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ABSTRACT

Should policymakers seek to increase jobs in particular local labor markets? Yes, but only if these policies are well targeted and designed. Encouraging job growth in distressed places can cause persistent gains in employment-to-population ratios. But our current place-based jobs policies, under which state and local governments provide long-term tax incentives to megacorporations, are poorly targeted and designed. Such incentives are as large in nondistressed areas as in distressed areas, and they are excessively costly. What reforms are needed? First, job growth policies should target distressed areas. Second, tax incentives should be focused on high-multiplier businesses, such as high-tech firms. Third, officials can more effectively promote local job creation by relying less on tax incentives and more on public services. These include customized business services, infrastructure, land development policies, local education, and job training. The federal government can use taxes and intergovernmental grants to discourage city or state officials from giving excessive state and local incentives to the largest firms. The federal government can also provide block grants to state and local governments to provide services that promote job growth in distressed places.

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Local labor markets in the United States have large and persistent disparities in job availability, caused by labor demand factors such as declines in manufacturing jobs. Lack of local jobs is correlated with a host of social ills, ranging from increased crime and substance abuse to poorer outcomes for the next generation.

One solution to a lack of local jobs is to encourage people to move elsewhere. But getting people to move is difficult. Even with sizable moving subsidies, not many people will move, so this solution at best helps only a few people. Furthermore, people's reluctance to move stems from strong ties to their home place, so moving people out has a high utility cost. Finally, encouraging out-migration from distressed places does little to reduce geographic disparity in employment rates. For every working-age person in Flint who moves elsewhere, the number of jobs in Flint goes down by at least one. That's because local labor-supply shocks affect local labor demand, since migrants bring with them demand for housing and other goods and services.

An alternative to bringing people to jobs is bringing jobs to people. We currently devote \$60 billion a year to policies that aim to increase jobs in some state, or in some local labor market. In this article, these policies are described as "place-based jobs policies." These policies include infrastructure programs and business services. However, over three-fourths of the resources devoted to such policies are business tax incentives provided by state and local governments. Since 1990, these incentives have tripled, and they may intensify in the near future: Wisconsin's recent incentive offer to Foxconn, for a new flatscreen manufacturing plant, was \$3 billion.

Do these place-based jobs policies make sense? To address that question, I analyze market failures, such as involuntary unemployment, which might cause local job growth to be inefficiently low. Place-based jobs policies can significantly increase local employment rates. By

giving residents extra job experience, such policies increase long-run employability. Increased local employment rates can yield earnings benefits that exceed costs, affect the income distribution progressively, and have significant spillover benefits in reducing crime and improving child development.

But this analysis of market failures also suggests that place-based jobs policies need two types of reforms:

1. **Targeting place-based jobs policies more on distressed places.** The benefits of more jobs are greater in areas with high unemployment. In distressed places, more jobs will boost employment rates and earnings more, and will do more to reduce the social ills of high unemployment. The current competition among states and local governments does not favor distressed places.
2. **Reallocating resources away from incentives to large firms and toward policies that are more cost effective.** Costs per job created can be reduced by targeting industries with greater local multipliers, and by reallocating incentive dollars toward business services, infrastructure, and worker skills.

These needed reforms to place-based jobs policies could be accomplished by state and local governments on their own. State and local governments will best pursue their constituents' interests by targeting distressed areas. State and local governments will save taxpayers' money if job growth policies have a lower cost per job created.

But let's get real: governors and mayors in all places, distressed and nondistressed, find it difficult to resist handing out large tax incentives to major corporations, ideally paid for by their political successors. Therefore, federal intervention should be considered, to increase geographic targeting and improve cost effectiveness. How can federal intervention avoid micromanaging

state and local tax policy and development strategies? Federal intervention should focus on key national interests. These national interests include limiting wasteful incentives that increase the market power of major corporations. The federal government should provide block grants to help distressed places, instead of assuming that it knows the one best policy. Finally, the federal government should encourage evaluation of place-based jobs policies, which have spillover benefits for many places.

The plan of this article is to first discuss the employment problems of distressed places and the difficulties of moving people out of distressed places. To set the stage for subsequent analysis, I then describe our current place-based jobs policies. The bulk of the article analyzes market failures that might justify place-based jobs policies. This analysis leads to suggested reforms for state and local governments, or for the federal government.

PLACE PROBLEMS

The jobs problems of places are shown in Table 1, which presents statistics for this article's definition of local labor markets: "commuting zones" (CZs).¹ The table shows statistics for the CZ distribution of the "prime-age employment rate"—that is, the employment-to-population ratio for 25- to 54-year-olds. Commuting zones at the 10th percentile of the population distribution have a prime-age employment rate of 74.4 percent, compared to 83.3 percent for the 90th percentile, a difference of 8.9 percentage points. This spatial difference is three times the recent national decline in the prime-age employment rate, 2.9 percentage points

¹ Commuting zones are groups of counties with enough commuting links for the group to be one local labor market. They are defined by USDA economists. The main advantage of CZs over metropolitan areas is that CZs include all U.S. counties.

from 2000 to 2017, which has been much discussed (Abraham and Kearney 2018). Spatial-employment-rate differences persist for decades (Amior and Manning 2018; Austin, Glaeser, and Summers 2018).

Place Problems: The Role of Manufacturing Specialization

Employment-rate problems tend to be more severe in manufacturing communities (Figure 1). These labor market problems in manufacturing communities are related to recent job losses in manufacturing.² From 2000 to 2016, manufacturing jobs declined by almost 30 percent. This manufacturing decline is related to trade (Campbell 2016) and to Chinese imports (Autor, Dorn, and Hanson 2013; Pierce and Schott 2017).³

However, only a portion of local employment-rate problems are associated with manufacturing. Going from the 10th to the 90th population percentile of the manufacturing location quotient is associated with a lowering of the employment rate by 1.4 percentage points.⁴ The variation from low to high employment-rate areas is 8.9 percentage points. Manufacturing only explains a small portion of the cross-CZ variation in employment rates.⁵

² A CZ's manufacturing-location quotient in 2000 predicts the 2000–2016 change in the prime-age employment rate, with a coefficient of -0.0238 ($se = 0.0041$). A CZ's manufacturing location quotient in 2000 predicts the 2000–2016 change in $\ln(\text{private jobs})$, with a coefficient of -0.125 (0.014). Both regressions use 2000 population weights.

³ This recent manufacturing job loss is not due to automation, as shown by Houseman (2018).

⁴ The 90th population percentile of the year 2000 CZ manufacturing LQ is 1.71; the 10th percentile is 0.43. This differential in LQ is multiplied by the -0.0112 coefficient from the regression of the prime-age employment rate in 2016 on the LQ, shown in Figure 1.

⁵ The adjusted R -squared in the regression explaining the 2016 prime-age employment rate in CZs by its manufacturing LQ is only 0.019.

Place Problems: Individual and Social Costs

Local labor market problems have many individual and social costs. Because nonemployed groups tend to be lower-income, these costs fall heavily on the disadvantaged. But the costs spread out to affect many people in a local labor market. The costs of local labor market distress include the following:

- Life satisfaction is adversely affected by unemployment by far more than would be expected based on the income loss (Blanchflower and Oswald 2004; Helliwell and Huang 2014).
- Job loss significantly reduces an individual's long-run earnings (Davis and von Wachter 2011; Jacobson, Lalonde, and Sullivan 1993).
- Negative local wage effects of Chinese imports are twice as great for the bottom third of wages (Chetverikov, Larsen, and Palmer 2016).
- Unemployment adversely affects individual mental health (Diette et al. 2018).
- Local job losses due to manufacturing decline or Chinese imports lead to increases in alcohol and drug use, and to opioid deaths (Autor, Dorn, and Hanson 2018; Charles, Hurst, and Schwartz, forthcoming; Krueger 2016; Pierce and Schott 2017).
- Higher unemployment or China shocks lead to increases in property crime (Chalfin and Raphael 2011; Feler and Senses 2017; Pierce and Schott 2017).
- Negative China trade shocks lead to increases in single-mother families (Autor, Dorn, and Hanson 2018).
- Lower parental income is associated with children doing worse in educational attainment and adult income (Bastian and Micheltore 2018; Duncan, Ziol-Guest, and Kalil 2010; Kalil, Duncan, and Ziol-Guest 2016; Stuart 2017).

- Declines in local employment rates cause fiscal problems, both because of increased welfare benefits such as disability (Charles, Hurst, and Schwartz, forthcoming) and because taxes track employment and service needs track population (Ladd 1994).
- An individual's life satisfaction is negatively affected by both that individual's own unemployment and the area's unemployment (Helliwell and Huang 2014).

In sum, lower local employment rates have large costs. Geographic disparities can be reduced either by moving people to jobs, or by moving jobs to people. I now turn to considering these alternative solutions.

MOVING PROBLEMS

If an area lacks jobs, why not just encourage people to move out?

One argument against a push for greater geographic mobility is that people are hard to move. As Adam Smith said, “A man is of sorts of luggage the most difficult to be transported” (*Wealth of Nations*, Book 1, Chapter 8). About 70 percent of Americans stay in the same state for most of their career (Molloy, Smith, and Wozniak 2011). About 55 percent spend most of their career in their childhood metropolitan area. For college-educated workers, 40 percent spend their career in their childhood metro area. The percentages that stay are almost as high in metro areas that are smaller or slower-growing.⁶

People are attached to places. Urban planners, sociologists, and others talk about a “sense of place.” The best economic analysis of a “sense of place” is by Roger Bolton (1992): “The

⁶ Metro-area statistics here from T. Bartik (2009a). From age 30 on, the percentage that stay in their childhood area is roughly constant.

sense of place is an intangible, location-specific asset; it is capital” (p. 193).⁷ The sense of place is an amenity created by the investment of time and resources by community members, and the return from this “place amenity” is enhanced well-being.

The value of a place is more than ties to family and friends. It is also the value of ties to local businesses and acquaintances. Workers/consumers have some loyalty to local businesses. Local businesses show some restraint in behavior around pricing, services, and job retention. Living in a familiar place economizes on decision-making costs. Long-term residents and businesses can agree to make mutual voluntary investments in local public goods. Familiarity with neighbors creates local social capital. Local social capital is both measured and strengthened by a higher density of local associations and nonprofits, and by higher engagement in voting and other civic activities. Local social capital is associated with more long-term residents (Rupasingha, Goetz, and Freshwater 2006). A sense of place may be threatened if local growth is either too little or too much, either of which increases gross migration.

Because of the value of place, economists’ estimates of moving costs are much higher than the financial costs of moving. Estimates of moving costs—the moving subsidy required for the median person to be indifferent about the choice between their current location and an otherwise similar location—are based on migration responses to differences across location in real incomes. Moving-cost estimates often exceed 100 percent of annual income.⁸ Suppose we

⁷ My discussion reflects my spin on Bolton’s ideas.

⁸ Studies with moving costs exceeding 100 percent include Balgova (2018); A. Bartik (2018); Bartik, Butler, and Liu (1992); Bryan and Morten (2018); Dahl and Sorenson (2010); Davies, Greenwood, and Li (2001); Dunn (1979); Gregory (2017); Kennan and Walker (2011); Kosar, Ransom, and Van der Klaauw (2019); and Nakamura, Sigurdsson, and Steinsson. (2018). Yoon’s (2017) moving costs exceed income for non-college-educated workers, and probably for college-educated workers. Bayer and Juessen (2012) estimate moving costs of two-thirds of income. Notowidigdo (2013) estimates moving costs of 17 percent of income for a migrant at the 90th percentile of likelihood of moving over 10 years. Note that the definition of alternative location varies across studies, from the next-best alternative to a similar alternative to a random alternative. However, regardless of definition, moving costs are high.

offer sizable subsidies for moving out of a distressed area—for example, a subsidy of \$10,000. Such subsidies increase out-migration rates by no more than 2 percentage points.⁹

Even persistent local job loss has small out-migration effects. Autor, Dorn, and Hanson (2013, pp. 2141–2142) “find no robust evidence that [Chinese trade–induced] shocks to local manufacturing lead to substantial changes in population.” Going from the 25th to the 75th percentile of CZ exposure to trade with China increases outmigration rates over a 10- to 14-year period by less than 1 percentage point, despite substantially lowering earnings (A. Bartik 2018).

Encouraging out-migration from distressed areas has another problem: it does little to re-equilibrate labor demand and supply in the distressed area. Migration shocks to local labor supply induce shocks to local labor demand of similar or larger size (Table 2). For every X working-age people that leave Flint, the jobs in Flint will go down by *at least* X.¹⁰

Why does migration affect local jobs? Migrants bring assets and transfer income, and both these things affect local demand. Migrants demand housing, affecting construction. Migrants may be entrepreneurial, affecting business start-ups. Migration affects property values, which affect the local consumption of property owners (Howard 2018).

Out-migration imposes social costs on both donor and receiver communities. Out-migration disrupts the sense of place in the community the migrants leave, and in the community receiving the migrants.

⁹ Kennan and Walker (2011) find that a \$10,000 moving subsidy would increase one-year out-migration rates from 2.9 percent to 4.9 percent. A. Bartik (2018) finds that a \$10,000 moving subsidy would increase 10- to 14-year migration rates to a better local labor market from 4 percent to 6 percent. Notowidigdo’s (2013) figures imply similar effects of migration subsidies.

¹⁰ Amior and Manning’s (2018) results vary from the consensus. Beaudry, Green, and Sand (2018) argue that the lower estimate by Amior and Manning is because they do not control for wage changes.

A policy analysis of subsidizing out-migration from distressed communities should include all benefits and costs. Perhaps the out-migrant will get higher earnings. But if out-migrants choose not to move without the subsidy, it may be because the value of their sense of place in their community (a value which would be lost) exceeds this earnings boost.¹¹ If a person's unemployment imposes costs on their family, perhaps the family benefits of the move outweigh the individual's loss. But moving puts stress on children, which reduces educational achievement and health and increases crime (Coley and Kull 2016; Gillespie 2017; Oishi 2010; Oishi and Schimmack 2010). Migration reduces the sense of place in both sending and receiving communities. In sum: subsidizing out-migration from distressed communities creates as many problems as it solves.

Therefore, the problems caused by low employment rates in local labor markets cannot be substantially solved by bringing people to jobs. This justifies considering the alternative of bringing jobs to people, or place-based jobs policy, which I turn to next.

CURRENT PLACE-BASED JOBS POLICIES IN THE UNITED STATES

To begin my analysis of place-based jobs policies, I describe current policies. This description provides a context for possible reforms.

Local job growth is potentially affected by any government action. To make the discussion manageable, I focus on government interventions that are explicitly aimed at increasing overall job growth in a state, or in some local labor market. When run by states or

¹¹ This might be untrue if potential migrants have bad information on jobs elsewhere. Better information affects out-migration from distressed areas, but only modestly as a percentage of the distressed area's population (Balgova 2018; Wilson 2018). For example, Balgova's simulation suggests that better access to jobs in different regions would increase cross-regional migration rates of less-educated individuals from 5 to 8 percent.

local areas, these place-based local jobs policies are called state or local economic development policies. These policies often provide tax breaks or cash payments that are awarded in a discretionary fashion to individual businesses. But state and local economic development also includes services that are customized to individual businesses. Customized job training provides job training for a specific firm's skill needs. Manufacturing extension services and small-business development centers provide advice to individual businesses on improving their profitability. State and local economic development policies also include infrastructure investments, land development practices, and skills development programs, insofar as these policies aim to improve an area's job growth.

Based on this focus, Table 3 shows current place-based jobs policies in the United States. By far the largest place-based jobs policies are state and local business financial incentives, provided in the form of tax breaks or cash. Such incentives are \$46.3 billion annually,¹² almost four-fifths of the annual total for all place-based jobs policies of \$59.6 billion.¹³ I now focus on describing how these incentives are designed and distributed.¹⁴

The size of incentives. Annual incentives of \$46.3 billion could be considered both large and small. Incentives are only slightly less than the \$52 billion in state corporate income taxes (U.S. Census Bureau 2018a). But \$46 billion is less than 3 percent of state and local own-source tax revenue. Typical incentives offset 30 percent of a business's state and local taxes¹⁵ But

¹² In 2018 dollars but based on calculations for 2015.

¹³ Some incentive estimates are larger: \$72 billion (Thomas 2011); \$99 billion (Story 2012). (These calculations adjust from these studies' base years to 2017 using nominal GDP growth, and then update to 2018 dollars using the CPI.) But Thomas includes tax breaks that are not aimed at promoting overall job growth. Story includes exemptions of business inputs from sales taxes, generally regarded as a desirable sales-tax feature.

¹⁴ Statistics in the rest of this section come from T. Bartik (2017). Using a hypothetical firm model, this database calculates incentives paid over 20 years for a new facility in each of 45 industries and 33 states, for a facility started up in years 1990–2015. The 33 states make up 92 percent of GDP; the 45 industries make up 91 percent of U.S. compensation.

¹⁵ These statistics are for businesses selling outside the state—the “export-base” sector.

incentives equal only 1.4 percent of the business's value-added, or 3.1 percent of the business's wages.

Incentives types. Although most incentives are provided by state governments, 30 percent come from local governments through property tax abatements. The largest incentives come from job creation tax credits, which make up 41 percent of total incentives.¹⁶ These credits are some percentage of the increased wage bill at the new or expanded business. Many job creation tax credits are refundable—that is, they exceed the firm's state corporate-income-tax liabilities. For example, some states allow a new or expanding firm to keep the workers' state income-tax withholdings associated with the new jobs.

Incentives and firm size. Large firms' share of incentives is disproportionate. Firms with over 100 employees get more than 90 percent of incentives (Chatterji 2018; LeRoy et al. 2015); such firms account for 66 percent of private jobs.¹⁷ Incentives particularly go to the very largest firms. For example, Wisconsin recently provided Foxconn with incentives, for a new flatscreen manufacturing plant, of over \$270 million per year for seven years, and over \$120 million per year for the next seven years.¹⁸ Prior to the Foxconn deal, Wisconsin's annual incentives totaled \$800 million, so Foxconn will increase Wisconsin's incentives by one-third.

The time structure of incentives. Many incentives are long term. As shown in Figure 2, typical incentives are front-loaded in a new facility's first year, but they also persist at a high level for 10 years.

¹⁶ More-minor roles are played by investment tax credits (15 percent) and research and development (R&D) tax credits (14 percent).

¹⁷ Longitudinal Business Database for 2016; U.S. Census Bureau (2018b).

¹⁸ My analysis based on Wisconsin Legislative Fiscal Bureau (2017). These calculations for Foxconn and Wisconsin are in nominal dollars.

Targeting of incentives across industries. Incentives are targeted at “export-base industries”—industries that sell their goods and services outside the state. In 2015, in the average state, the present value of incentives, as a percentage of the present value of value-added, averaged 1.42 percent for export-base industries, versus 0.16 percent for non-export-base industries.

Within export-base industries, incentives are not tightly targeted.¹⁹ For the average state, an increase of 10 percent in an industry’s wage rates only increases incentives as a percentage of value-added by 0.04 percentage points. This only increases incentives from their average of 1.42 percent of value-added to 1.46 percent. High-tech industries receive similar incentives to non-high-tech industries.²⁰

Targeting of incentives across geographic areas. Incentives are not tightly tied to whether a state is short of jobs (Peters and Fisher 2004). Consider the correlation of incentives with a state’s prime-age employment rate. States with a lower prime-age employment rate tend to have higher incentives (Figure 3). However, the relationship is not strong or statistically significant. A state that has a 10-percentage-point lower prime-age employment-rate ratio would be predicted to have incentives that are higher by only 0.40 percent of value-added, or only 28 percent of the mean incentive rate of 1.42 percent—a small increase for a large change in job availability.²¹ Large differences in incentives occur across nearby states, for no clear economic

¹⁹ This postpones the question of what the targeting should be. As shown later, some industries offer greater benefits—for example, high-tech industries may have higher local job multipliers.

²⁰ This paragraph is based on regressions of an industry’s incentives as a percent of value-added, averaged across states, on the characteristics of 31 export-base industries (Table 7, T. Bartik 2017). High-tech industries are those with high ratios of R&D to value-added. Of these 31 industries, by far the most high-tech are chemicals manufacturing and computer manufacturing. Average incentives for chemicals and computers are 1.41 percent and 1.74 percent, ranking them 24th and 10th among the 31 industries.

²¹ This is based on a population-weighted regression whose dependent variable is the 2015 export-base incentive average for each of the 33 states, with incentives as a proportion of value-added. The coefficient on the prime-age employment rate is -0.0401 (standard error = 0.0629).

reason. Compared to Illinois, Indiana's incentives are twice as high, even though the two states have similar employment rates.²² Compared to North Carolina, South Carolina's incentives are twice as high, even though the two states have similar employment rates.²³

Incentive trends over time. Incentives tripled from 1990 to 2015 (Figure 4). Most of this increase occurred by 2001.²⁴ From 2001 to 2015, incentives were stable on average. Some high-incentive states, such as New York and Michigan, made cuts. Some low-incentive states, such as Wisconsin, made expansions.

Incentive competition is intensifying. The Foxconn offer, as a percentage of the facility's value-added, is more than 10 times the national average, and 10 times Wisconsin's typical incentives.²⁵

In sum, our current place-based jobs policies emphasize long-term tax incentives to large corporations, without much targeting across industries or geographic areas. To see what reforms might be desired, we now turn to some economic analysis.

PLACE-BASED JOBS POLICIES AND MARKET FAILURES: PART 1, INVOLUNTARY UNEMPLOYMENT

In the next three sections, the biggest chunk of this article, I will be addressing the role that place-based jobs policies can play in overcoming three different types of market failures that

²² As of 2015, Indiana's incentives averaged 2.68 percent of value-added for export-base industries; Illinois's were 1.35 percent. The prime-age employment rate was 0.789 in Indiana, 0.785 in Illinois.

²³ South Carolina had average incentives of 2.39 percent, versus 0.93 percent in North Carolina. The prime-age employment rates were 0.767 in South Carolina and 0.758 in North Carolina.

²⁴ The jump from 2000 to 2001 was due to New York's incentives.

²⁵ The Foxconn incentives have a present value of 14.8 percent of value-added over 20 years.

might cause local job growth to be inefficiently low.²⁶ An understanding of these market failures gives clues to how to reform place-based jobs policies to increase benefits relative to costs.

The market failures discussed in these three sections are as follows:

- 1) involuntary unemployment
- 2) agglomeration economies
- 3) problems in markets for various business inputs

The last category analyzes how local job growth is impeded by inefficiencies in markets for business inputs. The first two categories, involuntary unemployment and agglomeration economies, imply that local job growth may provide benefits external to the individual firm. These external benefits include two: 1) labor market benefits from reduced involuntary unemployment and 2) productivity spillover benefits on other firms due to agglomeration economies. Because of external benefits, firms on their own may underprovide jobs.

An important issue is whether external benefits are asymmetric across places. Such asymmetry is policy-relevant for three reasons:

- 1) Identifying where jobs have more benefits is useful advice for local policymakers.
- 2) Job gains in one place are mostly offset by job losses elsewhere. This is obviously true for a new plant, which could have located elsewhere. But it is also true for local job growth due to start-ups or expansions. Greater national market share for one place's firms means losses of market share of firms elsewhere. Only if external benefits from jobs are asymmetric across places can redistributing jobs across places have net national gains.

²⁶ Place-related market failures are discussed by Austin, Glaeser, and Summers (2018); T. Bartik (1990); Kline and Moretti (2014); and Glaeser and Gottlieb (2008).

- 3) Asymmetric benefits may justify federal intervention. If places with greater external benefits don't do enough to take jobs away from other places, perhaps the federal government should encourage further job redistribution.

Involuntary Unemployment

Involuntary unemployment makes it likely that benefits from jobs are higher in distressed places. The social benefits from a higher employment rate are these:

- The private benefits to individuals who otherwise would not be employed: higher earnings minus the opportunity costs of their non-work time.²⁷
- Benefits external to the otherwise nonemployed: lower crime, benefits for family members, local fiscal benefits.

Even in nondistressed areas, the private benefits to the otherwise nonemployed are at least 40 percent of earnings.²⁸ In distressed places, both the benefits to those who otherwise would not be employed, and the external social benefits, are likely higher.

In distressed areas, an increase in local jobs boosts earnings more, by increasing local employment rates more. Based on T. Bartik (2015), in an initially low-unemployment area (4 percent unemployment rate), a 1 percent jobs boost will increase the local employment rate after 10 years by 0.20 percent (Figure 5). But in an initially high-unemployment area (7.1 percent unemployment), a similar-sized jobs boost will increase the employment rate after 10 years by 0.34 percent. The employment rate effect in a high-unemployment area is more than two-thirds

²⁷ As discussed in T. Bartik (2012), social benefits of jobs exceed the earnings gains for those hired for the new jobs, minus their reservation wages. New jobs lead to a vacancy chain, terminated by increases in the local employment rate or population. Social benefits can be measured by summing gains over the chain, or by the earnings gain minus the value of forgone non-work time for the otherwise nonemployed.

²⁸ Mas and Pallais (2017). Haveman and Weimer (2015) estimate private benefits from new jobs of 73 percent of wages.

greater than in the low-unemployment area ($0.34 / 0.20 = 1.70$). Consequently, local earnings per capita will also go up by over two-thirds more.

Similar results are found in other studies. Austin, Glaeser, and Summers (2018) find that the impact of local job growth on prime-age male employment rates is 61 percent greater in areas with high nonemployment compared to areas with low nonemployment.²⁹ T. Bartik (2009b) finds that job growth increased employment rates by 98 percent more in areas with high nonemployment.³⁰

That larger employment rate effects are found in distressed areas implies that these areas have lower private opportunity costs of labor. The greater local employment rate response suggests that local nonemployed workers are more available for work. This makes sense, because jobs were initially harder to find in distressed areas. In nondistressed areas, an individual with a low opportunity cost of their time would have likely already found a job.

Therefore, job growth in more distressed areas will have greater private benefits from local workers getting jobs for two reasons: 1) more local workers will obtain jobs in distressed areas; 2) the local workers who get jobs will value the jobs more relative to their opportunity costs.

Furthermore, social benefits of job growth are also likely to be greater in distressed areas. Larger effects on local employment rates are likely to lead to greater crime reductions and greater improvements in outcomes for children. Fiscal benefits are also likely to be higher in distressed areas. In part, this is because state and local tax revenue tends to track job growth,

²⁹ Based on their Table 4, column 2. I calculate, using the 2016 ACS, what their coefficients imply at the population-weighted 10th and 90th percentiles of the CZ prime-age male employment rate. These percentiles are 80.0 percent and 89.5 percent.

³⁰ Based on difference between top and bottom quintile of metro nonemployment rates, and linear interaction specification in Table 9. Differential is average across all lag lengths.

whereas public service needs will tend to track population. But in addition, distressed areas are more likely to have excess capacity in infrastructure, which reduces needed spending for new infrastructure.

Is Everything Capitalized in the Long Run?

Even if local job growth has labor market benefits, are they large enough to matter, relative to growth's other effects? Economists have been concerned that, in the long run, job growth's benefits will be largely capitalized into land values (Glaeser and Gottlieb 2008; Marston 1985; Winnick 1966). Higher employment rates and wages attract migrants, which will raise property values and push employment rates and real wages toward their prior equilibrium. If capitalization were to dominate, local job growth would have regressive effects, as property ownership is concentrated in upper-income groups. But capitalization does not dominate, because local job growth has sufficiently large benefits for local labor market outcomes, both in the short run and, more importantly, in the long run.

An increase in local jobs has large short-run effects on employment rates: a short-run elasticity of about 0.6.³¹ More surprising is that a one-time boost to the level of local jobs has large effects on local employment rates after 10 or more years: the consensus is a long-run elasticity of between 0.2 and 0.3 (Table 4).³²

These long-run employment-rate effects of a local job shock are qualitatively consistent with other research. More severe local recessions depress local employment rates for at least 25

³¹ T. Bartik (1993, 2015) provides reviews. For the 18 U.S. studies in these reviews, the short-run elasticity of the local employment rate to a local job shock has a median of 0.60, a mean of 0.59, and a standard deviation of 0.17. The middle 14 of the estimates range from 0.48 to 0.70.

³² An exception is Blanchard and Katz (1992). But their finding of zero long-run employment-rate effects is not robust to alternative estimation approaches (T. Bartik 1993, 2015; Rowthorn and Glyn 2006). Amior and Manning (2018) argue that because data limitations forced Blanchard and Katz to include only two lags in all variables, long-run responses may be biased.

years (Greenstone and Looney 2010) and real earnings per capita for at least 20 years (Stuart 2017). In areas where the government built a World War II manufacturing plant, manufacturing wages are higher even 50 years later (Garin 2018).

Long-run labor force participation-rate effects occurred because of a pioneering incentive program, Mississippi’s “Balance Agriculture with Industry” program, begun in 1936 (Freedman 2017). The BAWI program attracted northern manufacturing plants, mainly textile plants with a female workforce, by offering incentives of free land and buildings and property tax breaks. BAWI increased female labor force participation rates in the affected counties for at least 24 years, until 1960. BAWI may also have increased male labor force participation. Effects persisted after most of the original plants had closed.

What can explain these long-run effects? Human capital. In the short run, local job growth increases residents’ employment rates. This job experience improves their job skills, reduces crime and substance abuse, and increases self-confidence. Greater employment rates change social norms about work.³³ Even after migration has fully adjusted, residents’ higher human capital allows higher employment rates.

Persistent local labor market effects are consistent with research on how labor demand shocks affect individuals. Worker displacement from jobs persistently lowers earnings (Davis and von Wachter 2011; Jacobson, Lalonde, and Sullivan 1993). Young workers entering the labor market during a recession suffer a long-run earnings penalty (Kahn 2010; Oreopoulos, von Wachter, and Heisz 2012; Schwandt and von Wachter 2018). Locally severe recessions lower residents’ employment rates even if the individual moves elsewhere (Yagan 2017).

³³ Freedman (2017) argues that BAWI changed social norms about women working.

But Do Employment Rate Effects Outweigh Capitalization's Regressive Effects?

Using plausible empirical magnitudes, a demand shock to the level of local jobs affects the local income distribution progressively. The elasticity of housing prices with respect to a local job shock is 0.4–0.5 (T. Bartik 1991).³⁴ But this means a shock to the local job level results in only a one-time gain for property owners. In contrast, a local job shock increases local employment rates for many years—an elasticity of 0.6 in the short run, 0.2 to 0.3 in the long run. Real wage rates also go up.³⁵ Under plausible discount rates, the present value of these continuing increases in local per capita earnings will exceed the one-time property-value gain by more than three to one (T. Bartik 1994, 2005, 2018a).³⁶

Real earnings effects of local job growth are modestly progressive (T. Bartik 1994). Higher employment rates help those otherwise not employed, who tend to have lower incomes.

Because earnings effects dominate property-value effects, and earnings effects are progressive, the overall effects of local job growth are progressive (Table 5). Progressive impacts are modest. Percentage effects on the lowest-income quintile are 2.5 times percentage effects on the highest-income quintile. But because the highest-income quintile has 10 times the average income of the lowest-income quintile, the dollar effects of local job growth on incomes are higher for higher-income groups.

As a result, how we finance local job growth makes a big difference. If the financing is accomplished by cutting highly progressive public spending, such as welfare (T. Bartik 1994) or public schools (T. Bartik 2018a), the net impact is likely to be regressive.

³⁴ As shown in T. Bartik (2018a), this is consistent with Saiz (2010).

³⁵ T. Bartik (2015) reviews the research on wage effects and provides new estimates.

³⁶ This three-to-one ratio depends on many parameters, so it is hard to get good intuition. In T. Bartik (2018a), locally owned property is 3.5 times earnings, and the property-value elasticity is 0.45, so the property-value effect is equivalent to a one-year-only elasticity of earnings of 1.6. If the earnings elasticity starts at 0.6 and declines to 0.3, and real wages also increase, it is unsurprising that labor-market benefits exceed property-value effects.

The progressivity of local job growth may vary with policy. If a firm receiving incentives hires more of the local nonemployed, the employment-rate effect of the new jobs will be greater. A better local workforce system increases hiring of the local nonemployed (T. Bartik 2018a).³⁷ Capitalization is greater in local areas with more restrictions on housing supply (Saiz 2010).

PLACE-RELATED MARKET FAILURES, PART II: AGGLOMERATION ECONOMIES

External benefits of local job growth also occur because of agglomeration economies.³⁸ Agglomeration economies are business productivity gains associated with city size or industry clustering. The size of a city or industry cluster boosts productivity because of “thick market externalities” or human capital spillovers. A larger scale of a city or industry cluster allows for better matching with more specialized suppliers and workers, and for more knowledge in workers and firms to diffuse among local firms.

Because of agglomeration economies, job growth in one firm may have external benefits for other local firms. These external benefits may be greater in certain industries—e.g., high-tech. However, current research has not reached any consensus that such external benefits are asymmetric across places. Will one more high-tech job produce greater agglomeration economies in Silicon Valley than in Detroit? We don’t know.

But agglomeration economies are relevant to place-based policies, for two reasons. First, agglomeration economies help explain why place-based policies have persistent effects. Business

³⁷ The match of the jobs created with local skills may also matter, but there is little empirical evidence of this. Persky, Felsenstein, and Carlson (2004) present some simulations.

³⁸ Agglomeration research is reviewed by Duranton and Puga (2004). Clusters are discussed by Donahue, Parilla, and McDearman (2018).

investments depreciate over time. Yet area job shocks have persistent effects on the area's job level (Blanchard and Katz 1992) or the area's job growth (Amior and Manning 2018). This persistence is best explained by agglomeration: job growth in an area's size or industry clusters creates persistent local productivity advantages.

Second, agglomeration may lead to higher local job multipliers in some industries. Local job multipliers of one firm's job growth are usually explained by the firm's purchases from local suppliers, and by the workers' purchases from local retailers. But if a firm's job growth has productivity benefits for other local firms, such benefits may spur local job growth. High-tech industries may have multipliers that are 60 to 100 percent higher than typical local multipliers—as high as 6 in one study (Moretti 2010).³⁹ Such a high multiplier implies an agglomeration economy spillover. Place-based jobs policies can be more cost effective if they target high-job-multiplier firms.⁴⁰

PLACE-RELEVANT MARKET FAILURES, PART III: PUBLIC SERVICES AND REGULATION AFFECTING BUSINESS INPUTS

Place-based jobs policies can be more cost effective by being cognizant of market failures affecting business inputs. Business input costs may be affected by local public services and regulations. These public services and regulations have some public costs—e.g., the costs of delivering the services, or the higher consumer prices due to the regulations. Suppose that per dollar of these public costs, we can reduce business input costs by more than a dollar. Then these

³⁹ More recent work by Bartik and Sotherland (2019) does not find high-tech multipliers to be quite so high, but does find that high-tech multipliers are higher by two-thirds than typical multipliers.

⁴⁰ We would like to know if high-tech multipliers are not only high, but higher in places with more high-tech. Bartik and Sotherland (2019) find evidence that larger high-tech multipliers mainly occur in local areas whose initial high-tech concentration is above-average. There are some threshold effects – the high-tech multiplier is not much higher in Silicon Valley than in Denver.

public services and regulations will be more cost effective, in promoting local job growth, than tax incentives and other cash incentives. Providing cash to a business through tax incentives at best lowers business costs by one dollar per one dollar of government costs.

Local policies affecting business inputs include customized business services, infrastructure, land development, and investments in worker skills. These policies may reduce business costs by more than their public costs because of market failures, which inhibit the efficiency with which these business inputs are privately provided.

Customized Business Services

Local business costs can be reduced by utilizing customized business services to small businesses. Customized business services include manufacturing extension services for small manufacturers, customized job training provided by community colleges, small-business development centers, and business incubators providing space, networking, and advice.

Consider one example of such services, manufacturing extension services. With funding from the federal government, state and local governments, and some private fees, we have a network of manufacturing extension services across the United States. These extension services provide advice to smaller manufacturers on adopting new technology, finding new markets, or on anything else affecting profitability. Sometimes the advice, particularly if it is short-term, is directly provided for free by the extension office. Other times the advice is provided on a longer-term basis at a fee, or by a network of high-quality advisors screened and recommended by the extension office. Some state extension services have links to local universities and community colleges and will provide referrals and some subsidies for manufacturers to receive consulting services from faculty.

Customized business services can be rationalized by several market failures. These services provide higher-quality information. The quality of information is hard to evaluate, and the marginal costs of providing information are low. Public agencies can provide higher-quality information or certify the quality of private or public consultants. Many small firms lack adequate information, and these firms may also find it difficult to finance such services because of imperfect capital markets. Customized job training includes firm-specific training, which cannot be easily separated from general training, and which a firm may underinvest in if it fears worker exit. Such fears may be more acute for small firms. Smaller firms may also lack the scale to efficiently run training.

Customized business services have favorable research. Quasi-experimental studies suggest productivity benefits for firms of at least five times the public costs for both manufacturing extension (Jarmin 1999) and customized job training (Holzer et al. 1993). The manufacturing extension evidence compares similar firms whose likelihood of receiving services varied with proximity to the extension office. The customized training evidence compares similar manufacturers that applied at various times for a program that awarded grants on a first-come, first-serve basis.

Public Infrastructure

Public infrastructure is publicly provided or regulated because of its large external effects. In some cases, infrastructure can be a cost-effective way of promoting jobs and income growth in depressed regions.

The Tennessee Valley Authority (TVA) emphasized infrastructure such as dams, highways, canals, and electrification. In research that compares the TVA region with similar

regions unsuccessfully proposed for similar assistance, TVA is found to boost the region's manufacturing jobs by over 250,000 (Kline and Moretti 2013).

The Appalachian Regional Commission (ARC) focused two-thirds of its funding on highways. ARC highways had cumulative effects of increasing local jobs by 5.2 percent and increasing per capita incomes by 1.3 percent (Jaworski and Kitchens 2016). The present value of ARC highway investment is \$87.2 billion, and the 1.3 percent boost in annual incomes is \$13.7 billion.⁴¹

Land Development

Land development in the United States is regulated by zoning, building codes, and tort litigation. A market-failure rationale for such regulation is that land usage has externalities for neighbors.

Providing land that is appropriately zoned and (if a brownfield) environmentally remediated is widely viewed as having major effects on local job growth. This view is supported by research. Greater availability of industrially zoned land affects development (Chapple 2014). Some case-study evidence suggests that cleaning up “brownfields”—older industrial sites with environmental contamination—may be a cost-effective way of creating jobs, with a one-time cost per job created of \$14,000 (Paull 2008).⁴²

Local economic developers believe making more land available is an effective development strategy. Promoting business development through “industrial parks” is a regular part of the local economic developer's tool kit.

⁴¹ Dollars figures are in 2018 dollars.

⁴² In 2018 dollars.

Job Skills

Human capital development services, from child care to pre-K to K–12 to colleges to training, have involved much public subsidy. Market-failure rationales for public involvement include difficulties in having individuals finance such services, and external social benefits.

Skills have sizable external benefits for local area development. If more residents get a college education, this not only increases the wages of those who get the education, but it also has spillover effects on increasing overall area wages; the ratio of the spillover to the direct effect is 0.9 (Moretti 2004). An area's growth is positively correlated with the area's percentage of college graduates (Glaeser and Saiz 2004).

Some human capital investments have high returns—high-quality preschool (Heckman et al. 2010; Yoshikawa et al. 2013), K–12 spending for school districts with many disadvantaged students (Jackson, Johnson, and Persico 2016), and demand-oriented job training programs (Elliott and Roder 2017). Many who receive human capital investments will stay in the same area, and their skills will have local spillovers. Simulations suggest that human capital investments can have local benefit/cost ratios from two-to-one to eight-to-one (T. Bartik 2018b).

IMPROVING PLACE-BASED JOBS POLICY

Based on this market-failure analysis, what would be an ideal place-based jobs policy? Here I list six desired features.

- 1. Place-based jobs policies should be more geographically targeted on distressed places.** The earnings and other benefits of more jobs are at least 60 percent greater in distressed places than in booming places. But our current incentive system does not significantly favor distressed places.

2. **Incentives should be made more cost-effective by reducing low multiplier incentives, long-term incentives, and incentives to larger firms.** Targeting high-multiplier firms—for example firms that pay higher wages, as well as high-tech firms—will reduce the ratio of incentive costs to total jobs created. More front-loaded incentives will tip more location decisions per dollar than long-term incentives, because executives decide on investments using high discount rates (Poterba and Summers 1995). Incentives should not disproportionately favor large firms, especially given the renewed concern in economics over excess market power in product markets and labor markets (Azar, Marinescu, and Steinbaum et al. 2017; Benmelech, Bergman, and Kim 2018; De Loecker and Eeckhout 2017; Gutiérrez and Philippon 2017).
3. **Place-based jobs policies should put more emphasis on enhancing business inputs.** Customized business services, infrastructure, land development services, and human capital development are more cost effective than incentives as ways to increase local jobs and wages.
4. **Place-based policies should be a coordinated package of policies, attuned to local conditions.** Higher local benefits occur if we simultaneously boost both labor demand and the quality of labor supply. If the local nonemployed are more skilled, job growth increases employment rates more. If more jobs are available, it is easier to design effective training programs. Business inputs are complementary—boosting infrastructure helps growth more if the local economy also has customized business services.

What is most needed in a local economy depends on local conditions. One area may need more infrastructure; another, training; and still another, better land development processes.

Coordinated economic development programs are supported by research. The more comprehensive federal Empowerment Zone program proved more effective than narrower state enterprise zones.⁴³ Both enterprise zones and empowerment zones used business tax breaks, but each empowerment zone also received a \$100 million block grant.⁴⁴ Block grants were flexibly used for such purposes as business assistance and workforce development. Empowerment zones may have been more successful because a combination of business tax breaks and services is more effective than tax breaks alone (T. Bartik 2010; Neumark and Simpson 2015). Also, the TVA and ARC may have been more effective because they combined infrastructure with human services.

- 5. Place-based jobs policies should be better evaluated.**⁴⁵ Random assignment of assistance to firms or areas is hard to sell. But better evaluation is attainable by awarding assistance using quantifiable selection criteria; this method allows for regression discontinuity techniques. Small-business services can be better evaluated if some quantitative scoring system is used to decide which firms receive services. This allows for a regression discontinuity comparison of firms that just made or missed the cutoff for receiving services. Area strategies can be better evaluated if higher units of

⁴³ Enterprise zone evidence is reviewed in T. Bartik (2010). Empowerment zones were evaluated by Busso, Gregory, and Kline (2013).

⁴⁴ In late 1990s dollars. The equivalent in 2018 dollars is around \$150 million.

⁴⁵ Some improvements have been made in transparency and evaluation for incentives (Pew Charitable Trusts 2017).

government select distressed areas using a quantitative cutoff. Areas that just made or missed the cutoff can be compared.

- 6. An appropriate scale of place-based jobs policies would have somewhat lower annual costs than current policies.** An appropriate annual scale depends upon the number of jobs in distressed areas that might be needed, the likely cost per job, and the time span over which policymakers would seek to reallocate jobs. The needed number of jobs is probably in the millions—say, six million, to give one figure.⁴⁶ A plausible cost per local job created is \$60,000.⁴⁷ The total cost to reallocate 6 million jobs to distressed areas would then be \$360 billion. If pursued over a 10-year period, the cost would be \$36 billion annually. If pursued over a 20-year period, the cost would be \$18 billion annually. Either level is below current place-based jobs policy annual costs of \$60 billion.

IS FEDERAL INTERVENTION NEEDED?

This “ideal” place-based jobs program is feasible without federal intervention. Distressed and nondistressed states, or local labor markets, should find it in their own interests to pursue

⁴⁶If we take all CZs in the bottom quintile of CZ employment rates, and ask how many jobs would be needed to bring their employment rates to the CZ median, assuming an elasticity of 0.25 for the employment rate, the needed job creation is six million jobs.

⁴⁷TVA’s costs per job created are \$77,000, based on Kline and Moretti (2013). Empowerment Zones have a cost per job of \$18,000, based on Busso, Gregory, and Kline (2013). My model suggests that if customized job training or manufacturing extension has a cost effectiveness of five times a cash incentive, their cost per job created will be \$41,000 (T. Bartik 2018a). Evidence from firm surveys for manufacturing extension and customized job training finds a cost per job of under \$15,000 (Ehlen 2001; Hollenbeck 2008). All calculations are in 2018 dollars and use appropriate multipliers based on each study’s methodology (e.g., whether the study estimates only export-base industry effects, or whether it estimates implicitly are net effects after cost feedbacks).

different economic development strategies; distressed places should be more aggressive.⁴⁸ All places can improve cost effectiveness by better targeting incentives and diverting more resources to enhancing business inputs.

But the ideal isn't happening. The political temptation is strong, in both distressed and nondistressed places, to devote lots of money to long-term incentives given to large firms. Should the federal government intervene?

A possible federal intervention would be to restrain business tax incentives. Incentives could be subjected to extra taxes (Burstein and Rolnick 1994) or penalized by reducing federal grants (Chatterji 2018; LeRoy 2012).

One model for federal intervention is the European Union (LeRoy and Thomas 2019; Sinnavee 2007, Thomas 2007). The EU regards any tax break or subsidy for a firm or an industry as potentially being an illegal export subsidy. Such subsidies are illegal if they exceed a specified percentage of investment or wage costs. Higher subsidies are allowed for more distressed regions.

Federal restrictions on incentives have two problems. First, how do we define an “incentive” versus “normal” tax policy? Second, in the U.S. federal system, the states have considerable sovereignty. How much to encourage job growth seems integral to state sovereignty. How can we restrict incentives without undermining the U.S. federal system by a federal takeover of state and local tax systems?

To limit infringements on state sovereignty, and to make federal intervention more feasible, federal restrictions on incentives should be targeted at the most egregious abuses, which

⁴⁸ What about the argument that local job growth is redistributed from other places? If all places optimally price job growth by subsidies that reflect net benefits, there are no net external efficiency effects from one area taking jobs away from others. We are thus at a Tiebout (1956) equilibrium. See T. Bartik (1991, p. 202).

pose the greatest threat to national interests. Long-term incentives to large firms are an obvious candidate for targeting federal restrictions. These types of incentives pose the most political temptations for governors and mayors to be excessive. These excessive amounts of incentives also threaten the national interest in restraining the power of large firms.

The proposal is to restrict incentives, particularly long-term incentives, that discriminate in favor of large firms. The federal government could impose a 100 percent tax on discretionary incentives to firms with more than 10,000 employees that exceeded a total of 1 percent of the new or expanded facility's increased wage bill for the first five years of operations. This is a significant restriction, as current incentives average 3 percent of wages over 20 years. Incentives exceeding five years in term for large firms could be subject to a 100 percent tax. In addition to discretionary incentives, restrictions could be applied to any incentives written into state tax laws to disproportionately favor large firms—e.g., a job creation tax credit that only goes to job creation at a large scale.

States would remain free to provide incentives to all firms, or all export-base firms, or all manufacturing firms. States could decide how much they want job growth, and in large measure how best to pursue it. What would be restricted is providing extra incentives to large firms simply because they are large.

Targeting incentive restrictions on larger firms reduces the federal government's administrative challenges in managing incentive restrictions. As of 2016, the number of firms with more than 10,000 employees was only 1,491.⁴⁹ Yet such firms are 28 percent of business employment. Furthermore, such firms probably receive over half of state and local incentives. Restricting incentives to such large firms might reduce incentives by one-third.

⁴⁹ From the Longitudinal Business Database, U.S. Census Bureau (2018b).

The federal government could also help distressed areas by providing grants. Many expanded spending programs for distressed places have been recently proposed:

- infrastructure spending (Center for American Progress 2018; Smith 2018)
- public jobs programs or nonprofit jobs programs (Center for American Progress 2018; Neumark 2018)
- employer subsidies for job creation or hiring, with some targeting of disadvantaged workers (Glaeser, Summers, and Austin 2018; Neumark 2018)
- manufacturing extension (Baron, Kantor, and Whalley 2018; T. Bartik 2010)
- customized job training (Austin, Glaeser, and Summers 2018; T. Bartik 2010)
- help for small business or entrepreneurs (Chatterji 2018)

Helping distressed places by expanding only one specific program has limitations, such as these three:

- 1) The single-program approach assumes the federal government or researchers know the “one best program.” We don’t.
- 2) A single-program approach assumes that all distressed places need the same program. They don’t.
- 3) A single program does not allow for the synergy from simultaneously pursuing multiple programs. For example, a wage subsidy program to encourage the hiring of disadvantaged workers will create more jobs, and have less displacement effects, if it is combined with investments in customized business services that promote local job creation in businesses with high local job multipliers.

A better federal approach to helping distressed areas is to provide a flexible block grant.

This block grant would have many allowable uses to support comprehensive local strategies, attuned to local needs.

Two major federal strings should be attached to this block grant. First, block grant recipients should be required to avoid extra long-term incentives to large firms, as proposed above.

Second, the block grant should include evaluation requirements. Evaluation of local programs has external benefits for all local areas, which justifies a federal requirement. As described above, the federal grant should require evaluation of small-business assistance programs. The federal government should design its selection of distressed areas so that distressed and nondistressed areas can be compared for evaluation purposes.

CONCLUSION

Places matter for policy because places matter to people. A sense of place is valuable to people. This sense of place can be destroyed by economic decline.

Our knowledge about local labor markets should inform how we help distressed places. Our most important knowledge can be summarized in two numbers:

- 1) 1.0: A shock to local population has similar-sized effects on local jobs. Therefore, moving people from distressed to nondistressed places does not help restore local labor market equilibrium.
- 2) 0.2: A shock to local jobs of 1 percent increases the local employment rate in the long run by at least 0.2 percent. This allows place-based jobs policy to have long-run progressive effects on the local income distribution.

Reformed place-based jobs policies can have higher benefit-cost ratios than current policies. Adding jobs has greater benefits in distressed places. Targeting high tech or other industries with high job multipliers can reduce costs per job created, as can putting more resources into public services that enhance local business inputs.

Place-based jobs policy needs additional research. The targeting of distressed places could be improved with a more extensive research basis for defining distressed places. Research can help identify which programs are most cost effective in different places.

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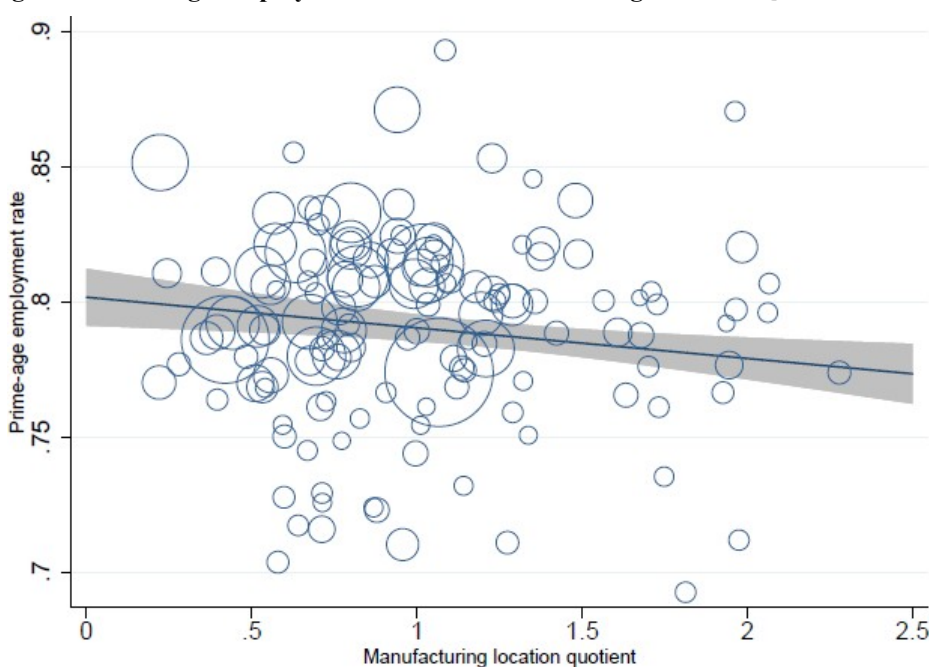
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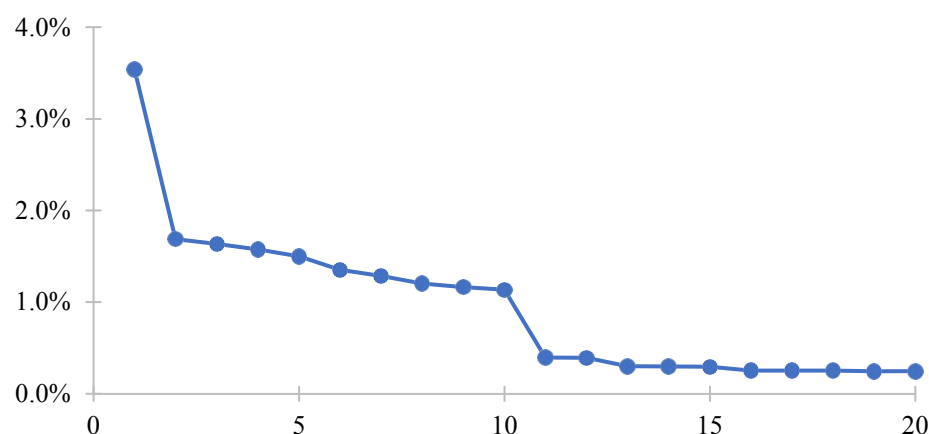
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Figure 1 Prime-Age Employment Rate vs. Manufacturing Location Quotient in Commuting Zone, 2016



NOTE: Figure shows prime-age (25–54) employment-to-population ratio for 2016, and manufacturing location quotient for 2000, for all commuting zones with population greater than 500K. The manufacturing location quotient is the share of a CZ’s jobs in manufacturing, divided by the share in the nation. Each circle is one commuting zone. Circle size is proportional to Year 2000 population. The regression line and 95% confidence interval shown are from a population-weighted regression using Year 2000 population, for all 709 commuting zones. The regression is of the 2016 CZ prime-age employment rate on the Year 2000 CZ manufacturing location quotient. The coefficient on the location quotient is -0.0112 ($se = 0.0039$). The Year 2000 location quotient is used because it is prior to the post-2000 manufacturing decline. The location quotient is derived from the Upjohn Institute’s Wholedata, which uses an algorithm by Isserman and Westervelt (2006) to overcome suppressions in County Business Patterns data. Prime-age employment rate is calculated from ACS.

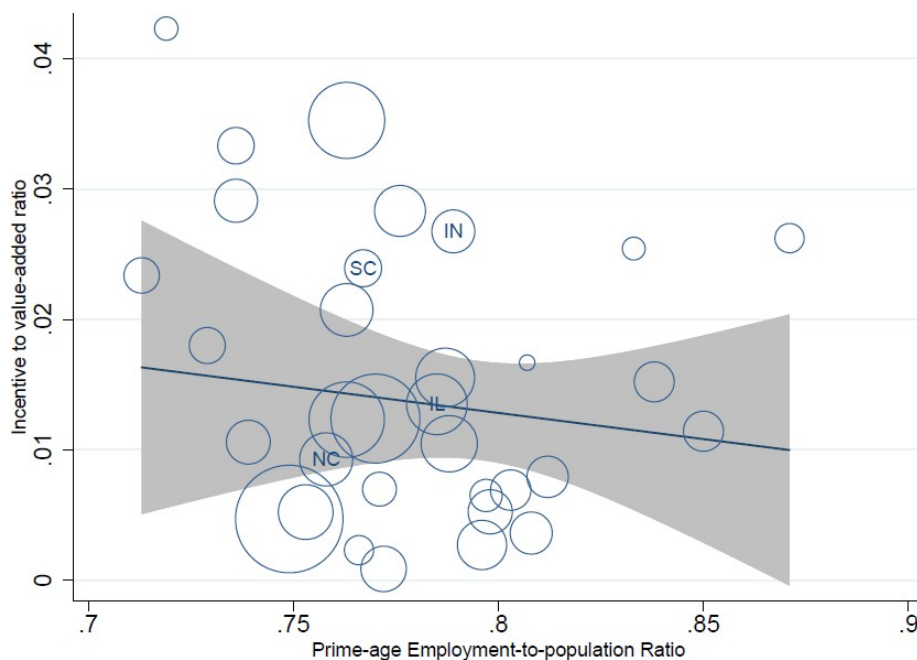
Figure 2 Incentives as a Percentage of Value-Added, Years 1 through 20 of New Facility Investment, Average State



NOTE: Figures are national average in 2015 over 33 states and 31 export-base industries. Figures show, for a facility starting up in 2015, the percentage incentives are of value-added for each of the first 20 years of operation.

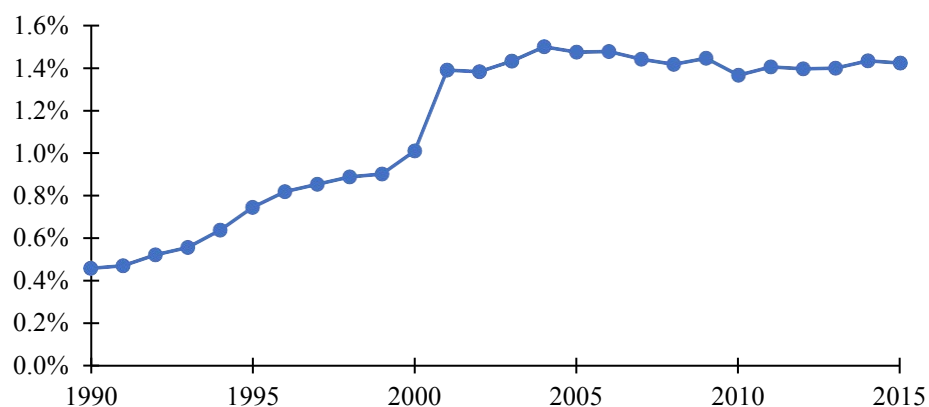
SOURCE: Author's calculations, based on T. Bartik (2017).

Figure 3 Incentive-to-Value-Added Ratio vs. Employment Rate, Compared across States, as of 2015



NOTE: Each circle represents one state. Vertical axis shows each state's 2015 ratio of the present value of incentives to the present value of value-added, for export-base industries, as of 2015, as calculated in T. Bartik (2017). Horizontal axis shows prime-age employment rate (ages 25–54) for each state as of 2015 and is derived from BLS. Regression line and 95% confidence interval are shown, based on weighted regression using 2015 state population as a weight. Observations are made on 33 states, which are all states with incentives data in T. Bartik (2017). Circle size corresponds to state's 2015 population. Four states referred to in text are initialed.

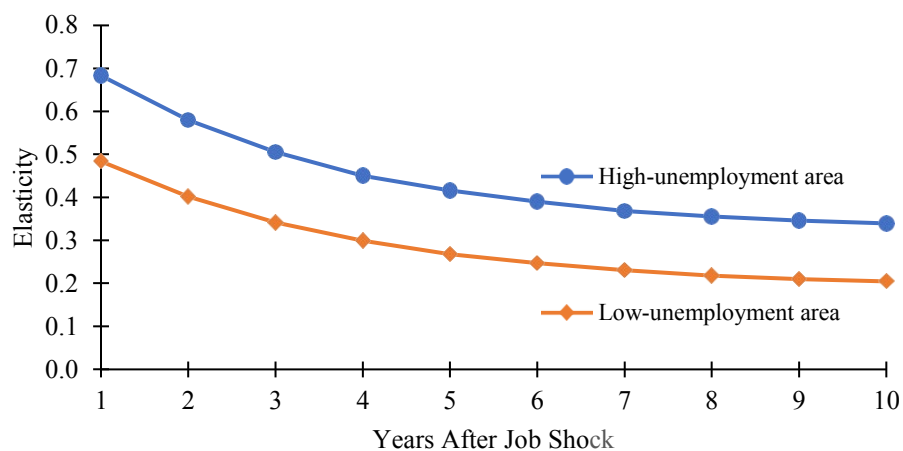
Figure 4 Average State/Local Incentives as Percentage of Value-Added, 1990–2015



NOTE: Incentives are the present value of incentives over 20 years as a percentage of value-added of export-base businesses over 20 years, new facility, average over all export-base industries and all states, for starting years ranging from 1990 to 2015.

SOURCE: T. Bartik (2017).

Figure 5 Elasticity of Local Employment Rates with Respect to a Job Growth Shock in Low-Unemployment vs. High-Unemployment Areas, as of Various Years after Job Shock



NOTE: Elasticity shown is of local-employment-to-population ratio with respect to once-and-for-all shock to local employment. Elasticity shown both immediately (1 year) and up to 10 years after job shock. Simulations based on estimates in T. Bartik (2015). Low unemployment and high unemployment defined based on population-weighted 10th and 90th percentiles of unemployment rate distribution across CZs in 2016, which are 4.0% and 7.1%.

Table 1 Descriptive Statistics for Prime-Age Employment Rate, 709 “Commuting Zones”

| Mean | Standard deviation | p10 | p25 | p50 | p75 | p90 |
|-------|--------------------|-------|-------|-------|-------|-------|
| 0.791 | 0.040 | 0.744 | 0.774 | 0.792 | 0.814 | 0.833 |

NOTE: “Prime age” is ages 25–54. Commuting zones encompass entire United States. Commuting zones are groups of counties that are defined based on commuting patterns in Year 2000 data (<https://www.ers.usda.gov/data-products/commuting-zones-and-labor-market-areas/>). Employment rate is measured from 2016 American Community Survey. PUMAs assigned to CZs based on population allocation factors. All descriptive statistics for 709 commuting zones are population weighted based on 2016 census estimates of prime-age population of each commuting zone. Note that mean of ACS 2016 prime-age employment rate of 0.791 is above CPS 2016 mean of 0.779. It is well known that current ACS tends to obtain higher employment rates than CPS, due to differences in survey formats (BLS 2018).

Table 2 Elasticity of Local Jobs with Respect to Local Population Shocks, Different Studies

| Study | Time span over which population and job change are measured | Variants | Elasticity |
|---------------------------------|---|---------------|------------|
| Muth (1971) | 10 years, 1950–1960 | Large cities | 0.93 |
| | | Medium cities | 0.97 |
| | | Small cities | 0.86 |
| Greenwood and Hunt (1984) | 1 year | Large cities | 1.26 |
| | | Small cities | 1.11 |
| Beaudry, Green, and Sand (2018) | 10 years | | 0.99 |
| Amior and Manning (2018) | 10 years | | 0.79* |
| Howard (2018) | Dynamic model | 1-year | 1.00 |
| | | 2-years | 1.10* |
| | | 3-years | 1.20* |
| | | 4-years | 1.20* |
| | | 5-years | 1.10 |
| | | 6-years | 1.00 |
| | | 7-years | 1.00 |

NOTE: Elasticity in right-most column is of local jobs with respect to a once-and-for-all shock to local population. Elasticity estimates that are significantly different from 1 at 5% level, two-tailed test, are marked with asterisk. Muth's (1971) results are from his Table 1. Greenwood and Hunt's results (1984) are those they state in the text and are averages across all cities in a group. Beaudry, Green, and Sand's (2018) results are from their Table 3, column 2. Amior and Manning's (2018) results are from their Table 5, column 4. Howard's (2018) numbers are taken from his Figure 6 and are inferred from his estimates of effects of in-migration shocks on employment rates for metropolitan areas. Because they were taken from a figure, I round to the nearest tenth.

Table 3 Resources Devoted to State and Local Economic Development in the United States

| CURRENT PROGRAMS | | |
|--|--|------|
| Policy/program | Annual dollars (in billions) | |
| State and local business tax incentives and other cash incentives | 46.3 | |
| Customized training programs | 0.6 | |
| Other state economic development programs | 2.8 | |
| | Subtotal, state/local programs | 49.7 |
| Manufacturing extension (federal/state/fees) | 0.4 | |
| Economic Development Administration (EDA) | 0.3 | |
| Economic development portion of HUD's Community Development Block Grants | 1.1 | |
| Small Business Administration | 0.8 | |
| Other economic development programs in USDA, HUD, Commerce | 2.0 | |
| | Subtotal, mostly federal spending | 4.6 |
| Opportunity Zones tax credits | 1.5 | |
| New markets tax credit | 1.4 | |
| Other tax expenditures that might promote local economic development | 2.3 | |
| | Subtotal, federal tax expenditures | 5.3 |
| | Total of federal programs and tax expenditures | 9.9 |
| | Total of all levels of government | 59.6 |
| PAST PROGRAMS | | |
| Empowerment zones/enterprise communities (peak annual activity in early 2000s) | 1.5 | |
| Appalachian Regional Commission (peak annual spending 1966–1975) | 1.6 | |
| Tennessee Valley Authority (peak annual spending 1950–1955) | 1.5 | |

NOTE: Summations in table are not exact because of rounding to nearest tenth of a billion. All dollar figures are in 2018 dollars. State/local tax and cash incentives are based on T. Bartik (2017) and are based on data for 2015. Customized job training spending derived from Hollenbeck (2013). Other state economic development expenditures derived from State Economic Development Expenditure Database (Council for Community and Economic Research 2018). To avoid double-counting, I subtract out spending on workforce preparation, strategic business attraction, and business assistance. Also to avoid double-counting, I subtract out the half of state economic development expenditures that are federally financed (Council for Community and Economic Research 2017). The remaining state economic development spending is quite diverse and includes the following: tourism, film promotion, other special industry promotion, high-tech programs, business finance, entrepreneurial assistance, minority business development, community assistance, business recruitment, and trade promotion. Manufacturing extension calculated in T. Bartik (2018b). EDA, HUD, and SBA are based on FY 2017 U.S. federal budget. For CDBG, assume one-third of funds are for “economic development,” the rest for housing/community development. Other economic development spending is calculated based on programs to support businesses listed in GAO (2012b), minus the specific programs already included. Estimated annual cost of Opportunity Zone tax credits is based on Kimbo and Phillips (2018). New markets tax credit costs are based on U.S. Department of the Treasury (2017). Other tax expenditures are derived from GAO (2012a), excluding those already included and tax expenditures that are clearly for housing. EZ/EC figures are based on GAO (2006). ARC figures are based on Jaworski and Kitchens (2016). TVA figures are based on Kline and Moretti (2013).

Table 4 Long-Run Elasticities of Local-Employment-to-Population Ratio with Respect to Once-and-for-All Local Employment Shock, U.S. Studies

| Study | Nature of estimate | Long-run | Qualifications | Elasticity |
|-------------------------------|--|----------|-------------------------------------|------------|
| T. Bartik (2015) | Dynamic model, panel data on MSAs at annual frequency, 1979–2011 | 10 years | at 4.0% unemployment rate (UR) | 0.20 |
| | | 10 years | at 7.1% UR | 0.34* |
| | | 10 years | at 10% UR | 0.47* |
| T. Bartik (1991) | Reduced-form regression of change in labor market outcomes on current and lagged annual job growth, annual panel data on MSAs, 1972–1986 | 8 years | OLS | 0.23* |
| | | 8 years | 2SLS using demand shock instruments | 0.37* |
| Blanchard & Katz (1992) | Dynamic model with two lags, panel data on states with annual frequency, 1978–1990 | 8 years | | 0.07* |
| | | 17 years | | 0 |
| T. Bartik (1993) | Same data as Blanchard and Katz, but with lags in growth added | 8 years | | 0.28* |
| | | 17 years | | 0.25* |
| Bound & Holzer (2000) | Decade changes, 1980–1990, MSAs | 10 years | High school or less | 0.24* |
| | | | College or more | 0.12* |
| Partridge & Rickman (2006) | Dynamic model, annual panel data on states, 1970–1998 | 10 years | Preferred estimates | 0.21* |
| | | | Alternative estimates | 0.42* |
| Notowidigdo (2013) | Decade changes, 1980–2000, panel data on MSAs | 10 years | Mean effect | 0.14* |
| Beaudry, Green, & Sand (2014) | Decade changes, 1970–2007, panel data on MSAs | 10 years | | 0.24* |
| Amior & Manning (2018) | Decade changes, 1950–2010, panel data on commuting zones | 10 years | | 0.30* |

NOTE: Estimates in right-most column are long-run elasticity of local-employment-to-population ratio with respect to once-and-for-all shock to local job level. Asterisk indicates estimate is significantly different from zero at 5% significance level. This compiles U.S. studies. Non-U.S. studies are included in T. Bartik's (2015) review. T. Bartik's (2015) results use the output from the model to estimate effects at different unemployment rates. I use slightly different low and middle unemployment rates here to match 10th and 90th percentile local UR results used in Figure 4. Statistical significance is based on original paper's chosen low, medium, and high unemployment rates, and are derived from 1,000 resimulations of model, and measure whether at least 975 of those are greater than zero. T. Bartik (1991) uses the optimal AIC results chosen from up to 8 lags to estimate long-run effect; long-run effects are similar using 8 lags in growth. The employment rate results use the employment-to-labor-force estimates derived using micro data. OLS results are from his Figures 4.2 and 4.3; 2SLS results are from his Table 4A4.2. Blanchard and Katz's (1992) results are from a T. Bartik (1993) replication of Blanchard and Katz that re-estimates and gets almost the same results, and then resimulates the effects of a fixed once and for all 1% shock to local labor demand (T. Bartik, 1993, Table 2, Row 2), which makes estimated effects more comparable to other studies. T. Bartik's (1993) results are from his Table 2, Row 3, and simply add growth terms to Blanchard-Katz's specification to achieve optimal Akaike Information Criterion for capturing dynamics. Bound and Holzer's (2000) results are for average per capita annual hours worked variable and are the IV results in their Table 3 for the hours-dependent variable. Partridge and Rickman's (2006) numbers come from their text discussion of their Figure 1; they don't state statistical significance, but it appears to be assumed. Notowidigdo's (2013) results obtained from column 3 coefficients in his Table 3 and are then calculated using mean of predicted employment of 0.0036 (obtained courtesy of the author), and then dividing the resulting effect on the employment-to-population ratio in points by the mean ratio in his Table 1. I use Beaudry, Green, and Sand (2014), Table 6, column 3 results, which appear to be those preferred by the authors. They use 2000 to 2007 as one of their "decade" changes. Amior and Manning's (2018) results are from their Table 2, column 4.

Table 5 Percentage Effects of a 1% Local Job Shock on Income, Due to Earnings Effects and Property Value Effects

| Type of effect | Average % effects on income for: | | |
|--|----------------------------------|------------------------|-------------------------|
| | All households | Lowest-income quintile | Highest-income quintile |
| Earnings effects | 0.33 | 0.77 | 0.20 |
| Property-value effects | 0.09 | 0.05 | 0.13 |
| Sum of earnings effects and property-value effects | 0.42 | 0.82 | 0.33 |

NOTE: The model used to generate these estimates is from T. Bartik (2018a), which includes details on what elasticities from literature are used to generate model estimates. The elasticities used are consistent with literature consensus that the long-run employment rate elasticity is about 0.20, and the long-run housing price elasticity is 0.4 to 0.5. The distribution of earnings effects by quintile is based on T. Bartik (1994). This version of the T. Bartik (2018a) model assumes fixed 1% once-and-for-all shock to local job level that occurs at no incentive cost. Effects are calculated over 20 years and use a 3% social discount rate. Present value of earnings effects and property-value effects are calculated as percentage of present value of average per-capita income of each group. Based on Congressional Budget Office (2016), the baseline income share of the lowest-income quintile is 5.1%; that of the highest-income quintile is 52.0%. The calculations do not subtract out opportunity costs of forgone non-work time. This can be rationalized if benefits external to the worker from reduced nonwork exceed these opportunity costs.