

## **Lessons Learned and Ignored in U.S. Place-Based Policymaking**

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## 1. Introduction

Interest in spatially targeted interventions in the U.S. has waxed and waned over time in response to changing political environments, policy advocacy, and the evolving conclusions of academic research. The nature of place-based programs themselves has also evolved – often building on the lessons learned from past research and experience, but sometimes ignoring these lessons. In this chapter, we review what we have learned from past place-based programs in the U.S. context. We also describe some of the newest developments in place-based policymaking and how recent programs’ successes and failures in heeding past lessons have contributed to their relative effectiveness.<sup>1</sup>

Place-based programs aim to encourage economic and community development in defined geographic areas. They frequently offer tax incentives, grants, loans, or regulatory relief to private or non-profit entities for investing in specific communities. Funding can support a range of activities, including investments in job creation, infrastructure, workforce development, affordable housing, and more. We focus on U.S. policies that target economically distressed or lagging areas and that have job creation as a core goal.<sup>2</sup> Our review encompasses a diverse collection of both new and old state and federal programs, including but not limited to traditional state enterprise zone programs, the federal New Markets Tax Credit, the California Competes Tax Credit program, and the federal Opportunity Zone program.

Many past iterations of place-based job creation policies have been viewed as ineffective, although there are some exceptions (Neumark and Simpson, 2015). In contrast, a large body of evidence supports the effectiveness of supply-side incentives – most notably the Earned Income Tax Credit – as a means to boost employment and increase incomes of low-income families (e.g., Neumark and Wascher, 2011; Schanzenbach and Strain, 2021).<sup>3</sup> Such policies tend to have geographically concentrated effects because of residential segregation, prompting Ladd (1994) to label them “place-based people strategies.” However, the EITC is not explicitly tied to specific geographies, and there may still be reasons to target job creation in certain disadvantaged areas,

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<sup>1</sup> See the chapter by Berkowitz and Storper (2024) for discussion of place-based interventions in Europe, Neumark and Simpson (2015) for an earlier review of place-based policies in the U.S. and internationally, and Duranton and Venables (2018) for a review of a variety of place-based policies in developing country contexts.

<sup>2</sup> We do not consider policies focused only on, for example, infrastructure or housing – even though such policies are often geographically targeted and may have indirect effects on jobs. Examples of housing policies with important place-based elements include the federal Low-Income Housing Tax Credit, which provides extra incentives to build affordable housing in distressed areas (Eriksen and Rosenthal, 2010; Freedman and McGavock, 2015; Dillman et al. 2017; Diamond and McQuade, 2019; Eriksen and Lang, 2020), as well as many state and local programs targeting distressed neighborhoods for housing construction and rehabilitation (Rossi-Hansberg et al., 2010; Khalil and Sanfelice, 2023; Clarke et al., 2024). One program focused on job creation that we do not cover is the Small Business Administration’s HUBZone program, which tries to stimulate growth of small businesses in disadvantaged areas (<https://www.sba.gov/federal-contracting/contracting-assistance-programs/hubzone-program#id-hubzone-map>). We have not found program evaluation evidence on this program.

<sup>3</sup> Owing in part to its perceived effectiveness, the EITC has become increasingly generous over time (Congressional Research Service, 2018). EITC spending has grown to nearly \$60 billion in credits claimed at the federal level, with many states also supplementing the federal program (see <https://www.eitc.irs.gov/eitc-central/statistics-for-tax-returns-with-eitc/statistics-for-tax-returns-with-the-earned-income>).

including redistribution and the potential for positive externalities from improving opportunities in these neighborhoods (Gaubert et al., 2021; Fajgelbaum and Gaubert, 2024). This impetus for place-based policies has been sharpened by recent work documenting declines in geographic mobility that, in the past, may have led people and families to move to areas with greater job opportunities (Austin et al., 2018; Zabek, 2024).

Moreover, research has helped to identify strengths and weaknesses of prior place-based policies by highlighting program design features likely to boost their effectiveness as well as features that may have limited their benefits and had unintended effects. We review the extensive literature on place-based policies organized around what we view as three central dimensions in the design of these policies: (1) geographic targeting (i.e., the spatial scope of and selection process for the places targeted); (2) incentives offered (i.e., the mix of tax and other benefits provided to entities located in zones); and (3) distributing incentives (i.e., the mechanism for determining who can receive the incentives offered in designated areas). We focus on the lessons we think can be drawn from the evidence on these three dimensions of place-based job creation policies.

We then turn to a more detailed discussion of recent developments in place-based policymaking. Some of the many lessons learned from past forays into place-based policymaking have been incorporated into current programs. New initiatives in several states pay more careful attention to geographic targeting as well as endeavor to minimize windfalls and other undesirable distortionary effects through more selective and tailored awards that are structured in a way that incentivizes net new job creation. However, not all new programs appear to build on lessons learned, with some targeting areas ineffectively or structuring and distributing incentives in a way that fails to encourage investment that would not have otherwise occurred. Furthermore, even those newer programs with better track records in creating jobs still face challenges in stimulating activity in the most distressed areas. We discuss opportunities for future research that will help deepen our understanding of which features contribute to different programs' successes and failures.

## **2. Place-Based Program Design**

There is substantial heterogeneity in place-based job creation policies even within the U.S. We organize our discussion around three key dimensions on which programs are differentiated. These dimensions include geographic targeting, the types of incentives offered, and the strategy for distributing those incentives.<sup>4</sup> We summarize many U.S. place-based job creation policies along these dimensions in Table 1, emphasizing the most prevalent – enterprise zones (EZs). However, we believe this framework could serve as a useful starting point for describing and comparing place-based policies more generally.

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<sup>4</sup> Prior studies that have compared U.S. place-based policy features, including some of the features described here, include Rubin (1985), Wilder and Rubin (1996), Peters and Fisher (2002), Neumark and Simpson (2015), Laysner (2018, 2019), Chaudhary and Potter (2019), and Kim and Chapin (2022). See Wheeler et al. (2024) for a discussion of design features of a broader set of policies in OECD countries.

## *2.1. Geographic Targeting*

Although place-based job creation policies in the U.S. generally share a focus on helping economically distressed locations, policies have varied in their geographic targeting.<sup>5</sup> EZs, which have been a fixture of economic development and job creation efforts at the state level since the early 1980s, typically (but not always) focus on relatively small geographic areas. For example, the EZ programs in Texas and Louisiana focus on areas as small as census block groups, which can have populations of only a few hundred.<sup>6</sup> New York's now-defunct Empire Zone program similarly limited eligibility to 1-2 square mile areas. Some state EZ programs, such as Hawaii's, designate zones at the census tract level, while others, such as California's in the 1990s and Virginia's current program, draw EZ boundaries that encompass small geographic areas but do not necessarily align with tract or other administrative boundaries. In contrast, EZ programs like those in New Jersey and Mississippi designated zones at much higher levels of geography, such as municipalities or counties.<sup>7</sup>

Selection of zones is in some cases purely formulaic (as in the case of the federal New Markets Tax Credit (NMTC) and Texas' EZ program), with zones designated based on meeting one or more indicators of economic distress (such as poverty rates, unemployment rates, or income levels). In other cases, there is a competitive or discretionary zone selection process (as in the case of federal Empowerment Zones, federal Opportunity Zones, California's EZ program, and Illinois' EZ program). Under these latter policies, zones are selected from a broader pool of distressed communities, sometimes taking into account investment potential, other overlapping programs and incentives, and local support. The number of zones also varies across programs; some state EZ programs, and in particular ones with competitive nomination processes for zones, place strict caps on the number that can be hosted. For example, Nebraska's EZ program restricts the number of zones in the state to five at any given time.

Place-based programs can also differ as to how frequently zones are re- or de-designated or are required to seek renewal on a competitive basis; for example, EZs in Georgia remain designated for ten years, whereas those in Utah remain designated for only five years. North Carolina counties can shuffle in and out of eligibility for state economic incentive programs every year due to the state's annual ranking of county distress.

## *2.2. Incentives Offered*

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<sup>5</sup> In the case of EZs, this refers to zone designation. For simplicity, we often use the term "zone" to refer generically to a geographic area targeted by a place-based job creation program, including EZs and other programs.

<sup>6</sup> See the notes to Table 1 for references and documentation for the specific programs discussed.

<sup>7</sup> Some programs, such as the Tennessee Valley Authority (Kline and Moretti, 2014a) and Appalachian Regional Commission (Isserman and Rephann, 1995; Ziliak, 2012), targeted large areas encompassing many counties. These programs had much broader goals than job creation, so we do not discuss them in detail here.

Place-based job creation programs have varied substantially in the particular types and mixes of incentives provided. Many state EZs have offered hiring tax credits, though they have differed in terms of whether those credits can only be claimed for hiring individuals meeting specific eligibility requirements. These requirements sometimes include residence in a disadvantaged area (like in the zone itself, as in Florida's EZ program, or in nearby areas, like the Targeted Employment Areas in California's EZ program), but sometimes do not impose any residence restrictions (as in Colorado's EZs). Tax incentives are also sometimes tiered; for example, Utah's EZ program provides larger tax credits for new jobs that pay at least 125% of the county average wage.

Place-based job creation programs sometimes also feature grants, favorable loan terms, preference for other incentive programs, corporate or personal income tax credits, research and development tax credits, sales and use tax credits and exemptions, reduced sales taxes, tax exempt financing, property tax relief, wage or unemployment insurance tax relief, or relaxed regulatory requirements. Various forms of sales tax relief were common in the earliest state EZ programs (Rubin, 1985), and still feature in many current state programs. Some programs, such as New Jersey's Urban EZ program, reduce the applicable sales tax in EZs. Many other EZ programs, such as those in Illinois and Colorado, provide sales tax exemptions on certain types of business investments. Hawaii's program offers exemption from property taxes in some zones. Regulatory relief often comes in the form of priority permit processing; waivers of permitting, licensing, and development fees; relaxed building code and zoning requirements; etc.<sup>8</sup>

Although not covered in the table, these types of programs can also differ in the extent to which they provide benefits in advance of proposed qualified investments in designated areas (as tends to happen with regulatory relief and some grants), offer benefits that can be claimed after making initial investments in designated areas (as is often the case with tax exemptions), or provide incentives that can only be claimed after firms meet specific milestones for hiring or investment in designated areas (as can be the case with some hiring and investment tax credits as well as some grants). As one example, Hawaii's EZ program provides a general excise tax exemption for all revenues from EZ-eligible activities, which applies regardless of the level of investment. Utah's EZ program's investment tax credit can be claimed on the first \$750,000 in qualified investments. In contrast, Virginia's EZ program requires that firms investing in designated areas meet certain investment thresholds before they are eligible for program benefits. The California Competes Tax Credit program, which we discuss further later in this chapter, requires that firms meet pre-specified targets for hiring and investment before any tax credits can be claimed.<sup>9</sup> Such ex post conditionality can also be combined with recapture provisions for firms that fail to maintain employment for a set period of time.

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<sup>8</sup> Notably, providing some types of benefits, such as priority permitting, development fee waivers, and property tax relief, requires coordination between state and local governments. This can lead to some differences in zone incentive packages across counties or municipalities within states, as is the case for example in Illinois and Hawaii.

<sup>9</sup> Programs also vary in the extent to which incentives can be claimed retroactively. California's now-defunct EZ program allowed for retroactive claiming of hiring tax credits.

Finally, some programs also couple business incentives with other support for workforce or infrastructure development. The first round of the federal Empowerment Zone program, for example, offered community block grants to local governments alongside hiring credits for businesses.

### *2.3. Distributing Incentives*

Place-based job creation programs also differ in how entities within designated areas are selected to receive benefits.<sup>10</sup> In some state EZ programs, such as California's and Florida's, benefits were an entitlement for all firms located within zone boundaries.<sup>11</sup> A number of state EZ programs limit eligibility to zone firms in specific industries, such as those paying higher wages or in tradeable sectors. Connecticut, for example, limits tax incentives in the state's EZs to firms investing in manufacturing, distribution warehousing, and a select set of non-manufacturing service operations. Hawaii's EZ program restricts benefits to firms whose revenues primarily derive from one of twelve specific activities (e.g., agricultural production, manufacturing, etc.).

Other programs, such as the federal NMTC, Texas' EZ program, and Wisconsin's EZ program, exercise some discretion in distributing zone incentives. In this case, firms or other entities that plan to invest in designated areas typically apply for benefits, and program administrators selectively award incentives with particular sets of policy priorities in mind. For example, in Texas, communities nominate companies in their jurisdiction who meet program eligibility requirements for EZ benefits (state sales and use tax refunds on certain expenditures). Each community as well as the state as a whole have a limited number of firms that can participate in the program. In order to claim EZ tax incentives in Wisconsin, firms in zones must apply to the state and are evaluated along a number of dimensions, including administrators' judgement as to whether the project might occur absent the incentives, its net employment impact for the state as a whole, and other factors.

## **3. Considerations in the Design of Place-Based Policies and Experience from Earlier Programs**

The U.S. experience with place-based programs has prompted discussions of the considerations and trade-offs associated with different approaches to geographic targeting, incentive choice, and the strategy for distributing incentives. In many cases, research on the experiences with earlier programs has provided important lessons for the design of these policies.

### *3.1. Geographic Targeting*

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<sup>10</sup> The variation in how incentives are distributed often figures prominently in how the effects of place-based programs are evaluated, as we discuss more below.

<sup>11</sup> Both California and Florida's EZ programs have been discontinued; see Table 1.

Research generally suggests that, on a per-dollar basis, the effects of place-based programs are likely to be more beneficial if they focus on the most distressed communities (Gelfond and Looney, 2018; Bartik, 2020c). To the extent place-based programs can create new jobs, those jobs are likely to increase employment rates and income more in areas with high unemployment and poverty. This might argue for defining zones at a very granular level, such as a census tract or even block group, so as to concentrate incentives in the most disadvantaged locations. Indeed, many programs, both old and new, use tracts or even lower levels of geography to define designation.

However, defining zones at hyper-local levels to try to enhance targeting comes with important trade-offs. If zones are geographically small, businesses that would have located in one location may be able to relocate only slightly (e.g., across the street) in order to take advantage of zone benefits. If the business would have hired similar employees, served the same customers, and had the same agglomeration benefits wherever they would have otherwise located, then the zone program may come at a cost to the taxpayers but with little (even local) benefit. Residents may also have an easier time moving across zone boundaries to take advantage of zone benefits if those zones are geographically small. A trade-off thus exists between better targeting of distressed areas vs. inducing more shifting of economic activity within cities or even within neighborhoods.

Hanson and Rohlin's (2013) study of federal Empowerment Zones highlights spillovers that can occur when zones are defined at a granular level of geography. The authors show that, compared to border areas of rejected Empowerment Zone tracts, border areas of designated Empowerment Zone tracts saw declines in the number of establishments and employment. Those negative spillovers can approach the size of the positive effects of the program on business growth within the zones themselves. Zhang (2015) finds similar evidence of job displacement in the context of the Louisville EZ program. However, the evidence is not one-sided. Results in Oakley and Tsao (2007) and Ham et al. (2011) suggest that there could be positive spillovers across zone boundaries, possibly due to agglomeration benefits. Neumark and Kolko (2010) do not find positive spillovers to nearby areas in the California EZ program (although they find no impact on the designated areas either).<sup>12</sup>

Programs have typically relied on several measures of disadvantage to define at least the pool of eligible zones. These include measures such as the unemployment rate, the poverty rate, and median household income. Some state and federal programs have defined zones based purely on meeting certain thresholds on different measures; one example is the NMTC, in which tract eligibility is based solely on meeting specific poverty rate and tract median income thresholds. In other programs, policymakers are given some discretion to select zones from a

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<sup>12</sup> Geographic spillovers have also posed challenges to econometric identification of the effects of zones. Geographically proximate areas that are economically and demographically similar to designated zones may represent good comparison groups to those zones. However, if there are negative spillovers (due to business-stealing effects) or positive spillovers (due to agglomeration benefits), then using geographically proximate areas as controls will generate biased estimates of program impacts. Hanson and Rohlin (2021) provide a detailed discussion of this and other challenges to evaluating spatially targeted economic development policies.

pool of areas that meet certain eligibility requirements; one example is the Opportunity Zone program, in which state governments could select zones from a broader set of low-income communities. Still others have engaged in a competitive nomination process for zones; this was often the case with early EZ programs that capped the number of zones in a state.

The formulaic approach risks designating areas as zones that, while technically eligible, are not necessarily those that a policymaker (or an outside observer) would consider distressed or that would benefit from subsidies. For example, some neighborhoods surrounding colleges qualified as Low-Income Communities eligible for investment under the NMTC because a high concentration of students led to high measured poverty rates. Some places that meet current thresholds for qualification might already be on a strong positive trajectory; zone subsidies in that case might not be impactful. A related problem is that, at least until recently, designations of eligible areas were updated infrequently; for example, California's EZs were designated for an initial 15-year term. Some programs, like the federal NMTC, initially relied on decennial census data to determine community eligibility, and as such zone designations were static for many years. With higher frequency demographic and economic data now available (e.g., the American Community Survey), it is possible for programs to adjust designations more rapidly in response to changing local conditions. However, frequent changes in designations also come with the potential cost of increasing uncertainty among would-be investors and possibly further distorting the timing of investments (as, for example, businesses or developers wait for a particular neighborhood to transition into qualified status before investing). Pérez Pérez and Suher (2022) discuss (but ultimately rule out) potential distortions in the timing of hiring in response to anticipated changes in eligible areas in the context of a North Carolina tax credit program that features annual changes in county eligibility.

In principle, making zone designation competitive could help to improve the targeting of incentives to locations and businesses where they are likely to have the largest net positive impact. Many EZ programs with competitive zone selection have attempted to take into account not only current levels of distress, but also “investment potential” and overlap with other economic development programs.<sup>13</sup> Early EZ policies in, for example, Colorado, Washington DC, Pennsylvania, Utah, and Wisconsin considered development potential among their designation criteria (Engberg and Greenbaum, 1999). Although California EZs were competitive but ineffective (Elvery, 2009; Neumark and Kolko, 2010), some evidence on the federal Empowerment Zone would seem to support the argument that providing more discretion to policymakers selecting areas for program incentives could improve program effectiveness (Busso et al., 2013). As we describe later, the California Competes Tax Credit (which replaced the state's EZ program in 2013) provides a “place-conscious” approach that may contribute to its

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<sup>13</sup> Programs that have relied on formulas for assigning zones have historically ignored whether zones overlap with other spatially targeted interventions. See, e.g., Figure 2 in Neumark and Kolko (2010), which indicates the substantial but imperfect overlap between the California Enterprise Zone in Santa Ana, federal zones, and local redevelopment areas (e.g., Dardía, 1998).



relative effectiveness.<sup>14</sup> However, as we also discuss later in the context of the Opportunity Zone program, allowing for discretion in targeting can introduce additional challenges.

A perennial concern is the extent to which zone benefits are merely capitalized into land values.<sup>15</sup> In that case, welfare gains for existing residents could be sharply diminished. As Busso et al. (2013) emphasize, the selection of zones could be pivotal in determining programs' economic incidence. If targeted areas are not perceived as good substitutes with other nearby communities, then the commuting and residential mobility response to a place-based intervention will be limited and more of the benefits of the intervention will accrue to local workers. However, if zones and other areas are viewed as close substitutes by firms and workers, then it is likely that any expenditures will be capitalized into land values as agents seek to relocate. Many studies suggest that land prices respond to place-based interventions (e.g., Engberg and Greenbaum, 1999; Landers, 2006; Hanson, 2009; Krupka and Noonan, 2009; Lynch and Zax, 2011; Sage et al., 2021; Kitchens and Wallace, 2022). However, estimates of the extent to which the economic incidence of these programs falls on landowners vary. This could at least in part reflect differences in the degree to which targeted areas in different programs are good substitutes for other nearby communities (Busso et al., 2013). These considerations of substitutability among locations might argue for concentrating incentives in particularly distressed locations, although this must be weighed against whether those locations have (or at least can develop) the infrastructure and capacity to accommodate investment. Differences in the economic incidence of place-based program expenditures could also be attributable to other aspects of program design, including the extent to which the benefits offered are expected to induce activity that would not have occurred otherwise. We return to this issue in subsequent sections.

### *3.2. Incentives Offered*

Federal and state governments have offered a variety of incentives as part of their place-based policies. Arguably the most common are hiring credits or other incentives for hiring. Given the overriding goal of job creation in these policies, one might presume that hiring incentives are the most appropriate incentive, as opposed to other forms of incentives like capital investment incentives or sales tax exemptions. After all, as highlighted by Fajgelbaum and Gaubert (2024), the Dixit principle holds that optimal place-based policy targets only the distorted margin. Neumark and Simpson (2015) discuss multiple theoretical rationales for place-

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<sup>14</sup> We use the phrase “place-conscious” differently from Turner (2015). She used it to encourage more emphasis on linking the residents of distressed areas usually targeted by place-based policies to economic opportunities available in a wider area. We use the phrase instead to refer to policies that are more flexible than more traditional place-based policies that only target incentives at narrower, usually distressed areas – offering incentives also in less distressed areas when these incentives might serve other policy goals, even if the benefits are not targeted at residents of distressed areas. That is, these policies are aware of the priority of helping distressed areas, but do not exclude incentives that do not serve this goal.

<sup>15</sup> For a broader theoretical treatment of place-based policies, including discussion of incidence and potential general equilibrium effects, see Kline and Moretti (2014b).

based policies, and the strongest rationale for subsidizing hiring in distressed areas is likely to address spatial mismatch – i.e., a lack of jobs in distressed areas, and limited capacity for mobility (residential, transportation, etc.) to ameliorate the problem. However, the research literature on place-based policies has not done much to weigh the empirical importance of the key potential distortions that particular place-based policies are meant to address.

Regardless, assuming we want to subsidize hiring, designing effective hiring credits is not easy. The core challenge is to try to avoid payments for hiring that would have occurred anyway – referred to as “windfalls” for employers. From the more general literature on hiring credits, estimates of the amount of “wastage” (the share of credits paid for hiring that would have occurred even without the credit) are often over 90% (Bartik, 2001). Even with windfall or wastage rates this high, though, the cost of creating jobs via hiring credits can still be well below the cost of creating jobs using other policies (Neumark, 2013).

Efforts to design hiring credits that reduce windfalls can lead to unintended consequences that may erode the job-creation benefits of these credits. For example, paying credits only for new hires rather than net job growth can create incentives for churning employees – continually firing some and hiring others to collect more credits; there is some evidence of this for general hiring credits (Neumark and Grijalva, 2017). Incentives for churning can be reduced by barring hiring credits to firms that do not retain subsidized workers, but the requisite record-keeping can pose large administrative costs.<sup>16</sup>

In some cases, the design of hiring credits has appeared to inadvertently undermine, or at least de-prioritize, their job creation goals. In California, for example, EZ program features led to efforts other than job creation. Kolko and Neumark (2010) found the surprising result that job creation effects were lower in zones where local administrators reported they were more focused on earning hiring tax credits. One possible interpretation is that these activities center more on claiming the tax credits retroactively than on creating jobs currently. At the time, tax credits could be claimed retroactively for up to four years, and a substantial share of EZ tax credits were claimed retroactively (California Budget Project, 2006). Tax-service companies even advertised their ability to help businesses in California receive tax reductions for the credits retroactively. A high level of retroactive claiming with no job creation effects could occur if many firms do not know about the hiring credit until after the fact, so that it does not affect their hiring behavior.<sup>17</sup> The ability to retroactively claim credits is likely the opposite of what is really needed – to offer credits for future hires, and to claw back or recapture those credits if the jobs are not produced. Conceptually, the same can be said about capital investment or other related tax incentives.

Given the motivation for place-based policies, it is not surprising that these policies are typically designed with the intention that low-income residents of the targeted locations benefit. One way in which programs attempt to limit the extent to which program benefits flow to

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<sup>16</sup> These and many other issues with the design of hiring credits are discussed in Bishop and Haveman (1978).

<sup>17</sup> Another quirk of the law was “cross-vouchering,” whereby one zone helps businesses from other zones get vouchers for the hiring credit. According to the California Budget Project (2006), EZ administrators charged for this. Again, this cross-vouchering activity might have detracted from other efforts to boost zone employment, especially if the cross-vouchering focused on retroactive credits.

individuals outside distressed areas is by requiring that participating firms not only locate in zones, but also hire zone residents in order to receive zone incentives. For example, first-round federal Empowerment Zones provided tax credits for each employee who lived and worked in the zone (Busso et al., 2013). Reforms to Florida’s EZ in 1994 implemented an enhanced hiring credit for businesses that hired more zone residents (Florida Department of Economic Opportunity, 2015). California’s program was similar, although there were two kinds of areas designated – the EZs, where businesses had to be located to claim credits, and Targeted Employment Areas, which were distressed areas nearby zones (the idea being that job creating potential could be higher in less residential areas). In contrast, the NMTC places no restrictions on the place of residence of workers of firms who receive benefits under the program; studies suggest that, possibly as a result, many new workers hired by businesses in eligible tracts live in higher income areas (Freedman, 2015; Rupasingha et al., 2024).

Restricting hiring credits to certain populations (e.g., those living in zones) can improve targeting, but also can reduce take-up and tilt the composition of firms in an area to those hiring lower wage/less educated workers (e.g., retail). Texas’ experience with its EZ program bears this out (Freedman, 2013); in that context, requiring 25-35% of new employees at participating firms be economically disadvantaged or live in zones likely contributed to the disproportionate number of large chain retail firms taking up the program. Restricted targeting can also potentially lead to stigmatization of eligible workers that, by signaling low productivity, offset the positive incentive of the credit. We are not aware of such evidence in the context of place-based policies per se. But evidence consistent with stigmatization has been documented in the more general hiring credits literature; in one experiment, welfare recipients given a voucher that employers could use to claim hiring credits experienced less success in finding employment than those who did not receive a voucher (Burtless, 1985).<sup>18</sup>

The particular mix of incentives historically offered in U.S. place-based job creation programs has also, sometimes inadvertently, favored certain types of investments and industries. Incentives such as investment tax credits and property tax abatements lower the cost of capital and may lead to substitution away from labor (Peters and Fisher, 2002). As Harger and Ross (2016) show, the capital bias in the NMTC led to stronger growth in more capital-intensive industries such as manufacturing. In contrast, Hanson and Rohlin (2011) illustrate how the Empowerment Zone incentive package, which featured a generous wage tax credit, induced a tilt in firm composition toward labor-intensive industries such as retail and services.

The types of zone incentives offered might also affect the likelihood that programs induce gentrification effects that encourage higher-income households to move into targeted areas. Restricting zone benefits to firms paying higher-skilled or highly-educated workers might directly contribute to an influx of higher-income households, but even programs that offer other types of incentives (including hiring credits for lower-skilled workers) could trigger some degree

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<sup>18</sup> There is evidence of stigmatization of geographic areas due to labeling effects. For example, Firoozi (2024) finds that designating counties in the Appalachian region as “economically distressed” led to changes in political attitudes even when it did not change government spending or other outcomes.

of gentrification by improving the economic vibrancy or amenities of the targeted area. While gentrification can deliver benefits, particularly to existing homeowners and their children (Vigdor et al., 2002; Brummet and Reed, 2019; Qiang et al., 2021), shifts in the composition of residents can undermine some of the targeting benefits of place-based policies. To the extent that place-based policies do induce gentrification effects, any improvements in neighborhoods or increases in employment or incomes could be more a reflection of who moves in following their adoption. Reynolds and Rohlin (2013) find evidence that the positive mean effects of Empowerment Zones mask distributional effects that are much less favorable to the disadvantaged. Their results indicate that the zones benefitted high-skilled, high-income people who to some extent likely moved into Empowerment Zones because the program made these areas more attractive, and were neutral or even harmful to the impoverished residents of these zones. Freedman (2012) and Theodos et al. (2022) similarly find that a large fraction of the observed changes in poverty and income in tracts eligible for the NMTC were driven by changes in the composition of neighborhood residents as opposed to improvements in the circumstances of existing residents.

Some recent place-based job creation programs impose ex post conditionality restrictions on incentives, requiring that firms meet pre-specified employment and/or investment milestones before they can claim any program benefits. The limited evidence we have suggests that, relative to programs that provide benefits up-front, programs that provide incentives only after milestones are met may be more cost-effective approaches to stimulating job creation and capital investment (e.g., Freedman et al., 2023a; Hyman et al., 2023). However, programs that impose ex post conditionality often differ in other respects, including by being more selective in their awards.

Programs also sometimes offer support for infrastructure development, capacity building, and workforce development. Bartik (2010, 2020a) and others have argued that such support can better position individuals living in zones to take new opportunities and thus help ensure that benefits of the programs flow to the intended populations. The initial federal Empowerment Zones included large block grants that could potentially be spent on investments and social services aimed at increasing employment. Busso et al. (2013), Bartik (2020b), and others have argued that these block grants, possibly in combination with their geographic targeting and more community-oriented approach, were instrumental in Empowerment Zones' relative effectiveness.

A major question is whether, to date, zones have offered large enough incentives to have meaningful effects on firms' decisions and on broader local economies. Peters and Fisher (2002) show that many early EZ programs provided incentives that equated to less than a 7% cut in wages – an advantage that could easily be overwhelmed by even just a small wage premium in targeted areas.<sup>19</sup> Dabney (1991) similarly argues that the relatively limited tax incentives and regulatory relief provided in early state EZ programs were unlikely to be major factors influencing firms' location choices. Studies have emphasized how the federal NMTC tends to induce small investments compared to economic activity in targeted areas, which might help

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<sup>19</sup> Table 1 explicitly notes the small hiring tax credits in some state EZ programs (e.g., Hawaii and Virginia).

explain the program’s relatively modest positive effects overall (Theodos et al., 2022). Indeed, if tipping points exist, resources delivered through place-based policies may not be sufficient to set communities on a sustainable growth path (Theodos, 2021). The first round of Empowerment Zones offered larger incentives, potentially contributing to its larger documented effects on growth (Busso et al., 2013).

### *3.3 Distributing Incentives*

A number of early EZ programs provided incentives as an entitlement, based on locations of firms or workers, without policymaker discretion to try to target benefits to firms or workers for which they might make the most difference. As described later, the same is true of Opportunity Zones, where there was some discretion regarding which areas were deemed eligible for program benefits, but then once those were selected there is no further discretion and Opportunity Zone credits can be claimed for investments in any designated zone. A central concern with this approach is that it might ultimately provide subsidies to many businesses for investments and hiring they would have undertaken even in the absence of any subsidies. This concern was raised in the context of California’s EZ program, which provided incentives as an entitlement and ultimately delivered few if any net new jobs (Neumark and Kolko, 2010). In addition, the benefits from place-based policies could flow at least in part to businesses in non-tradable sectors, whose gains owing to tax or other incentives are more likely to come at the expense of competing firms in the same market (Einio and Overman, 2020).

In light of these concerns, many place-based job creation policies categorically restrict incentives to firms in specific industries. This aligns with the more recent perspective that programs should target firms in more “footloose” industries that are less likely to be dependent strictly on local demand, and that are more likely to have significant positive agglomeration effects (Bartik, 2019, 2020c). In particular, many programs limit incentives to firms in manufacturing, high-tech, and related industries. This emphasis on often higher-wage, higher-skilled industries, however, can be in conflict with requirements to hire from the pool of zone residents who, in the absence of broader workforce development efforts, may lack the skills to fill those jobs.

Some programs have gone further by distributing benefits on a competitive basis to entities within zones. For example, the NMTC allocates funds to Community Development Entities based on a judgement about the potential “community impact” of proposed investments and gives preference to proposed investments in more-distressed places; this is a possible explanation for the program’s positive (albeit still modest) impacts (Freedman, 2012; Theodos et al., 2022; Rupasingha et al., 2024). As another example, and as discussed more later, the California Competes Tax Credit distributes awards on a competitive basis and appears to be effective compared to many other job creation interventions.

The relatively more favorable results for programs that incorporate discretion into incentive allocations dovetail with a growing literature on industrial policies. These policies

enable governments to selectively provide direct incentives to businesses, typically with the goal of job creation or fostering industry clustering, but without explicitly being place-based or necessarily funneling incentives into particular locations. Slattery and Zidar (2020) and Juhasz et al. (2023) review recent literature on industrial policy and conclude that there is more evidence of benefits than previously thought. As one example of how states structure their industrial policies, the Michigan Economic Growth Authority (MEGA) program provides refundable tax credits for businesses locating, expanding, or creating jobs in Michigan. While the program can provide assistance to businesses statewide, the minimum job creation or retention requirements for the credit were lower for projects in rural or distressed areas (as well as some projects meeting other goals unrelated to economic disadvantage of an area).<sup>20</sup> MEGA includes a discretionary component, with tax credits tied to an econometric analysis of the economic and fiscal impact of the credits. Bartik and Ericcek (2010) evaluate the MEGA program and conclude that while it is uncertain whether it has a net positive fiscal impact, it does have a sizable job creation impact (although this is more of a model-based evaluation than direct estimates of the causal impact of MEGA). Echoing this result, and as described further below, evidence from the California Competes Tax Credit suggests that discretion is a large part of the program's success.

### *3.4. State Enterprise Zone and Federal Empowerment Zone Examples*

EZs, which have a long history and exhibit substantial variation in policy details, provide the richest evidence base that can be used to both assess the overall impact of a prominent place-based policy and – as the preceding discussion indicates – to illustrate the potentially either adverse or advantageous effects of particular elements of policy design.

In the early 1980s, EZs gained traction among policymakers at both ends of the political spectrum as an approach to address economic disadvantage in specific locations. These programs garnered popularity not necessarily in response to perceived failures of past job creation efforts, but instead as a potential market-based solution to deep and often highly-concentrated economic distress, particularly in urban neighborhoods. The aim was to remove tax and other barriers to private investment, which could lead to more business formation, job creation, and economic activity that could in turn help revitalize blighted or economically lagging areas (Boeck, 1984). While states and localities had pursued many other job creation policies prior to the creation of EZs (including certain industrial policies; see, for example, Freedman, 2017), EZs were designed to address specific perceived challenges and needs in blighted inner-city neighborhoods.

While the findings on EZs vary somewhat, the evidence generally does not support the conclusion that EZs create jobs. A series of papers studying 1980s-1990s state EZ programs found very mixed effects, but largely suggest that the cost of these early programs far outweighed the benefits. As examples of work on these programs, Papke (1993, 1994), Sridhar

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<sup>20</sup> In addition, MEGA aimed to reduce relocation responses by requiring that businesses awarded credits maintain their base employment in areas other than the subsidized project.

(1996), and Couch et al. (2005) found some indication of improved employment conditions in zones in Indiana, Illinois, Ohio, and Mississippi. However, O’Keefe (2004), Greenbaum and Engberg (2004), Boarnet and Bogart (1996), and Peters and Fisher (2000) found little to no effect on employment, incomes, housing markets, or other outcomes, at least in the medium to long run. Wilder and Rubin (1996) and Peters and Fisher (2002) review many of these early studies, which as Boarnet (2001) highlighted, often suffered from data limitations, inappropriate control groups, and little insight into possible mechanisms.

More recent papers apply more modern econometric methods and attempt to address empirical challenges that risk generating bias in estimates in previous papers. As Neumark and Simpson (2015) describe, the main challenges include (i) the accurate measurement of where the policies are implemented; (ii) the selective geographic targeting of policies – which could result in applying the policies to places doing either better or worse than untreated areas; (iii) identifying the effects of specific policies when areas may be affected by multiple policies; and (iv) the potential that estimated effects represent spillovers from other areas rather than net gains.

This more recent work tends to confirm a lack of any strong positive effects of state EZs; Table 2 summarizes some of the evidence. Neumark and Kolko (2010), for example, use granular geographic data and a difference-in-differences analysis in the context of California’s EZs and find null impacts of the program on resident employment. Elvery (2009) similarly finds no effects of Florida or California’s EZ programs on resident employment outcomes using a propensity score matching approach. Freedman (2013) uses a regression discontinuity approach and finds a positive but modest effect on resident employment of EZs in Texas. Neumark and Young (2021) explore the effects of 13 state EZs and find no indication of positive average effects or any indication of meaningful heterogeneity in effects; however, given the small number of programs and large possible set of program features to consider, they also conclude that it may simply not be possible to parse the separate effects of EZ program features. An exception is Ham et al.’s (2011) state-level results, which suggest some large positive effects. The Ham et al. (2011) state-level estimates are potentially suspect; their estimates suggest some of the largest employment effects occur in states with little to no hiring credits, while California’s large hiring credit had among the smallest effects. Neumark and Young (2019) re-evaluate their evidence and find much weaker employment effects.

Past studies on individual programs or even collections of programs do not generally try to disentangle which program features (e.g., approach to geographic targeting, types of incentives offered, or how incentives are distributed) contribute to their impacts (or lack thereof). To some extent, these programs have had features that are potentially disadvantageous along all the dimensions discussed above. For example, state EZ programs generally used quite narrow targeting of geographic areas. While this does not necessarily imply small local effects, it could induce displacement or business-stealing effects that could translate into smaller impacts at a more aggregate level. In some cases (like California), there was a competitive process for zone designation, but this may have been undermined by providing zone administrators with incentives to focus on activities different from net new job creation. State EZs also typically did

not offer complementary types of spending to hiring and other tax incentives, although sometimes zone boundaries overlapped with areas targeted for other assistance (Neumark and Kolko, 2010). They also frequently structured benefits as entitlements such that one firm's gains from a program may have come at the expense of other local firms, and many inframarginal businesses could receive windfalls. EZs also may have created incentives to churn employees, by, for example, offering a larger tax credits in the early period in which a person worked (see, e.g., the descriptions for Arizona and Hawaii in Table 1), and may have failed to incentivize local hiring.

In the early 1990s, the federal government introduced its Empowerment Zone program, which provided large tax incentives to a small number of tracts nationwide.<sup>21</sup> While the Empowerment Zone program shared key goals with state EZ programs, it also differed in numerous respects. In Round I of the program, applications were evaluated based on how well applicants indicated they would address four core principles: (i) economic opportunity, (ii) sustainable community development, (iii) community-based partnerships, and (iv) strategic vision for change (Wallace, 2004). In Round II, zones were chosen competitively based on more clearly articulated factors including their potential to create long-term jobs for people with low income, minority populations, welfare recipients, and the unemployed; complement welfare reform initiatives; involve interagency and intergovernmental coordination of public and private resources; leverage private resources; and expand business opportunities within the zones (U.S. Department of Housing and Urban Development, n.d.). The program targeted zone residents by restricting worker eligibility for tax credits, and indirectly targeted low-income workers because the hiring credit was only on the first \$15,000 in wages earned in a year.

The first round of the Empowerment Zone program also had another unique feature – large block grants that could have been spent on investments and social services that increased employment.<sup>22</sup> There does not seem to be a lot of information on how these funds were used, although a 2006 GAO study (U.S. Government Accounting Office, 2006) gives brief summaries of what each of the zones did, noting that some Empowerment Zones and Enterprise Communities focused more on community development than economic opportunity. It also cites specific examples, such as contributing financial assistance to a 275,000 square foot retail complex in Harlem, supporting housing development in Detroit, and cleaning up vacant lots in Philadelphia.

In assessing the federal program, Busso et al. (2013) find large positive effects of federal Empowerment Zones. This finding differs from most of the earlier research on state EZs, and may reflect design features of Empowerment Zones that depart from those of many state EZs, including in particular its community block grants. Indeed, Busso et al.'s (2013) results are consistent with Bartik's (2010, 2020b) argument that infrastructure development or capacity

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<sup>21</sup> This program was complemented by Renewal Communities and Enterprise Communities programs.

<sup>22</sup> Empowerment Zones also included mechanisms to facilitate more local participation in program design and implementation (Riposa, 1996).



building can be important.<sup>23</sup>

At the same time, the evidence on Empowerment Zones, and the nature of their effects, is still developing. Hanson (2009) finds little evidence that Empowerment Zones had positive employment effects, and other research similarly indicates less clear evidence of beneficial effects on jobs (Oakley and Tsao, 2006; Neumark and Young, 2019). Moreover, reflecting the potential problem of granular targeting, there is evidence that the program may have had little impact on zone residents, and instead led to in-migration of people with higher skill and employment (Reynolds and Rohlin, 2015). There is consistent evidence of housing price increases, implying that at least some of the economic incidence falls on landowners (Hanson, 2009). Other evidence points to negative spillover effects on nearby areas, consistent with EZs largely rearranging the location of jobs rather than creating more of them (Hanson and Rohlin, 2013).

Our overall view of the evidence is that state EZ programs have generally not been effective at creating jobs. The jury is still out on federal programs – Empowerment Zones in particular – and we need more research to understand what features of EZs help spur job creation. This is a hard question to answer. The federal program embedded some potentially useful features, including competition for zone designation, and other spending that was potentially complementary to hiring credits. But with a fairly small number of federal zones – especially the earliest Empowerment Zones that included the largest block grants – it is difficult to sort out the influences of these program features. Research on later rounds of Empowerment Zones, which did not include the same block grants and tended to rely more heavily on direct incentives for businesses, generally finds smaller or null effects (Carabello, 2012; Smith, 2015; Andonoska, 2019; Lee, 2024) – although how much of the difference is due to the incentives offered vs. the places targeted is unclear.<sup>24</sup>

#### **4. Lessons Learned and Lessons Ignored in Recent Place-Based (or Place-Conscious) Policies**

In the face of accumulating evidence suggesting that many past place-based policies – perhaps most notably state EZs – were not cost effective, policymakers have begun reconsidering and restructuring their place-based programs. In our view, some of these changes reflect lessons learned from past research. But unfortunately, some new policies appear to ignore these lessons.

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<sup>23</sup> The Ham et al. (2011) estimates for federal programs are even larger, yet this study finds some effects on other outcomes, particularly in reducing poverty, that are larger for federal Enterprise Communities, which had more restricted hiring credits and did not receive major block grants. Neumark and Young’s (2019) re-evaluation shows that their poverty results reflect data errors.

<sup>24</sup> Promise Zones are a more recent place-based program that share some features with Empowerment Zones, including a competitive selection process for targeted areas as well as grants for infrastructure and capacity building. However, Promise Zones are aimed more broadly at improving the quality of life for residents (Kitchens and Wallace, 2022).

Several states have abandoned their EZ programs, while many others have maintained them with only minor, if any, changes over the years.<sup>25</sup> In addition, new place-based policies have been introduced by both state and federal governments in the U.S. In this section, we discuss recent developments in place-based policymaking in the U.S. with a focus on lessons learned and ignored from research on past experiences with place-based policies.

We begin by describing recent changes in several state EZ programs that speak to the evolving place-based policy landscape, but that have not been studied extensively. We then delve more deeply into two new policies that have varied in the extent to which they have heeded lessons from prior policies, and for which we have emerging evidence on their effectiveness. These policies are the California Competes Tax Credit (CCTC) program and the federal Opportunity Zone (OZ) program. The CCTC and OZ programs contrast sharply along many dimensions – and hence serve as important case studies of lessons learned vs. lessons ignored. The CCTC includes many policy features that, based on what we have learned from the evidence on place-based policies, might be expected to make it relatively more effective at creating jobs and spurring economic activity more generally, including discretion in making awards, and taking a more “place-conscious” as opposed to purely “place-based” approach. In contrast, the OZ program includes many policy features that past research suggests may make place-based policies less effective. In both cases, the evidence thus far attests to the beneficial effects of learning from past place-based policies, rather than ignoring what has been learned.

#### *4.1 Changes in Enterprise Zone Programs*

While some states have left their EZ programs largely unchanged for decades, several have overhauled or terminated their programs in recent years. In some cases, EZ programs have been replaced with alternative job creation initiatives. While it is difficult to pin down the precise timeline and full scope of considerations in policy changes, newer programs generally have moved away from narrow geographic targeting, introduced more discretion in awarding incentives, and more explicitly tied benefits to achieving job creation or investment targets.

As one example, in 2014, Iowa repealed its EZ program and transferred its authority to the state’s High Quality Jobs Program, which had been in existence since 2005. The HQJ Program resembles many industrial policies in that it allows the Iowa Economic Development Authority (IEDA) to work directly with businesses considering investment in Iowa. The IEDA can enter into 5-year agreements in which businesses must meet specific investment targets in exchange for income tax credits. Some evidence suggests the HQJ Program has been relatively effective at generating jobs in higher-wage industries, but also suggests that aggregate effects were small (Jin, 2021).

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<sup>25</sup> Some states have even expanded their EZ programs in recent years. For example, Maryland expanded the number of EZs in the state in 2023 (<https://commerce.maryland.gov/media/governor-moore-announces-seven-new-and-redesignated-enterprise-zones>).

Similarly, Arizona's EZ program was allowed to lapse in 2011 after 21 years in existence. The program, which targeted primarily rural distressed areas, was not meeting job creation expectations and did not attract the types of firms the state wanted (Duda, 2011). Arizona's EZ program was partially replaced by the Arizona Competitiveness Package, which is not explicitly place-based but reduces business property taxes and provides hiring tax credits statewide for firms in specific industries.

Virginia's original EZ program, which started as a traditional tax credit program in 1982, was overhauled in 2005 and replaced with two grant programs: one for property investment and one for job creation. Eligibility for these grants is still restricted to distressed areas in the state. However, critically, both new programs require that companies meet pre-specified real property investments and/or job creation targets before becoming eligible for grant consideration.<sup>26</sup> As we discuss further below in the context of the California Competes Tax Credit, such provisions have emerged as one promising approach to avoid windfalls and ensure subsidies go toward net new investment and job creation.

While many states have maintained their existing EZ programs with few modifications over the years, these examples point to some degree of policy innovation. Programmatic changes like those discussed above (and with the CCTC discussed below) have tended to be more flexible with geographic targeting and to incorporate more discretion in awards. These kinds of changes may reflect policymakers' learning about what does and does not work well, and revising programs accordingly. To our knowledge, though, there has not been any formal analysis of the degree of and mechanisms behind diffusion in place-based job creation policy design across states.<sup>27</sup> However, recent work on policy diffusion more generally suggests that adoption of different sets of practices might spread, at least among some sets of states (DellaVigna and Kim, 2022). How knowledge and innovation around place-based policymaking spreads is a ripe area for future work.

Based on our review of the evidence, these state-level changes in EZ programs – which in some cases could be viewed as moving beyond the usual EZ approach – are likely to make them more effective. We hope that some of these new state-level policy innovations will attract the interest of researchers interested in evaluating them rigorously, and that this evidence will be communicated to policymakers for possible consideration for further reforms of EZ programs.

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<sup>26</sup> See <https://www.dhcd.virginia.gov/sites/default/files/DocX/vez/gy22-vez-annual-report.pdf>.

<sup>27</sup> Sometimes policy-oriented think tanks can play a role in promulgating evidence-based program design features. The earlier research showing the ineffectiveness of the California EZ program was done at the Public Policy Institute of California, which conducted outreach to the media and state policymakers (e.g., <https://www.ppic.org/press-release/californias-enterprise-zone-program-fails-to-create-jobs/>), followed up by testimony in the state legislature ([http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb\\_0401-0450/sb\\_434\\_cfa\\_20130425\\_162109\\_sen\\_comm.html](http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb_0401-0450/sb_434_cfa_20130425_162109_sen_comm.html)). This research was cited by Governor Jerry Brown in his efforts (eventually successful) to terminate the program (Norman, 2011). In other cases, this happens serendipitously. Research on the California Competes Tax Credit (Freedman et al., 2023a; Hyman et al., 2023), which replaced the state's EZ program, has been highlighted in support of the tax credit by the state's Legislative Analyst's Office (the state-level equivalent of the Congressional Budget Office); see Legislative Analysts' Office (2023).

## 4.2. California Competes Tax Credit

California adopted the California Competes Tax Credit (CCTC) in 2013, replacing its longstanding EZ program, which had been demonstrated to be ineffective at creating jobs. The CCTC parallels other economic development programs around the country in aiming to attract and retain businesses in the state, particularly in distressed communities.

The CCTC program borrowed elements from the Texas Enterprise Fund program, which features direct “deal-closing” grants to individual companies seeking to locate or expand in Texas.<sup>28</sup> The TEF program specifically targets firms that are considering investing in other states and that plan to create a significant number of relatively high-paying jobs. Contracts oblige firms to meet job creation targets; otherwise, grants can be clawed back by the state. Although there are concerns around the transparency of the TEF (Jensen and Thrall, 2021), contracts with job creation milestones and clawback provisions are key components of the CCTC.

To get the CCTC, businesses apply to the California Governor’s Office of Business and Economic Development (GO-Biz). In their applications, businesses specify how much in-state corporate income tax credits they need in order to achieve specific commitments for net new hiring (and investments) in California. Tax credits under the CCTC are awarded based on a two-phase competitive process. The first phase relies on a quantitative evaluation of the projected costs and benefits of the tax credits requested by each applicant. For each application, a cost-benefit ratio “score” is calculated by dividing the amount of tax credit requested by the five-year cumulative sum of proposed new employee compensation and capital investment by the applicant in the state. Within each allocation period, program administrators rank the applicants by scores, from lowest to highest (lower scores are better). They then impose a cutoff for the first phase of the review process by moving up the cost-benefit distribution (starting at the lowest score) until the total credit amount bid among all included applications is two times the budgeted amount for that allocation period.<sup>29</sup>

The second phase of review involves a comprehensive evaluation of each application whose score falls below the first-phase cutoff, with program administrators selecting among score-eligible applications (as well as some exceptions) those that are qualitatively most consistent with program goals, prioritizing applicants whose hiring would likely be most responsive to tax credit awards. This, of course, is where discretion enters.

In addition, GO-Biz gives some priority for job creation in areas with higher poverty or unemployment and considers the strategic importance of the firm to innovation in the state and other qualitative information regarding the proposed project. The definition of high-poverty/high-unemployment areas is quite broad. Roughly one-third of California ZIP codes are flagged as either high unemployment or high poverty during the initial years of the program

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<sup>28</sup> See <https://gov.texas.gov/business/page/texas-enterprise-fund>. Such funds have become increasingly popular ways to try to attract companies to states (Francis, 2016).

<sup>29</sup> In the early years of the program, there was a set-aside for small businesses (those with annual revenues of less than \$2 million) such that there were separate cutoffs for large and small firms.

(Hyman et al., 2023). Because of this broad targeting, and because benefits were not restricted to firms locating in these areas, we refer to the CCTC as “place-conscious” rather than “place-based.”

During fiscal years 2014-15 to 2017-18, between \$150 and \$200 million per year was budgeted for tax credit allocation. The average winning applicant in the data was allocated roughly \$865,000 in tax credits.<sup>30</sup> There are an average of 284 applicants in each allocation round, of which there are typically three each fiscal year. On average, 82 applicants are awarded tax credits in each round. Winning firms pledged to create an average of 101 jobs each over the five-year term of their contract; the median number of jobs pledged was 31.<sup>31</sup> It is worth noting, though, that as a targeted program, the CCTC reaches only a tiny fraction of the total number of businesses in California.<sup>32</sup> CCTC does, though, target many large businesses.

The CCTC departed from the state’s previous EZ program in important ways in hopes of improving upon its meager record of success. First, the CCTC does not use narrow geographic targeting, but it does give some priority for job creation in areas with higher poverty or unemployment and considers the strategic importance of the firm to innovation in the state and other qualitative information regarding the proposed project.

Second, the CCTC structured incentives in a way to help ensure they led to new job creation. The sizes of tax credits are tailored to each individual firm and can only be claimed after meeting prespecified employment and investment targets. The program also includes strong provisions to recapture tax credits claimed if the jobs were not ultimately created over the five-year window covered by the credits and retained for three years afterwards.<sup>33</sup> The California Competes office requires annual reports from participating businesses and monitors compliance with the Franchise Tax Board (FTB), which can recover tax credits if companies fail to meet reporting requirements.<sup>34</sup>

Finally, the CCTC aims to minimize windfalls by including some discretion for program administrators to identify businesses more likely to grow or remain in the state because of the CCTC incentives. We cannot determine which of these program features contributes to the success of the CCTC based on the evidence described below, but it is hard to believe that the combination of at least some of these program features is not a major factor, and our sense – in part based on our interaction with and observation of the program administrators in the course of doing this research – is that this discretion was important.

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<sup>30</sup> Focusing on applicant firms with more than \$2 million in annual revenues, half of the awardees were allocated between \$100,000 and \$875,000. Only about 20 percent of awardees received more than \$1 million in credits. The minimum amount a business can request is \$20,000. Tax credits for a single applicant are capped at 20 percent of the total amount of credits allocated in a given fiscal year (approximately \$30 million during our sample period).

<sup>31</sup> Average proposed capital investment per awarded project is approximately \$17.4 million. Pledged salaries in the application for jobs to be newly created in the first-year average around \$63,000.

<sup>32</sup> Based on the Quarterly Employment of Census and Wages, there are about 1.7 million business establishments in California. Some are parts of larger firms. And some small businesses are not included in these data.

<sup>33</sup> Estimates in Hyman et al. (2023) suggest that a little over one-third of credits are recaptured.

<sup>34</sup> Some companies have voluntarily surrendered their tax credit allocations because they did not anticipate being able to meet their goals, and the FTB has also required some noncompliant firms to return previously claimed credits by amending prior years’ tax returns and payments.

Aside from being of prime interest for this chapter because the CCTC appears to incorporate lessons regarding effective program features from previous policies, the two-stage selection process also facilitates rigorous evaluation. Two recent studies evaluate the CCTC using tax credit data from fiscal years 2014-15 to 2017-18 (Freedman et al., 2023a; Hyman et al., 2023).<sup>35</sup>

To isolate the causal effect of the program, Freedman et al. (2023a) compare tracts with CCTC jobs awarded to similar tracts where they were not awarded, refined in a couple of different ways to make treatment and control areas more similar – perhaps most importantly by utilizing information on applicants’ scores relative to the cutoff for their allocation round, to put more weight on observations where scores of applicants were closer to the cutoff. The analysis relies on administrative data from GO-Biz on applicants to the CCTC and detailed census tract-level data on employment, poverty, and demographic characteristics of workers from restricted-access American Community Survey (ACS) data.

The evidence indicates that each CCTC-incentivized job awarded resulted in nearly three additional individuals working in the tract (Table 3) – a large multiplier. The positive employment effects apply across different types of workers. For example, CCTC awards increased jobs similarly for workers living in poverty and those not living in poverty. By education level, there are positive impacts for those with less than a bachelor’s degree and those with a bachelor’s degree or above, but job creation is biased toward more-educated workers. Finally, disaggregating by ethnicity and race, there are positive and significant impacts across race/ethnic groups. Job creation due to the CCTC is close to proportionate across these groups of workers. These roughly similar effects by poverty, education, and race/ethnicity may reflect the broader geographic targeting of the CCTC, which may allow for better targeting of subsidies to marginal firms, but at the expense of redistribution.

The evidence also indicates that the job growth spurred by the CCTC occurs in the neighborhoods where workers live, rather than where the awarded businesses are located. This may not be surprising given that there is nothing in the structure of the CCTC program that prioritizes or requires jobs for tract residents. Moreover, it is common for some tracts to be dense in jobs, and a far larger number of tracts to have many residents but few jobs, so employment changes would not necessarily be concentrated on the residents of tracts where the employment changes occur.<sup>36</sup>

Based on the estimates together with data on program spending, Freedman et al. (2023a) estimate that the total cost per job created by the CCTC is approximately \$3,315. This is a rough estimate based on jobs created in the early years of the CCTC in specific areas, and thus might not reflect the total cost per job statewide. The estimate of jobs created could be too high (and

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<sup>35</sup> CCTC awardees have job creation commitments up to five years after receiving the tax credits, so many years after program awards are needed to estimate the effects of the program.

<sup>36</sup> This result is also consistent with prior work suggesting that the potential positive impacts of place-based programs on residents may be diluted when incentivized firms have scope to hire from a larger geographic area (e.g., Busso et al. 2013; Freedman 2015). Moreover, the result is not surprising since many people commute to work, and many work sites (especially manufacturing plants) are typically in tracts with fewer residents.

hence the cost-per-jobs estimate too low) if the program induces some job reallocation from other areas into the tracts where jobs are created. It could be too low if jobs are created in nearby tracts from, for example, expansions of businesses that serve the businesses receiving tax credits. Given that the CCTC program is relatively new, the permanence of jobs created as a result of the CCTC is also unclear. Nonetheless, in terms of the rough magnitude, the estimate is at the low end of the cost-per-job estimates from the literature on place-based policies and other job creation programs.

In a second study, Hyman et al. (2023) analyze employer responses to the CCTC, directly studying the impacts of CCTC awards on firms that received them. Doing so allows them to better understand the targeting of the program, including whether the CCTC draws in economic activity from other locations. This analysis also exploits the two-phase process of selection for awardees to identify the effect of CCTC incentives, leveraging the fact that a firm whose score was just to the “wrong” side of the cutoff for selection is likely very similar to a firm whose score was just to the “right” side (with lower costs per benefits). Thus, focusing on the differences between firms close to the cutoff can provide rigorous evidence on the program’s effects. The analysis uses the same administrative CCTC data on accepted and rejected applicants as above, now combined with the confidential U.S. Census Bureau’s Longitudinal Business Database (LBD).<sup>37</sup>

The evidence indicates that, two years after the awards, there are positive effects on both employment and payroll statewide. The baseline estimates are reported in Table 4.<sup>38</sup> These estimates indicate that firms that receive a CCTC award increase employment and payroll by about 30 percent, on average. Some of the study’s more conservative estimates are about half as large, which still represent sizable effects.<sup>39</sup> Additionally, employment and payroll growth for firms also occurs in high-poverty/high-unemployment areas, although these estimates are less precise at least in part due to the smaller sample. The evidence indicates that the effects on firm employment and payroll grow over time from the initial award date, as we would expect since the typical CCTC award is based on a commitment to increasing employment over a period of up to five years (results not shown).

The firm-level analysis also suggests that the CCTC is cost-effective. For every \$1 spent on the CCTC, the authors estimate as much as \$5.66 in benefits generated, driven by the fact that earnings from the jobs created well exceed the incentive costs of spurring this job creation (Hyman et al. 2023). This is consistent with our analysis above, which suggested a low cost per job created.

The study also looked into whether the CCTC, which leads to higher job growth in California, comes at the expense of affected firms’ operations in other states. This may not be of

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<sup>37</sup> The LBD tracks business establishments over time, and establishments can be aggregated into their corresponding firms.

<sup>38</sup> This window provides a clean estimate of the effects of the program because issues of timing of data and award decisions can obscure the effects in the first year, and for a longer window there are fewer observations available for awards given that were closer to the end of the sample period.

<sup>39</sup> These are based on alternative samples and statistical approaches.

direct concern to California policymakers. It is, though, relevant to a broader debate about local economic incentives and whether they are just a “zero sum” or “race to the bottom” game between states (and localities) that results in moving jobs around without creating new jobs in the aggregate – while rewarding companies with tax breaks that are, for the nation as a whole, unproductive. Such concerns have prompted some calls for bans on local business subsidies (Badger 2014; Markell 2017). However, Hyman et al. (2023) find little evidence that the CCTC creates significant reallocation of employment or payroll across establishments within firms nationwide. Consistent with this, using data on firm-wide revenue, Hyman et al. (2023) find no evidence that CCTC-induced growth in California is associated with allocative inefficiency, i.e., businesses choosing suboptimal locations in which they sacrifice productivity for tax credits.

### *4.3. Opportunity Zones*

The CCTC program adopted many program design features based on lessons learned from prior programs and, based on emerging evidence, appears to be relatively effective at spurring job creation. In contrast, the Opportunity Zone (OZ) program seems to have ignored many past lessons in its design and implementation and, as a result, has seemingly been less effective in achieving its goals of spurring economic growth and job creation in low-income communities.<sup>40</sup>

OZs were created in the Tax Cuts and Jobs Act of 2017 and became effective in 2018. The OZ program provides preferential tax treatment for capital gains from investments in certain designated census tracts. There are a number of tax benefits associated with investing in OZs: temporary deferment of taxes owed on realized capital gains from liquidating an asset if those gains are invested in businesses or real estate in OZs; a basis step-up for realized capital gains that are reinvested in OZs; and non-taxation of capital gains on OZ investments if those investments are held for ten years or more (Theodos et al., 2018). The legislation allowed governors to designate as OZs up to 25% of census tracts in their state that qualified as “low-income communities” (LICs), as well as some tracts contiguous with LICs. By law, 95% of OZ tracts had to be LICs; governors were permitted to choose some additional tracts to designate as OZ if the tracts were contiguous with an LIC and had median income less than 125% of the median income of the LIC with which it was contiguous.

As a result of the creation of OZs, 8,764 census tracts in the United States offer investors substantial tax advantages in the form of capital gains tax reductions or eliminations for investments in the zones. The funds flowing into qualified areas under the program can finance a wide variety of projects, including infrastructure, commercial or industrial real estate, and new or existing businesses. Some of these projects might be associated with new, albeit transitory,

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<sup>40</sup> According to the IRS, Opportunity Zones’ “purpose is to spur economic growth and job creation in low-income communities while providing tax benefits to investors” (<https://www.irs.gov/credits-deductions/businesses/opportunity-zones>).



construction employment. Others may be associated with more durable jobs in different industries.

Although data are sparse, estimates suggest that the tax expenditures on the OZ program are large – in the range of \$8.2 billion for 2020-2024 and likely to grow going forward.<sup>41</sup> As such, OZs are the newest version of place-based policies in the United States, implemented at a scale far surpassing prior comparable policies.<sup>42</sup> OZs tax benefits currently are slated to end in 2026 (which pending legislation could push to 2028).<sup>43</sup>

OZs are intended to bolster economic growth in distressed communities. However, considering the evidence on the previously discussed three dimensions over which place-based programs vary, the OZ program has many features that are likely to undermine its job creation goals. First, the targeting of the OZ program is suspect. State governors were permitted to select tracts from a large pool of eligible tracts but were given very little time or guidance (Gelfond and Looney, 2018; Corinth and Feldman, 2024). Many tracts that were ultimately selected were already improving (Freedman et al., 2023b; Wessel 2021). Wessel (2021) also suggests that the targeting of OZs to disadvantaged areas is distorted by high residential concentrations of college students who, because of low incomes, make some tracts appear quite poor.<sup>44</sup> Others have documented that tract selection showed signs of political favoritism (Frank et al., 2022; Eldar and Garber, 2023).

Second, the OZ program in no way directly incentivized job creation, nor the specific creation of jobs for disadvantaged residents of either the designated zones or nearby areas. OZs do not even directly incentivize hiring, but instead incentivize investment. There is evidence that much of this investment may be going into real estate investment, often for housing that does not benefit the intended beneficiaries (like building housing for college students). More generally, the lessons from other place-based policies that focused more on real estate and other investments suggests that job creation benefits will be minimal, as such incentives are likely to induce capital-labor substitution and, to the extent they do benefit workers, will tend to benefit primarily higher-skilled ones. As an example, Freedman (2012, 2015) studied the federal NMTC, viewed by some as the closest precursor to OZs, and found only limited evidence of positive impacts of NMTC-subsidized investment on employment or existing residents; to the extent it created jobs, those jobs tended to go to workers living in other, more-advantaged areas.

Third, like many EZ programs, OZs create “by-right” eligibility for tax incentives. That is, they establish eligibility based on geographic location, but firms or other agents meeting these criteria can claim the tax benefits if they invest, and there are no program administrators who can use discretion as to which investments are eligible for incentives. This setting and past evidence

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<sup>41</sup> See <https://www.urban.org/urban-wire/what-we-do-and-dont-know-about-opportunity-zones>.

<sup>42</sup> For example, spending on Empowerment Zones and Enterprise Communities between 1994 and 2004 is estimated at about \$1 billion (<https://crsreports.congress.gov/product/pdf/R/R41639/5>).

<sup>43</sup> See <https://opportunitydb.com/2023/11/2023-oz-legislation/>.

<sup>44</sup> In more systematic evidence, Corinth et al. (2024) compare the targeting of OZ and NMTC investments, finding that OZ targeting of low-income tracts is not much worse than NMTC targeting, although the NMTC targets low-income tracts in lower-income counties than the OZ program.

suggest the OZ program might be expected to be rife with windfalls, as, for example, real estate investors already planning to invest in an OZ can earn tax incentives even when the policy did not change their behavior (Corinth and Feldman, 2024). Indeed, as Corinth and Feldman (2024) highlight, the structure of the OZ program is such that tax benefits are largest for investment that would have happened in the absence of the program.

The a priori negative assessment of the likelihood that OZs would prove effective has been largely confirmed by the earliest wave of research on OZs, although there is some mixed evidence. One early analysis by Freedman et al. (2023b) focused on the impact of OZ designation on resident employment. To the extent that a major motivation for the OZ program was improving outcomes for residents of distressed communities – as evidenced by the criteria for designating OZs being based largely on the economic circumstances of residents – the impacts of the program on residents is of paramount importance. The question is of particular interest given past evidence that even those programs that are effective at creating jobs may not deliver benefits to residents of targeted places (Busso et al., 2013; Freedman, 2015; Reynolds and Rohlin, 2015). The institutional structure of the OZ program raises concerns that any job creation or investment spurred by the program may have limited benefits for local residents (Gelfond and Looney, 2018; Eastman and Kaeding, 2019).

Freedman et al. (2023b) used restricted-access microdata from the American Community Survey (ACS) for 2013-2019 to explore the program's impacts at a geographically granular level, estimating effects for tracts designated as OZs using a control group of eligible, but not designated tracts matched on the basis of trends in outcomes prior to the program's introduction. The available data permitted estimation of the effects of OZs up to about one-and-a-half years after enactment of the zones.

Overall, Freedman et al. (2023b) find limited evidence that OZ designation has positive effects on the economic circumstances of local residents. The preferred estimates based on an inverse probability weighting (IPW) approach point to effects of OZ designation that are economically small and generally statistically indistinguishable from zero. Specifically, following OZ designation, employment rates of residents do not change, with statistically insignificant yet fairly precise estimates that are very near zero; the estimates can rule out increases in employment rates larger than 0.2 percentage point with 95% confidence. Estimated effects on average earnings of employed residents of designated tracts are positive but are economically small and not consistently statistically significant. Finally, zone designation is associated with a slight increase in local poverty rates, although the evidence is largely consistent with no effect.

Notably, a difference-in-differences approach that ignores differential pre-designation trends suggests positive effects on zone resident employment rates and reductions in poverty rates, with effects that are both statistically significant and economically meaningful. The problem of differential pre-designation trends, however, is apparent from an event-study analysis. Hence, an approach that assumes that zone selection was orthogonal to tracts' economic trajectories gives the misleading impression of substantial positive effects of zone designation on

residents, because in fact zone designation was associated with already-improving economic circumstances of residents.

This evidence is illustrated in Figure 1, which shows the estimated program effects in an event-study framework using the raw data, and then using the IPW approach to match designated OZs to control tracts with similar prior trends (without further regression adjustment, which has a negligible impact). The raw data suggest sizable increases in employment and declines in poverty after OZs are designated, but also show that these apparent “effects” are just the continuation of prior trends. In contrast, the IPW approach ensures parallel trajectories in outcomes for designated OZs and the (weighted) group of non-designated but eligible LIC tracts prior to 2017. The contrast – in particular, the disappearance of any evidence of gains in employment or reductions in poverty for zone residents – is clear.

Among the other studies focused on jobs, Atkins et al. (2023) similarly document limited evidence of increases in online job postings in OZs. Shen (2024) finds no evidence of employment growth or small business formation associated with OZs in New York City. However, Arefeva et al. (forthcoming) find evidence of increases in job growth among businesses in OZs in metropolitan areas, with surprisingly large estimated impacts (3.0 to 4.5 percentage point increases in the two-year growth rate). Among the papers focused on real estate, Wheeler (2023) documents an increase in building permits in OZs in larger cities. However, Corinth and Feldman (2023) and Sage et al. (2023) find evidence of only limited effects of OZ designation on commercial real estate markets. Snidal and Li (2024) also find no indication that OZ incentives affected home or business lending. Chen et al. (2023) and Alm et al. (2024), meanwhile, find no evidence that OZs increased real estate prices, consistent with limited anticipated local benefits from OZ designation.

The critical limitation of this earlier research, however, was just that – that it was early.<sup>45</sup> OZ advocates – principally the Economic Innovation Group – have argued, possibly justifiably, that the existing research simply does not cover a long enough period to gauge accurately the effects of OZs.<sup>46</sup> While the OZ program’s design does not appear conducive to generating large positive impacts on targeted communities, it remains an open question whether a longer-term perspective will point to more beneficial effects of Opportunity Zones.

## 5. Conclusion

Over the past half century, the place-based policy landscape in the U.S. has changed in many ways but stayed the same in other ways. This chapter reviews lessons learned from past research and experience with place-based interventions in the U.S. It also describes recent

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<sup>45</sup> And adding a couple more years (like Arefeva et al. extending through 2021) can confound the effects with the Covid-19 pandemic.

<sup>46</sup> See <https://eig.org/wp-content/uploads/2023/03/Examining-the-Latest-Multi-Year-Evidence-on-Opportunity-Zones-Investment.pdf>. Then again, Corinth and Feldman (2023) study effects on real estate using data through 2022 and find no effects.

developments in place-based policymaking and the extent to which state and federal governments in the U.S. have taken heed of past lessons on designing effective programs.

We conclude that many lessons have been learned from past forays into place-based policymaking, but many crucial insights have not necessarily been incorporated into current programs. Many state enterprise programs have remained essentially unchanged since they were first introduced in the 1980s. With respect to its approach to geographic targeting, mix of incentives offered, and method for distributing benefits, the recently introduced Opportunity Zone program has seemingly ignored many insights gleaned from past work on place-based programs. In contrast, some states have moved away from traditional EZ programs and toward new programs with refined approaches. Some of these new initiatives not only pay more careful attention to geographic targeting – recognizing, for example, that workplace and residence jobs are not necessarily the same – but also seek to minimize windfalls and other undesirable distortionary effects through more selective and tailored awards that are structured in a way that incentivizes net new job creation – for example, by allowing discretion in awarding incentives, and by requiring firms to meet pre-specified employment targets before they can claim credits. The evidence to date – although still limited – suggests these innovative approaches marrying place-based and industrial policies may be paying dividends.

At the same time, we need to recognize that the newer approaches tend to reduce targeting to the most-distressed areas. This may be required to generate larger job creation impacts. But it also forces us to recognize that we still face major challenges in the design of effective place-based policies that *do* benefit the most-distressed areas. It may be that doing this effectively requires more involved interventions that are more multi-faceted, like the Rebuilding Communities Job Subsidies proposed by Neumark (2018). A focus on the most-disadvantaged would likely entail more targeting of underrepresented minority communities as well, simply because of the strong degree of concentration of underrepresented minority individuals in lower income neighborhoods (e.g., Bishaw, 2014). Such a focus might also lead to more targeting of rural areas, given higher rural than urban poverty across all race and ethnic groups.<sup>47</sup> Conversely, place-based policies with a weaker focus on distressed areas might be ill-suited to the goal of increasing racial equity – although in general the effects of place-based policies on outcomes by race have been under-studied.

Finally, building the evidence base for new incarnations of place-based policies is key in further refining our knowledge of what works in spurring job creation and investment. Some programs, like the CCTC, may inadvertently build in design features that facilitate rigorous evaluation. More deliberate efforts to structure programs in ways that allow researchers not only to track expenditures and beneficiaries, but also to disentangle the importance of different design features in driving program impacts, would be enormously helpful.

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<sup>47</sup> See <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=101903>.



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**Table 1: Examples of Features of State Enterprise Zone and Related Federal Programs**

<b>Program</b>	<b>Years</b>	<b>Geographic Targeting</b>	<b>Incentives Offered—Hiring Credit</b>	<b>Incentives Offered—Other</b>	<b>Allocation Mechanism</b>
<i>State Programs</i>					
Arizona EZ Program	1990-2011	Distressed counties and cities/towns; based on poverty and unemployment rate at least 150% of state average	Income tax credit for 25% of wages in first year, 33% in second year, 50% in third year for new employees	Property tax incentives for manufacturing or commercial printing businesses	Entitlement for firms located in zones
California EZ Program	1986-2014	Distressed contiguous tracts; competitive selection based on unemployment and poverty rate	Hiring tax credits for 10-50% of wage bill up to limit, for Targeted Employment Area residents (beginning 1997)	Machinery and equipment sales and use or property tax exemption; real property tax incentives; tax increment funds; net operating loss computation and loss limitations; accelerated depreciation; lender interest deduction; occupational licenses/regulatory relief; bond/loan assistance; job/referral placement; employee income tax credit	Entitlement for firms located in zones that hire disadvantaged employees, excluding retail and food service businesses
Colorado EZ Program	1986-present	Distressed areas (municipality, county, region); 16 EZs allowed at any time; designated based on population growth rate below 25% of state average, unemployment rate 125% or greater than state average, and per capita income below 75% of state average	Credit of \$500 against income tax for one year for each new employee at new business in zone (for two years, with health insurance, beginning in 1987)	Investment tax credits, sales/use tax credits; tax deduction for contributions; research and experimental activities tax credit; property tax credit/exemption; machinery and equipment sales and use or property tax exemption; property tax incentives; tangible property (sales and use tax) incentives; technology infrastructure investment tax credit (rural internet); credit for paying employee insurance premiums; job training/school tax credit or reimbursement; day care tax incentive; energy tax exemption/credit	Entitlement for firms which intend to start-up, expand, or relocate in zones
Florida EZ Program	1986-2015	Distressed areas not to exceed 20 square miles, competitive selection based on poverty, unemployment, physical deterioration, and economic disinvestment	Tax credit from 5-25% of wages of new employees (lowered to 15% in 1994 and 10% in 1995, but higher with more zone residents hired)	Sales tax credit; interest free loans; tax credit for new or expanding businesses; real property tax incentives; tax credit for construction materials; machinery and equipment sales and use or property tax incentives; day care tax incentives; regulatory relief; bond/loan assistance; energy tax exemption/credit, tax incentives for community development; day care tax incentives	Entitlement for firms located in zones
Hawaii EZ Program	1986-present	Distressed tracts; counties may nominate up to six zones for approval by the Governor;	Credit for 80% of unemployment tax (1-2% of total taxable wages) during first year, declining by 10	Excise tax credit; credit for opening or expanding businesses; property tax incentives; sale/lease of public property	Firms located in zones with at least half of annual gross income

<b>Program</b>	<b>Years</b>	<b>Geographic Targeting</b>	<b>Incentives Offered—Hiring Credit</b>	<b>Incentives Offered—Other</b>	<b>Allocation Mechanism</b>
		zones must have at least 25% of population with family income below 80% of county median family income or unemployment rate 150% or higher than the state unemployment rate	percentage points each year and ending after 7 <sup>th</sup> year; no residency requirement	for business use; credit for paying employee insurance premiums; occupational licenses/regulatory relief	from agricultural production or processing, manufacturing, wholesaling or distribution, aviation or maritime maintenance, telecommunications, information technology design and production, medical research and clinical trials, and biotechnology research
Illinois EZ Program	1983-present	Distressed areas (half square mile to 15 square miles); competitive selection based on unemployment rate, expected job creation, poverty rate, presence of downsized employers, vacancy rate, potential to improve tax base, presence of local infrastructure, change in value of industrial or commercial property, plans to support minority businesses	Income tax credit of \$500 for each eligible employee (expanded in 1986 to high-impact businesses in some federal zones); 5 or more employees and total firm employment must increase by 5 employees from previous year; worker must be dislocated, employed in zone, full-time (until 2002)	Sales/use tax exemptions, utility tax exemptions; corporation for providing loans; tax deduction for contributions; property tax incentives; machinery and equipment sales and use or property tax exemption; sale/lease of public land for business use; job training/school tax credit or reimbursement; energy tax exemption/credit; regulatory relief	Entitlement for firms located in zones
Indiana EZ Program	1983-present	Distressed municipalities and prior military bases; competitive selection based on poverty level, unemployment rate, and suitability for investment	Income tax credit equal to the lesser of 10% of qualified increased employment expenditures or \$1,500 multiplied by the number of qualified employees; can be carried forward 10 years or carried back 3 years; employee must be a resident of the zone and work at least 50% of the time in the zone	Tax deductions for incremental wages to zone residents, credits to businesses making loans to EZ businesses, income tax credit for equity investment in zone businesses; employee income tax deduction	Entitlement for firms located in zones
Iowa EZ Program	1998-2014	Distressed counties and cities; based on per-capita income, poverty rate, vacancies, and population loss	Credit equal to 1.5% of wages paid by the business	Local property tax exemption; job training funds; construction sales, service, or use tax refund; investment tax credit for machinery, equipment and property; research and development tax credit	Non-retail firms creating at least 10 full-time jobs
Mississippi EZ	1983-1989	Distressed counties, 25 zones	\$1,000 state income tax credit per	State income and franchise tax	Manufacturing,



<b>Program</b>	<b>Years</b>	<b>Geographic Targeting</b>	<b>Incentives Offered—Hiring Credit</b>	<b>Incentives Offered—Other</b>	<b>Allocation Mechanism</b>
Program		allowed from the 40 most distressed counties based on per capita income, unemployment, income distribution, manufacturing activity, and migration	job created for a period of up to 10 years	exemptions; sales/use tax exemption on equipment and machinery purposes; property tax exemption	distribution, and research and development businesses creating 25+ jobs or a 10% increase in employment
New Jersey EZ Program	1984-present	Distressed municipalities; selection based on unemployment rate and poverty rate	\$1,500 corporate business tax credit per employee who is a zone resident and has been unemployed for at least 90 days or is a public assistance recipient	Reduced sales tax; subsidized UI costs; tax-free capital purchases; energy sales tax exemption; access to below-market-rate loans; worker training assistance	Entitlement for firms located in zones
New York EZ Program	1987-2010	Distressed 1-2 sq. mile blocks (640-1280 acres); selection based on unemployment rate of at least 125% of state average and poverty rate at or above 20%, or likelihood of significant job loss, or potential for significant investment and job creation	Credit beginning at 25%, declining each year, for targeted employees (NY resident, eligible for TJTC or JTPA, receives public assistance, in poverty (until 1993)); from 1994, flat tax credit for sum of \$1,500 times average number of full-time employees receiving wages in EZ at least 135% of minimum wage for at least ½ the year, for first year, at least 20% of employees employed in new jobs created since zone designation live in zone or contiguous tracts and employment is growing (up to \$3,000 after 2000 for poor, public assistance recipients, dislocated, or veterans)	Corporation for providing loans; stock investment incentive; tax deduction for contributions; tax credit for construction materials; utility tax credit/incentive; property tax incentives, sales tax credits and refunds	Entitlement for firms located in zones
Ohio EZ Program	1982-present	Distressed contiguous areas (Census tracts or block groups); based on unemployment, vacancies, population loss, share low-income, location in Appalachian region	Payroll tax exemption for new employees; \$1,000 nonrefundable corporation franchise or income tax credit each year for each new employee who at the time of hiring was a recipient of public assistance and resided in the county for at least one year	Property tax incentives; investment in tangible personal property not included in determining issued or outstanding stock; machinery and equipment sales and use or property tax exemption; services or assistance from municipal corporation for project site; job training/school tax credit or reimbursement; day care tax incentives; environmental remediation credit	Entitlement for non-retail businesses located in zones
Texas EZ Program	1983-	Distressed census block groups;	None	Machinery and equipment sales and use	Firms are nominated by

<b>Program</b>	<b>Years</b>	<b>Geographic Targeting</b>	<b>Incentives Offered—Hiring Credit</b>	<b>Incentives Offered—Other</b>	<b>Allocation Mechanism</b>
	present	noncompetitive selection since 2003; automatically designated if 20% or more residents have income below federal poverty level, poverty rate exceeds 15.4%, or unemployment rate exceeds 4.9% for 5 years		tax refund; local tax abatement; regulatory relief	communities and must ensure 25-35% of new employees hired are economically disadvantaged or an EZ resident
Virginia EZ Program	1984-present	Distressed areas (up to 1 square mile in cities and towns, up to 6 square miles in counties and consolidated cities); based on unemployment, average local income, and share of students receiving free or reduced-price lunch	Prior to 2005, unemployment tax credit 80% in year 1 declining to 20% years 4-5 (unemployment taxes averaged \$50-115 per year)	Income tax credits (from 1995, special agreements for firms investing < \$25 million and creating 100 full-time jobs); credit for opening new or expanding existing business; property tax incentives; tax credit for items purchased to conduct business; sale/lease of public property for business use; occupational licenses/regulatory relief; grants for hiring and real property investment (since 2005)	Entitlement for firms located in zones, with 25-40% of full-time employees low-income (prior to covered employment) or zone residents
<i>Federal Programs</i>					
Empowerment Zone Program	1994-2014	Distressed census tracts; competitive selection based on poverty rates above 20% and unemployment rates above 6.3%	Hiring tax credits of up to 20 percent of the first \$15,000 in wages earned by each employee, grants and other support	Title XX Social Services Block Grant (SSBG) funds up to \$100 million for business assistance, infrastructure investment, physical development, training programs, youth services, promotion of home ownership, and emergency housing assistance; eligibility for tax-exempt bond financing; increased Section 179 (asset write-off) expensing	Entitlement for firms located in zones
Enterprise Communities	1994-2004	Distressed census tracts; competitive selection (awarded to those not selected for Empowerment Zone)	None	\$3 million in SSBG funds; eligibility for tax-exempt bond financing	Entitlement for firms located in zones
Renewal Communities	2000-2009	Distressed census tracts; competitive selection	Hiring tax credit up to \$1,500 yearly per RC resident employed	Capital gains tax exemption	Entitlement for firms located in zones
Promise Zone Program	2014-2026	Distressed contiguous census tracts; competitive selection; based on poverty rate greater than 20% and prior designation as Promise Neighborhood, Choice Neighborhood, or Byren Criminal Justice Innovation	None	Preferential scoring on federal grants; grant preparation assistance; implementation assistance from AmeriCorps VISTA members	Entitlement for zone

Program	Years	Geographic Targeting	Incentives Offered—Hiring Credit	Incentives Offered—Other	Allocation Mechanism
		Grant			
Opportunity Zone Program	2018-2026	Distressed census tracts; nominated by states; based on poverty rate greater than 20%, median family income less than 80% of statewide or metropolitan median family income	None	Temporary deferment of taxes owed on realized capital gains for gains invested in businesses or real estate; a basis step-up for realized capital gains reinvested in OZs; non-taxation of capital gains on investments held for ten years or more	Entitlement for investors in zones

Notes: Many of these details are taken from Neumark and Young (2021, including the online appendix), where more details and legislative sources are provided, as well as Chaudhary and Potter (2019) and Laysen (2019). Additional sources for specific programs are as follows: **Arizona EZ program:** Chaudhary and Potter (2019); Arizona Department of Commerce (2009, 2010). **California EZ program:** Neumark and Kolko (2010), <https://www.hcd.ca.gov/grants-and-funding/programs-archived/enterprise-zone-program>. **Colorado EZ program:** <https://oedit.colorado.gov/enterprise-zone-program>. **Florida EZ program:** Florida Department of Economic Opportunity (2015); Office of Program Analysis and Government Accountability an Office of the Florida Legislature (2004); <https://oppaga.fl.gov/Documents/Reports/22-06.pdf>. **Hawaii EZ program:** State of Hawaii Department of Business, Economic Development, & Tourism (2022); <https://invest.hawaii.gov/business/ez/>; <https://files.hawaii.gov/dbedt/rules/15-6.pdf>. **Illinois EZ program:** Rubin (1985); <https://dceo.illinois.gov/expandrelocate/incentives/taxassistance/enterprisezone.html>. **Indiana EZ program:** Landers and Faulk (2005); <https://www.in.gov/dor/files/ib66.pdf>. **Iowa EZ program:** Chaudhary and Potter (2019); <https://www.legis.iowa.gov/docs/iac/chapter/01-24-2024.261.59.pdf>. **New Jersey EZ program:** New Jersey Department of Community Affairs (2019); Rubin (1985); <https://www.nj.gov/dca/uez/>; **Mississippi EZ Program:** Couch et al. (2005); <https://law.justia.com/codes/mississippi/2010/title-57/51/57-51-1/>; <https://onlinelibrary.wiley.com/doi/epdf/10.1093/cep/byi019>. **New York EZ program:** Citizens Budget Commission (2008); <https://esd.ny.gov/empire-zones-program>. **Ohio EZ program:** [https://dam.assets.ohio.gov/image/upload/tax.ohio.gov/communications/publications/business\\_tax\\_credits.pdf](https://dam.assets.ohio.gov/image/upload/tax.ohio.gov/communications/publications/business_tax_credits.pdf); [https://dam.assets.ohio.gov/image/upload/development.ohio.gov/business/stateincentives/ez\\_CreationofaZone.pdf](https://dam.assets.ohio.gov/image/upload/development.ohio.gov/business/stateincentives/ez_CreationofaZone.pdf). **Texas EZ program:** Freedman (2013); Vo and Kuntz (2015); <https://gov.texas.gov/business/page/texas-enterprise-zone-program>. **Virginia EZ program:** <https://rga.lis.virginia.gov/Published/2006/RD207>; <https://www.dhcd.virginia.gov/vez/>; <https://www.hcd.ca.gov/grants-and-funding/programs-archived/enterprise-zone-program>; <https://www.dhcd.virginia.gov/sites/default/files/Docx/vez/2019-ez-code.pdf>. **Empowerment Zone Program:** Busso et al. (2013); Chaudhary and Potter (2019); [https://hudgis-hud.opendata.arcgis.com/datasets/1101a6c1e2364302b70485ca99fc7e69\\_3/about](https://hudgis-hud.opendata.arcgis.com/datasets/1101a6c1e2364302b70485ca99fc7e69_3/about); <https://web.archive.org/web/20150905233903/>; [http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/economicdevelopment/programs/rc](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/economicdevelopment/programs/rc); <https://journals.sagepub.com/doi/full/10.1177/0042098018787738>. **Enterprise/Renewal Communities:** Busso et al. (2013); U.S. Department of Housing and Urban Development (2003); [https://www.hud.gov/sites/documents/19170\\_TAXINCENTIVESQA.PDF](https://www.hud.gov/sites/documents/19170_TAXINCENTIVESQA.PDF); [https://hudgis-hud.opendata.arcgis.com/datasets/1101a6c1e2364302b70485ca99fc7e69\\_3/about](https://hudgis-hud.opendata.arcgis.com/datasets/1101a6c1e2364302b70485ca99fc7e69_3/about); <https://web.archive.org/web/20150905233903/>; [http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/economicdevelopment/programs/rc](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/economicdevelopment/programs/rc). **Promise Zone Program:** Kitchens and Wallace (2022); <https://www.hudexchange.info/programs/promise-zones/>; <https://www.hudexchange.info/programs/promise-zones/promise-zones-overview/>. **Opportunity Zone Program:** Economic Innovation Group (2018); <https://www.irs.gov/credits-deductions/businesses/invest-in-a-qualified-opportunity-fund>.

Sources for programs not included in Table 1 but referenced in the text: **Connecticut EZ program:** [https://portal.ct.gov/decd/content/business-development/06\\_tax\\_incentives/enterprise-zones/enterprise-zone-targeted-investment-communities](https://portal.ct.gov/decd/content/business-development/06_tax_incentives/enterprise-zones/enterprise-zone-targeted-investment-communities). **Georgia EZ program:** <https://www.dca.ga.gov/community-economic-development/incentive-programs/enterprise-zones>. **Louisiana EZ program:** <https://www.opportunitylouisiana.gov/incentive/enterprise-zone>; <https://www.doa.la.gov/media/cvpjyuiiv/13.pdf>. **Nebraska EZ program:** <https://opportunity.nebraska.gov/programs/community/enterprise-zones/>. **North Carolina incentive programs:** Pérez Pérez and Suher (2022); <https://www.commerce.nc.gov/grants-incentives/county-distress-rankings-tiers>. **Utah EZ program:** <https://business.utah.gov/rural/enterprise-zone-tax-credits/>; <https://business.utah.gov/news/change-to-enterprise-zone-tax-credit/>. **Wisconsin EZ program:** <https://wedc.org/programs/enterprise-zone-tax-credit/>.

**Table 2: Summary of Evidence on Employment-Related Effects of Enterprise Zones and Similar Federal Programs in the United States**

Study	Program	Results
<i>State Programs</i>		
Papke (1994)	Indiana	Unemployment claims decline by 19 percent (significant)
O’Keefe (2004)	California EZs	Conflicting evidence of effects on annual employment growth: first 6 years after designation 3.1 percent (significant); 7-13 years after designation -3.2 percent (significant)
Couch et al. (2005)	Mississippi (counties)	Positive effect on annual job growth in manufacturing 1.4 percent (significant)
Billings (2009)	Colorado	Weak evidence of positive effects on employment: estimates for existing establishments range from 0 to 0.3 employment change ( $\approx 0$ to 2.1 percent); standard errors 0.1 to 0.2; estimates for new establishments range from 1.5 to 1.8 ( $\approx 10.3$ to 12.3 percent); standard errors 0.7 to 0.9
Neumark and Kolko (2010)	California EZs	No significant evidence of employment effects measured at establishments in zones: estimates range from -1.7 to +1.8 percent (levels), with large confidence intervals ( $\approx -8$ to +6 percent); no evidence of spillovers
Kolko and Neumark (2010)	California EZs	Zones more involved with marketing and outreach exhibited positive employment effects; zones focused on tax credits exhibited negative effects
Elvery (2009)	California and Florida EZs	No evidence of positive employment effects on zone residents: estimates for California range from -0.4 to -2.6 percent; for Florida from -1 to -4 percent
Freedman (2013)	Texas EZs	Positive effect on employment growth among zone residents (1-2 percent per year, sometimes significant); employment effects concentrated in jobs paying less than \$40,000 annually, and in construction, manufacturing, retail, and wholesale; positive effects on job growth among zone employers (3-8 percent per year, rarely significant)  Negative and insignificant effects on share black and with income below the poverty line  Significant negative effect on vacancy rate (-4 percent)  Significant positive effect on median home value (10.7 percent)
Greenbaum and Engberg (2004)	California, Florida, New Jersey, New York, Pennsylvania, and Virginia (urban)	No evidence of effect on annual employment growth (-0.4 percent, not significant)
Ham et al. (2011)	State EZs (multiple)	State programs: significant positive impacts on: unemployment rate (-1.6 percentage points; poverty rate (-6.1 percentage points); average wage and salary income ( $\approx 1.6$ percent); employment ( $\approx 3.7$ percent) <sup>a</sup>
Neumark and Young (2019)	State EZs (multiple)	State programs: Revisiting Ham et al. (2011), correcting for data error in poverty rate, effect declines to 1.65 percentage point reduction (less with other estimators). Accounting for trend differences in controls, no evidence of reductions in poverty, increases in wages and salaries, or increases in employment.
<i>Federal Programs</i>		
Ham et al. (2011)	Federal Empowerment Zones, federal Enterprise	Empowerment Zones: significant positive impacts on: unemployment rate (-8.7 percentage points); poverty rate (-8.8 percentage points); average wage and salary income ( $\approx 20.6$ percent); employment ( $\approx 34.2$ percent)

Study	Program	Results
	Communities	Enterprise Communities, significant positive impacts on: unemployment rate (-2.6 percentage points); poverty rate (-20.3 percentage points); fraction of households with wage and salary income (4.9 percentage points); average wage and salary income ( $\approx 12.7$ percent); employment ( $\approx 10.7$ percent)
Neumark and Young (2019)	Federal Empowerment Zones, federal Enterprise Communities	Empowerment Zones: Revisiting Ham et al. (2011), accounting for trend differences in controls, most positive effects disappear except reduction in unemployment rate (-2.75 percentage points)  Enterprise Communities: Accounting for trend differences in controls, no positive impacts
Busso et al. (2013)	Federal Empowerment Zones	Positive and significant effects on job growth in LBD (12-21 percent), likely concentrated among births, and existing establishments with > 5 employees  Positive and significant effects on employment in Census data (12-19 percent); magnitudes generally larger for employment in zone of zone residents (15-17 percent) than non-zone residents (6-16 percent)  Positive generally significant weekly wage effects on zone residents employed in zone (8-13 percent); magnitudes smaller for zone residents generally (3-5 percent and usually insignificant) and non-residents working in zone ( $\approx 0$ percent)  No effects on rents, population, or vacancy rates, large significant positive effects on house values (28-37 percent)
Reynolds and Rohlin (2014)	Federal Empowerment Zones	Positive effect (1.1 percent, insignificant) on difference between rent and wage premia ("quality of life")  Positive effect (6.4 percent, significant) on sum of rent and wage premia ("quality of business environment")
Hanson (2009)	Federal Empowerment Zones	OLS estimates: positive significant effect on employment rate (2 percentage points); negative significant effect on poverty rate (-2 percentage points)  IV estimates: No effect on employment rate (0 percentage points); insignificant positive effect on poverty rate (2 percentage points)
Hanson and Rohlin (2013)	Federal Empowerment Zones	Negative spillovers on Census tracts that are geographically or "economically" close to zone tracts: generally significant effects on number of establishments (-15.2 to -36.5); negative, sometimes significant effects on employment (-52 to -1,223, but many estimates in the range -300 to -600); negative spillovers roughly offset the positive effects in directly treated areas  Estimates of program effects based on comparison of the actual zone tracts to those that are close (using the same definitions) yield positive effects of about the same magnitude as the negative spillover effects
Reynolds and Rohlin (2013)	Federal Empowerment Zones	Positive significant effects on mean household income (11 percent), but not on median household income (one-tenth as large)  No significant effect on poverty rate (-1 percentage point); significant increase in proportion of households below one-half of poverty line (1.1 percentage points) and in households more than twice the poverty line (1.9 percentage points), coupled with significant reductions in households in between

Study	Program	Results
		<p data-bbox="716 256 1646 282">Significant increase in share of households with income &lt; \$10,000 and above \$100,000</p> <p data-bbox="716 321 1986 435">Other results point to higher-skilled, higher-income people moving in: increases in proportion of households more than twice the poverty line in areas of zone with above-median poverty rate initially, and increases in proportion below one-half of poverty line in areas of zone with below-median poverty initially; increases in housing values for houses valued at \$100,000 or higher, extending above \$300,000</p>

<sup>a</sup> Approximate percent changes are calculated by dividing their estimates of effects on levels by values in zones reported for 1990.

Notes: For other evidence see: **California:** O'Keefe (2004). **Colorado:** Lynch and Zax (2011). **Illinois:** Sridhar (1996), McDonald (1997). **Indiana:** Papke (1993). **Maryland:** U.S. Government Accounting Office (1988). **New Jersey:** Greenbaum and Engberg (2000), Boarnet and Bogart (1996), Scavette (2023). **New York:** Bondonio (2000), Greenbaum and Engberg (2000). **Ohio:** Hill (1994), Sridhar (2001). **Pennsylvania:** Greenbaum and Engberg (2000). **Virginia:** Greenbaum and Engberg (2000). **Empowerment Zones:** Oakley and Tsao (2006), Hanson (2009).

**Table 3: Estimated Effects of CCTC on Job Creation at the Census-tract Level, Overall, Across Demographic Groups, and by Composition of Workers' Residential Tracts (American Community Survey Data, 2013-2018)**

<i>Overall, and by Worker Characteristics</i>									
	Overall	Poor	Not Poor	Below Bachelor	Bachelor or Above	Hispanic	Non-Hispanic	Black	Non-Black
Jobs Awarded	2.88***	0.161*	2.72***	0.780*	2.10*	0.847***	2.03**	0.109	2.77***
	(0.97)	(.089)	(1.04)	(.401)	(1.18)	(0.262)	(0.79)	(0.068)	(0.92)
Jobs Proposed	0.70**	-0.046	0.743**	0.183	0.519*	0.327***	0.375*	0.069**	0.633**
	(0.30)	(0.035)	(0.318)	(0.138)	(0.265)	(0.121)	(0.211)	(0.034)	(0.279)
Ratio		0.058		1.514		0.463		0.057	
<i>By Workers' Residential Tracts</i>									
	Higher Poverty	Lower Poverty	Lower Educ.	Higher Educ.	Higher Hisp. Share	Lower Hisp. Share	Higher Black Share	Lower Black Share	
Jobs Awarded	1.14***	1.74***	0.834***	2.05**	0.952***	1.93**	1.76***	1.13**	
	(0.39)	(0.63)	(0.268)	(0.87)	(0.285)	(0.84)	(0.49)	(0.56)	
Jobs Proposed	0.449**	0.253	0.351**	0.351*	0.308**	0.394*	0.531**	0.171	
	(0.181)	(0.157)	(0.144)	(0.191)	(0.127)	(0.212)	(0.223)	(0.108)	
Ratio	0.733		0.671		0.813		1.033		

Notes: Table reports locally weighted difference-in-differences regression results for tract-level employment, by worker characteristics. Regressions include CCTC jobs proposed, and tract and year fixed effects. There are 900 tracts and 5,400 observations (these are approximated for confidentiality reasons). The regressions are weighted by average absolute values of score minus the cutoff; because of the weighting, tracts without at least 1 large applicant are excluded. Standard errors are clustered at the tract level. Three asterisks (\*\*\*) indicate  $p < 0.01$ , two asterisks (\*\*) indicate  $p < 0.05$ , and one asterisk (\*) indicates  $p < 0.1$ . Estimates for poor, below bachelor's, Latino, and Black, are rescaled by one over the ratio of this group to the other. (For example, the ratio of poor to non-poor workers is 0.058, so the poor regression estimate is multiplied, in this figure, by  $1/0.058$ .) Thus, the estimates in this figure show, e.g., the number of jobs for poor or non-poor workers created per poor or non-poor worker. Source: Freedman et al. (2023a, Panel B of Tables 6 and 7).

**Table 4: RD Estimates of Effects of CCTC on Firm Employment and Payroll in California (Longitudinal Business Database, 2009-2019)**

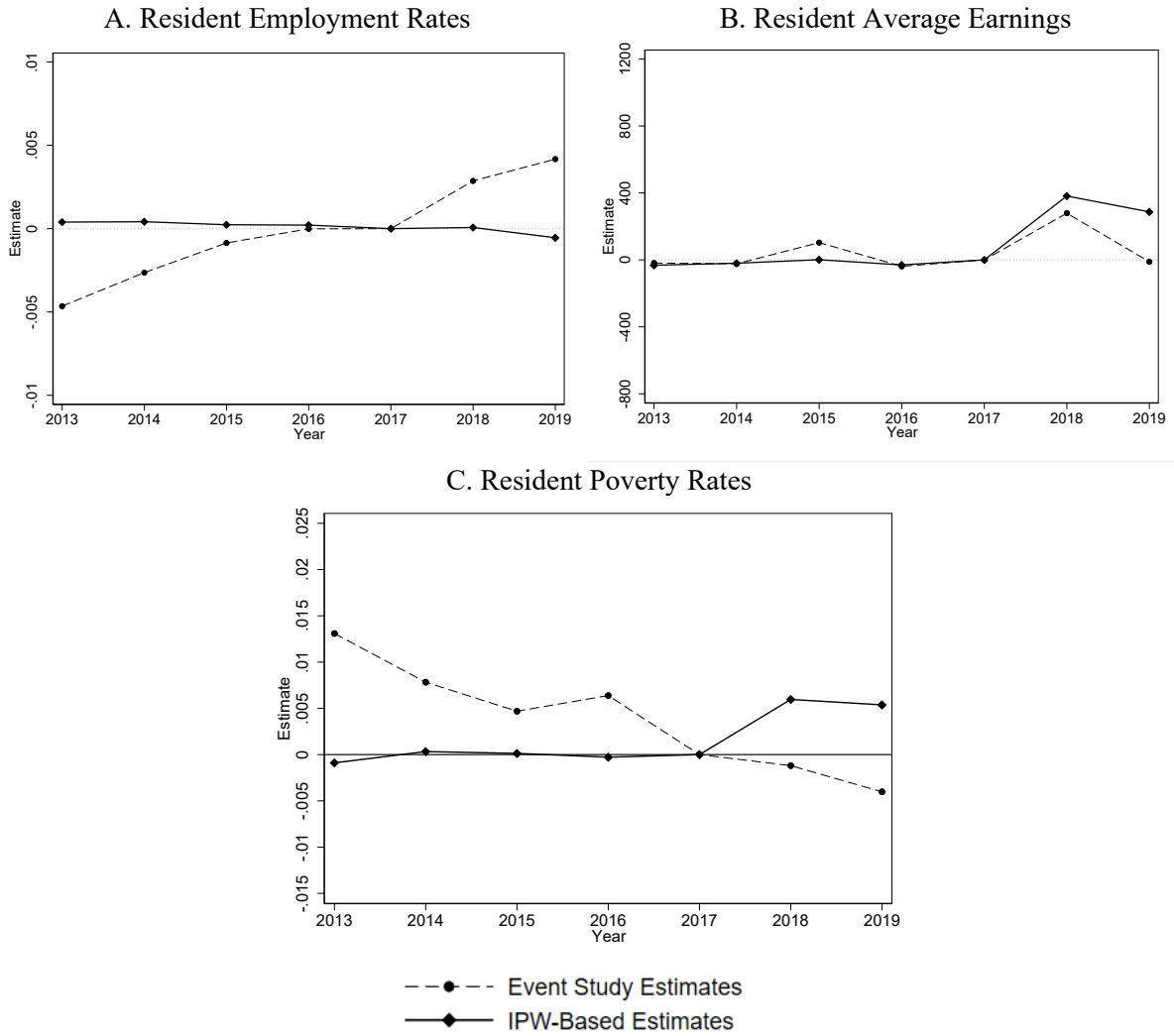
	Statewide	High-poverty/high-unemployment ZIP codes
Log employment in CA	0.26**	0.41*
	(0.13)	(.22)
Log payroll in CA	0.25*	0.34
	(0.13)	(0.24)
Control mean log CA employment	4.31	4.31
Control mean log CA payroll	8.34	8.29

Notes: Table reports regression discontinuity estimates of effects of receipt of CCTC credits on firm-level employment and total payroll. The estimates for each bar are from separate regressions. Estimates are approximate percentage changes (divided by 100). There are approximately 1,700 firms before different rules for estimation are imposed (confidentiality restrictions preclude reporting more detail). Each regression uses IMSE (Integrated Mean Square Error)-optimal bandwidths chosen separately on each side of the cutoff, and triangular kernel weights. All specifications include industry fixed effects, period fixed effects, and controls for baseline firm characteristics. Standard errors are heteroskedasticity robust. Two asterisks (\*\*) indicate  $p < 0.05$ , and one asterisk (\*) indicates  $p < 0.1$ .

Source: Hyman et al. (2023, Tables 3 and G.5).



**Figure 1. Event Study Estimates of Effects of Opportunity Zones with Alternative Weighting Schemes**



Source: Figure 3 (Freedman et al., 2023b).

Notes: Data derived from the 2013-2019 American Community Surveys. The panels show point estimates from event studies using as controls all eligible but not designated LICs (reproducing the estimates with tract and year fixed effects in Figure 2), as well as using as controls eligible tracts weighted based on the estimated propensity to be treated (the IPW approach).