **	**-0.127*** **	**0.031*** **	-0.005	-0.003	0.016	-0.021	-0.023
	(0.022)	*(0.001)*	*(0.011)*	*(0.015)*	***(0.010)***	***(0.017)***	***(0.009)***	*(0.015)*	*(0.049)*	*(0.056)*	*(0.039)*	*(0.043)*
Poverty Rate (%)	**-0.047*** **	-0.014	**-0.042*** **	**-0.042*** **	**-0.023*** **	**-0.104*** **	**-0.026*** **	**0.060*** **	-0.033	-0.014	**-0.082*** **	**-0.081*** **
	(0.018)	*(0.018)*	***(0.015)***	***(0.014)***	***(0.009)***	***(0.016)***	***(0.008)***	***(0.015)***	*(0.035)*	*(0.040)*	***(0.026)***	***(0.026)***
Poverty Population	**-0.239***	-0.002	**-0.121***	**-0.120***	**-0.231*** **	**-0.848*** **	**-0.122*** **	-0.089	0.063	0.158	-0.128	-0.119
	(0.136)	*(0.081)*	***(0.073)***	***(0.073)***	***(0.041)***	***(0.122)***	***(0.034)***	*(0.066)*	*(0.115)*	*(0.141)*	*(0.107)*	*(0.100)*
Median HH Income	0.190	0.180	0.039	0.045	0.019	0.019	**0.061*** **	0.068	0.168	0.0142	0.190	0.214
	(0.134)	*(0.173)*	*(0.150)*	*(0.174)*	*(0.017)*	*(0.019)*	***(0.019)***	*(0.047)*	*(1.113)*	*(0.836)*	*(0.317)*	*(0.358)*
Employment	Na	na	**0.009*** **	**0.005*** **	na	na	**0.007*** **	**0.444*** **	na	na	**-0.004*** **	**-0.014*** **
			(0.002)	***(0.001)***			***(0.000)***	***(0.017)***			***(0.001)***	***(0.005)***
Establishments	Na	na	0.000	0.481	na	na	**2.272*** **	**0.597*** **	na	na	**0.001*** **	**0.002*** **
			(0.000)	*(0.448)*			***(0.096)***	***(0.056)***			***(0.000)***	***(0.000)***
ResidentJobs	**0.099*** **	-0.010	**0.005*** **	**0.007*** **	**-0.042*** **	**0.254** **	**-0.222***	0.094	**0.136*** **	**-0.474*** **	**0.051*** **	**0.072*** **
	(0.018)	*(0.007)*	***(0.008)***	***(0.010)***	***(0.016)***	***(0.100)***	***(0.122)***	*(0.095)*	***(0.113)***	***(0.138)***	***(0.019)***	***(0.027)***
NonResidentJobs	0.088	0.097	**0.302*** **	**0.654*** **	-1.790	-2.204	-2.077	-3.326	1.352	2.212	1.392	0.706
	(0.105)	*(0.333)*	***(0.101)***	***(0.219)***	*(1.592)*	*(2.590)*	*(1.512)*	*(4.104)*	*(5.482)*	*(6.865)*	*(5.644)*	*(2.863)*
Observations	4958											

Asterisks reflect significance level obtained: *** 1 percent level; ** 5 percent level; * 10 percent level

Notes: Each entry gives the regression estimate of program designation cumulative impact on outcome variables for respective program and start year. Column 1 reports DD estimates using a geographic buffer; column 2 reports DDD estimates using two geographic buffers; column 3 reports DD estimates using non-treatment tracts; column 4 reports DD estimates using citywide figures. Standard errors are shown in parentheses.

Table A2: OLS impact estimates – District of Columbia

District of Columbia

Full OLS Regression Impact Estimates

	Enterprise Community/Enterprise Zone				H Street			
	DD Geo (1a)	DDD Geo (2a)	DD Non (3a)	DD City (4a)	DD Geo (1a)	DDD Geo (2a)	DD Non (3a)	DD City (4a)
Population	0.011	0.017	-0.026	-0.025	-0.004	na	-0.008	-0.009
	(0.024)	*(0.041)*	*(0.030)*	*(0.029)*	*(0.057)*		*(0.075)*	*(0.086)*
Poverty Rate (%)	-0.009	-0.005	0.009	0.009	0.003	na	0.006	0.006
	(0.015)	*(0.027)*	*(0.018)*	*(0.018)*	*(0.027)*		*(0.029)*	*(0.030)*
Poverty Population	-0.197	-0.012	0.016	0.009	0.014	na	0.003	0.006
	(0.929)	*(0.139)*	*(0.126)*	*(0.067)*	*(0.147)*		*(0.184)*	*(0.341)*
Median HH Income	**-0.253*** **	-0.225	**-0.268*** **	**-0.444*** **	-0.180	na	-0.157	-0.177
	(0.081)	*(0.144)*	***(0.053)***	***(0.039)***	*(0.171)*		*(0.140)*	*(0.158)*
Employment	na	na	**-0.021*** **	**-0.073*** **	na	na	**0.061*** **	**0.093*** **
			(0.006)	***(0.021)***			***(0.004)***	***(0.008)***
Establishments	na	na	**-0.002*** **	**-0.206** **	na	na	**0.001*** **	**0.001* **
			(0.001)	***(0.077)***			***(0.000)***	***(0.001)***
ResidentJobs	**-0.017** **	0.186	**-0.208* **	**-0.125* **	-0.048	na	-0.045	-0.048
	(0.008)	*(0.168)*	***(0.114)***	***(0.068)***	*(0.044)*		*(0.065)*	*(0.069)*
NonResidentJobs	**-0.002*** **	0.010	**-0.014** **	**-0.009** **	-0.009	na	-0.009	-0.009
	(0.001)	*(0.007)*	***(0.006)***	***(0.004)***	*(0.009)*		*(0.008)*	*(0.008)*
Observations	2493							

Asterisks reflect significance level obtained: *** 1 percent level; ** 5 percent level; * 10 percent level

Notes: Each entry gives the regression estimate of program designation cumulative impact on outcome variables for respective program and start year. Column 1 reports DD estimates using a geographic buffer; column 2 reports DDD estimates using two geographic buffers; column 3 reports DD estimates using non-treatment tracts; column 4 reports DD estimates using citywide figures. Standard errors are shown in parentheses.

Table A3: OLS impact estimates – Miami

Miami

Full OLS Regression Impact Estimates

	Enterprise Community/ Empowerment Zone				Targeted Urban Area			
	DD Geo (1c)	DDD Geo (2c)	DD Non (3c)	DD City (4c)	DD Geo (1c)	DDD Geo (2c)	DD Non (3c)	DD City (4c)
Population	-0.025	0.008	-0.034	-0.036	**-0.051*** **	-0.003	**-0.028* **	**-0.045** **
	(0.037)	*(0.060)*	*(0.038)*	*(0.045)*	***(0.017)***	*(0.032)*	***(0.016)***	***(0.019)***
Poverty Rate (%)	**-0.042* **	-0.028	**-0.049*** **	**-0.053*** **	-0.001	0.013	0.005	0.005
	(0.022)	*(0.036)*	***(0.017)***	***(0.018)***	*(0.009)*	*(0.018)*	*(0.009)*	*(0.010)*
Poverty Population	-0.051	0.013	0.065	**-15.004* **	**-0.105** **	-0.039	0.000	0.000
	(0.075)	*(0.131)*	*(0.040)*	***(8.990)***	***(0.051)***	*(0.128)*	*(0.000)*	*(0.000)*
Median HH Income	-0.324	1.331	0.452	-1.417	**-0.197*** **	-0.041	-0.003	-0.017
	(0.997)	*(3.986)*	*(0.738)*	*(0.861)*	***(0.562)***	*(0.272)*	*(0.003)*	*(0.015)*
Employment	na	na	**0.000*** **	**0.000*** **	na	na	0.000	**0.000*** **
			(0.000)	***(0.000)***			*(0.000)*	***(0.000)***
Establishments	na	na	**0.000*** **	**0.000*** **	na	na	0.000	**0.000*** **
			(0.000)	***(0.000)***			*(0.000)*	***(0.000)***
ResidentJobs	**0.067*** **	**1.608*** **	0.032	-0.070	**-0.016*** **	**0.760** **	0.058	0.024
	(0.016)	***(0.386)***	*(0.047)*	*(0.049)*	***(0.006)***	***(0.300)***	*(0.036)*	*(0.025)*
NonResidentJobs	0.013	**0.057* **	0.003	-0.003	**0.010*** **	**0.347** **	**0.010* **	**0.009* **
	(0.009)	***(0.030)***	*(0.007)*	*(0.007)*	***(0.003)***	***(0.163)***	***(0.005)***	***(0.003)***
Observations	3196							

Asterisks reflect significance level obtained: *** 1 percent level; ** 5 percent level; * 10 percent level

Notes: Each entry gives the regression estimate of program designation cumulative impact on outcome variables for respective program and start year. Column 1 reports DD estimates using a geographic buffer; column 2 reports DDD estimates using two geographic buffers; column 3 reports DD estimates using non-treatment tracts; column 4 reports DD estimates using citywide figures. Standard errors are shown in parentheses.