Do Place-Based Industrial Interventions Help "Left-Behind" Workers? Lessons from WWII and Beyond

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Abstract

Place-based industrial interventions—policies that promote production and investment in specific regions—are often proposed with the intent of improving economic conditions for residents, particularly "left-behind" workers in distressed local labor markets. This chapter discusses the theoretical rational for using industrial interventions to achieve distributional goals and evidence about their effectiveness to that end. I use government-funded plant construction during World War II (WWII) in the US as focal case study, which I then compare and contrast to other industrial interventions studied in the literature. While government plant construction during WWII drove an expansion of high-wage semi-skilled jobs open to local residents, which in turn fueled an increase in upward mobility among local residents, the evidence from more recent interventions suggests that modern plant sitings often fails to yield similar benefits to local workers. The implementation details of industrial interventions matter crucially for their incidence on local workers. the details matter crucially. Interventions that generate opportunities for up-skilling and occupational advancement accessible to target populations appear to be most likely to generate meaningful distributional benefits. I argue that while core production goals during WWII happened to inherently align with the promotion of upward mobility, such alignment is not guaranteed in general and may be the exception rather than the rule in modern contexts.

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1 Introduction

The past decade has witnessed a resurgence of interest in industrial policy, particularly in advanced economies (Juhász et al., 2024). Facing cooling geopolitical relations, warming global temperatures, and increased economic competition from developing nations, leaders in the US and other OECD nations that had previously embraced laissez-faire production policy have increasingly supported efforts to re-shore the supply chain for products that are central to national security, promote a transition to sustainable energy sources, and develop domestic industries that can withstand global competition. This shift is visible in major legislation passed in the US during the Biden administration—in particular, the CHIPS and Science Act, the Infrastructure Investment and Jobs Act (IIJA), and the Inflation Reduction Act (IRA)—all of which authorized spending to support domestic production. The primary economic rationale for industrial policy interventions such as these is to increase domestic output by addressing market failures stemming from externalities (e.g. climate and national security), public good provision (e.g. infrastructure investment), or other coordination failures (e.g. harnessing agglomeration spillovers). However, in many cases, such policies also have explicit or implicit *place-based* distributional goals. Advocates of industrial policy efforts frequently point to the potential for interventions to promote production and local job creation in target (usually "economically-distressed") regions. In some cases, promoting business formation and investment in distressed regions to improve economic conditions of residents the *primary* goal of policy interventions.

Why promote production and investment in target regions that have fallen behind, economically? In most cases, the ultimate aim is to help the *people* in those regions who have been left behind by the broader national economy to date. For a long time, such place-based distributional efforts ran against the conventional wisdom in economics, which assumed that people would move away from lagging regions towards booming cities over time. However, the experience of the past two decades has largely overturned that conventional wisdom, as individuals in regions hit hard by international trade competition, technological change have largely remained put and, as a consequence, faces increasing rates of joblessness, opioid use, and increased mortality. If encouraging individuals to move out of distressed regions is not a realistic solution, many policymakers and academics alike now hope that policies that boost local employment in afflicted regions might in turn increase employment rates and incomes of the left-behind local population (Austin et al., 2018; Bartik, 2020; Hanson, 2023). But do efforts to boost local production and investment actually improve the lot of target individuals in practice? And further, can industrial policies with other non-distributional objectives effectively address distributional goals in the process?

This chapter examines whether or not localized industrial interventions improve outcomes for target populations—and if so, under what conditions—drawing on empirical evidence from recent research. The focus here is specifically on *industrial policy interventions*, which I follow Juhász et al. (2024) as defining as policies that "explicitly target the transformation of the structure of economic activity in pursuit of some public goal" in contrast to other place-based policy interventions that directly offer place-based transfers or employment subsidies for target populations in covered regions. A large prior literature has examined the theoretical and empirical effects of place-based subsides, which are summarized in thorough surveys by Kline and Moretti (2014b) and Neumark and Simpson (2015), along with other contributions to this volume. However, there are unique considerations that apply to policies that target *production* and *investment* rather than employment and earnings of key populations. First, it is important to assess whether increased production and/or investment to a region translates into jobs that are accessible to the local workforce and substantially improve earnings opportunities on net. Second, in the case of interventions with specific industrial policy goals, it is possible that directing production to target regions could undermine those primary objectives. It is therefore important to assess whether it is realistic to hope for industrial policies to yield a "double dividend," simultaneously addressing market failures and distributional goals, or if those objectives are best pursued separately using more targeted interventions.

To that end, I survey what lessons one can glean from rigorous evaluation of previous industrial interventions. Proper evaluation of such policies is difficult for two main reasons. First, assessing the causal impacts of localized policy interventions is only possible when impacted regions are selected randomly or for quasi-random reasons. While industrial policy is hardly ever randomized given the scale and stakes at hand, a growing body of high-quality studies exploit quasi-randomness in the roll-out of policies across regions in order to obtain credible estimates of causal impacts, which I discuss here. Second, studying the incidence of industrial policies on local residents requires longitudinal data that tracks individuals over time. As I discuss in the next section, it is not sufficient to simply estimate effects on local job counts, since local increases often reflect increases in local population (that is, migration of workers from other regions who fill new jobs). To date, there are relatively few studies of industrial interventions that combine quasi-experimental evaluation approaches with longitudinal data to study individual-level policy pacts. In this chapter, I discuss the available evidence to date, as well what lessons can be inferred from studies using aggregated data.

As a focal case study, I examine one of the most significant industrial interventions in U.S. history: the economic mobilization for WWII in the US, during which the US govern-

ment paid for the construction of new manufacturing plants producing key war products in dispersed locations around the country. I first discuss key features on the institutional setting, and highlight how they contrast with many modern-day industrial interventions. I then summarize and discuss several findings from the analysis in Garin and Rothbaum (2024), which uses detailed longitudinal data on individuals and a quasi-experimental research design to estimate the long-run causal impacts of government-funded plant construction on both local labor markets and on individual incumbent residents.

I then compare the empirical evidence from WWII to findings from studies of other industrial policy settings. While Garin and Rothbaum (2024) find that government industrial interventions led expansion of high-wage semi-skilled jobs and that access to those jobs fueled an increase in upward mobility among local residents, the evidence from more recent interventions is more mixed. In particular, the evidence suggests that many modern initiatives that incentivize large firms to locate or otherwise invest in plants in target regions increase do not meaningfully increase local incomes or employment rates of "left-behind" workers, even if they increase the aggregate job count in the region. As a whole, the extant research indicates that there is no guarantee that policies that promote production and investment in target regions are effective at improving outcomes of less well-off residents. Rather, the details matter crucially. In particular, interventions that generate opportunities for up-skilling and occupational advancement accessible to target populations are most likely to generate meaningful distributional benefits.

2 Place-Based Industrial Interventions in Theory

Before turning to empirical evidence, this section provides a brief overview of the theoretical rationales for place-based industrial interventions and implications for empirical evaluation. In particular, I highlight 1) the distinction between efficiency and distributional motivations for such interventions and 2) the need to measure impacts on target individuals rather than job counts.

2.1 Rationales for Place-Based Industrial Interventions

The primary theoretical rationale for industrial policy at the national scale is to address market failures that limit industrial development. Following Juhász et al. (2024), these market failures can be roughly classified as stemming from production externalities, public goods, and coordination failures that require a "big push" to switch from a "bad" equilibrium to a "good" equilibrium Murphy et al. (1989). For instance, the Inflation Reduction

Act, which includes industrial policy provisions aimed at fostering a transition to sustainable energy production, and the CHIPS and Science act, which promotes domestic production of semiconductors which are essential to national security, are both examples of interventions intended to address externalities (environmental damage and national security) through infrastructure investment and formation of self-sustaining industrial clusters. Importantly, these rationales are fundamentally *efficiency* argument, rather than distributional rationales. Moreover, these rationales do not necessarily require "place-based" policy responses in the sense of explicitly targeting specific regions. Industrial policy responses to market failures might target strategic firms and sectors allowing firms and resource constraints to determine the location of production and investment, in such cases any clustering of government investment would be purely incidental.

However, some production externalities are inherently localized. In cases where such agglomeration externalities are important, the optimal policy response may include place-based subsidies that foster the formation of industry clusters in specific locations where such externalities are particularly large (Kline and Moretti, 2014b). Agglomeration forces are one of the most common theoretical justifications for place-based interventions. Yet one should note that, as in other cases where there is a rationale for industrial policy, the primary purpose of the intervention is to correct aggregate inefficiencies. Even though optimal policy in the presence of agglomeration externalities may target certain regions, the goal of targeting those regions is to increase aggregate welfare, not to benefit local residents.[1]

Yet, in many real-world scenarios, policymakers do specifically aim to provide economic benefits to residents of specific regions. This may be for political reasons, as local politicians seek to benefit their constituencies or as national politicians attempt to win favor among key parts of the electorate. Nonetheless, there are theoretical reasons to use place-based interventions to achieve distributional goals. In a recent paper, Gaubert et al. (2021) show that it can be optimal to direct transfers to individuals based on where they live—even conditional on their income level—if location is a meaningful "tag" for disadvantage. In those cases, the best way for governments to redistribute income towards disadvantaged individuals is to target transfers or equivalent wage subsidies to residents of target regions, even if the government has already optimized their income tax code.

This raises a key question: If the aim is to transfer income to individuals in target regions, why subsidize employers instead of making direct transfer payments? One potential justification is that individuals have a preference for "predistribution" policies that increase

[1]For example, in models like the one in Kline and Moretti (2014a) that feature homogeneous workers and perfect mobility, well-being is equalized for all individuals in all locations, even when policy interventions target agglomeration externalities in certain regions.

their pretax earnings over "redistribution" policies that provide transfers, even if the two interventions are economically equivalent Jackson and O'Neill (2013). Further, if joblessness creates negative social spillovers on family members and communities, then policies that increase income by reducing involuntary underemployment, then there may be broader social gains to targeting labor demand Austin et al. (2018). Policymakers may also have paternalistic views that lead them to regard working individuals as more deserving of government support.

Even given these rationales for subsidizing earnings from employment, it remains theoretically unclear why policy should target *production* or *investment* rather than directly subsidizing wages of target populations.[2] A key result in the public finance literature is that optimal tax systems have a "production efficiency" property: if target factors such as labor can be taxed or subsidized directly, there is no reason to intervene in the structure of production. Given a redistribution motive, subsidizing production or investment is only optimal if there is no effective way to subsidize employment of a target population. In some settings, this may be realistic constraint, particularly when increasing employment opportunities is only possible if firms establish new operations in the region, rather than increasing employment on the margin. For instance, generous subsidies to employment on the margin may be entirely ineffective at attracting new jobs compared to infrastructure development or other "big push" interventions that give firms access to essential inputs and resources (Murphy et al., 1989; Bartik, 2018). Without a clear justification along these lines, it is difficult to justify industrial interventions on distributional grounds alone.

One might defend place-based industrial interventions by noting that, even if they are not an efficient way to benefit target populations, they yield "double dividends" by also creating efficiency benefits through address market failures. A long literature in public finance highlights important limitations to such double dividend arguments (Sandmo, 1975; Jaeger, 2012). As a general principle, it is always optimal to treat correcting the market failure and achieving distributional goals as separate problems. Specifically, this "targeting principle" implies that policy should first correct the market failure using targeted responses, and then use the policy tools best suited for redistribution to achieve any remaining distributional goals when possible Dixit (1985); Kopczuk (2003). A key implication of these results is that *efforts to reap double dividends can backfire*, particularly if the industrial policy intervention is modified to achieve distributional goals. For instance, if industrial policies meant to foster sustainable energy production were to direct investment towards "left-behind" communities

[2]Many prominent place-based policies such as the US Empowerment Zone program *do* directly subsidize employment and wages of local residents, though these are not industrial interventions of the sort examined here.

rather than locations with the most favorable conditions for industrial development, those efforts might prove less effective at meeting their primary industrial aims. In such cases, it can (in theory) be more cost-effective to pursue the industrial policy goals and distributional goals using separate, targeted interventions. However, in practice, political constraints may make it necessary to bundle policy objectives or to consider distributional considerations when designing industrial interventions.

2.2 Measuring Impacts: Counting Jobs is Not Enough

A common approach to evaluating the distributional impacts local industrial interventions is to estimate effects on local job creation, typically measured as annual employment levels in a region. However, although it may be expedient to highlight job counts for political purposes, local job counts do not correspond to any well-defined notion of policy success in the frameworks discussed above. In particular, local job counts are not informative of the benefits accruing to any particular individual. The primary issue with measuring job counts is increases in local employment may simply reflect changes in *where* people work, without any change in the distribution of earnings across individuals. New jobs may be filled by workers moving from other regions, by commuters (Monte et al., 2018), or by international immigrant populations are particularly responsive to local demand conditions (Cadena and Kovak, 2016). In the extreme case of Rosen-Roback models with perfect inter-regional mobility, place-based interventions have *no* distributional impact (Moretti, 2011).

Rather, the key object of interest is how much better off a fixed set of target individuals are relative to the counterfactual scenario with no policy intervention. More specifically, standard results in economic theory imply that what matters for individual well-being are improvements in income *holding baseline behavior fixed*. This principle, an application of the *envelope theorem* in economics, underpins common welfare concepts including "sufficient statistics" analysis (Chetty, 2009) and the Marginal Value of Public Funds (Finkelstein and Hendren, 2020). Applied to the place-based policy context, this means that target benefit populations benefit to the extent that they *receive higher wages for fixed labor supply* Busso et al. (2013)—or, in the presence of involuntary unemployment, experience lower rates of joblessness given fixed search intensity. In contrast, increases in local employment from voluntary labor supply, due either to migration or changes in hours worked, are not generally indicative of first-order improvements in well-being.[3]

[3]In intuition behind the envelope theorem is that any earnings gain from marginal changes in voluntary labor supply are mostly offset by the cost of forgoing other valuable activities such as home production, education, or leisure. Important exception would be if increases in hours worked had external social benefits, or if there were "internalities" in which working more yielded internal benefits that are not perceived in advance by the individual.

The primary implication is that, when evaluating the local welfare benefit of industrial interventions, one should focus on *wage rates* and *involuntary unemployment rates* rather than measures of regional *job counts*—and, ideally, one should use longitudinal data to track outcomes for a fixed set of baseline residents. One can only convert job counts into measures of welfare like the MVPF under extreme assumptions, such as the assumption that all additional jobs are filled by local residents who would have been otherwise jobless; any resulting conclusions may have little bearing on reality if those assumptions are not realistic. To date, there are a large number of studies that estimate impacts of localized policy interventions on local employment levels but few that measure individual-level impacts using longitudinal data, primarily due to data availability. Thus, there would be significant value to future research estimating individual-level policy impacts.

Another important consideration when estimating impacts on local outcomes is that any local-level benefits may not reflect increases *aggregate welfare* to the extent that policy leads to a reallocation production and investment across space rather than generates entirely new investment activity. In the extreme case of a jurisdiction wooing an employer to relocate from another jurisdiction, any gain in local employment or earnings in the winning jurisdiction is the losing jurisdiction's loss. While from the perspective of a local government, such a policy might be considered beneficial to ones constituency, from the perspective of a national government those gains are offset from the loss in the other region (Slattery and Zidar, 2020). Thus, policies that are desirable to local officials may not be beneficial on net from the perspective of a national policymaker. Reallocating production and investment from one region to another is only beneficial in the aggregate in cases where the goal is to redistribute welfare across the respective regions or if there are particularly strong agglomeration externalities in the target region such that the net gains exceed any losses in regions where economic activity would have occurred in the absence of intervention (Kline and Moretti, 2014a).

3 Plant Construction During the WWII Industrial Mobilization, in Context

The industrial mobilization for WWII is an instructive case study, as it was one of the most dramatic industrial interventions in U.S. history. At the same time, it is important to highlight unique aspects of the institutional environment and wartime emergency setting that are relevant when drawing broader lessons about the place-based industrial interventions. In this section, I highlight key features of the policy environment and discuss areas of alignment

and contrast with modern place-based policy initiatives. Then, in the following section, I discuss empirical evidence about the local impacts of wartime plant construction during WWII.

As war broke out in Europe in 1939, the United States government began a massive program of industrial expansion to produce necessary quantities key war products, a program which expanded dramatically in scale and urgency after the US entered WWII at the end of 1941. Throughout the war effort, the US military relied on private firms for the overwhelming majority of production, which were awarded "cost-plus-a-fixed-fee" contracts to supply goods. The production effort was coordinated by War Production Board (WPB) and its predecessors, the National Defense Advisory Committee (NDAC) and the Office of Production Management (OPM), which were staffed with industry executives who helped the various procurement offices rapidly place contacts (White, 1980). Although these offices used generous tax write-offs and eventually strict civilian production controls to push firms to convert their operations to wartime production, further expansion in industrial production capacity was necessary to meet military production goals. In particular, firms were reluctant to construct the new, large-scale plants around the country the military viewed as necessary to achieve both a sufficient scale of production and secure supply chain.

In response, the US government directly financed the construction of strategic industrial plants in dispersed locations across the country with little history of production in target industries. Those plants were built and operated by private firms under contract but owned by the newly-formed Defense Plant Corporation and related agencies (Craven and Cate, 1955). Siting decisions for these plants were made by military officials, motivated by combination of strategic considerations and short-run expediency. The new plants were run by executives from leading firms and were staffed by local workers, most of whom had no prior related experience and were trained on-site. Most government-financed plants continued to operate after the war. Plants that could be converted to civilian production were sold to private industry after the war to produce cars, airplanes, steel, rubber, and other materials, while some plants producing specialized military products remained under government ownership continued to supply the US military throughout the Cold War under contractor operation.

The scale of the resulting industrial expansion was profound. Between 1940 and 1944, increases in government spending drove Gross National Product to increase by over 70 percent (Tassava, 2008). Employment and production in key manufacturing industries grew rapidly over the course of the war: employment in the chemical- and metal-working sectors nearly tripled from about three million to nearly eight million, while the relatively nascent aircraft industry increased its employment *fourteen-fold* (Craven and Cate, 1955). By 1945 the government had spent $15.9 billion (over $300 billion in 2024 dollars) on expanding the

plant stock, $7 billion of which was for government-owned new plants. These investments–much of which persisted after the war—constituted a dramatic increase relative to the $39.5 billion total book value of US manufacturing capital in 1939 (U.S. Department of Treasury 1942).

There are several key aspects of this industrial policy intervention that are worth noting when making comparisons to other policy efforts.

1. **The primary objective of the policy was to increase output in target industries *rapidly* and *securely.*** During the war emergency, the overarching consideration was the necessity of producing large quantities of weapons, ordnance, vehicles, and required inputs sufficiently rapidly to maintain a strategic advantage in the conflict. As a result, expediency was prioritized over efficiency. While many production production processes could have been better optimized and automated over a long horizon, producers facing tight timelines had to make the best possible use of whatever production factors and technologies were at hand in the moment. Moreover, it was essential to develop robust supply chains that were not vulnerable to attack or catastrophic failures. This led military procurement officials to prioritize the geographic dispersion of production when planning for new plants. Those plants, in turn, had to be organized so that local infrastructure resources and untrained labor could be put to use as productively as possible.

2. **Production was inherently dependent on untrained labor.** Reaching scale rapidly required putting all available labor to productive use, regardless of background. This is encapsulated in what is perhaps the most famous and enduring legacy of the war production effort, the image of "Rosie the Riveter" representing the women who entered blue-collar work for the first time during the war. More broadly, the war production effort was dependent on a diverse array of workers without any prior formal training. This dependence had three important consequences. First, it led to the development of production practices and norms that made productive use of previously untrained labor. Second, it led to the creation of new training approaches and pathways to occupational advancement that were provided by employers to workers with minimal formal education. Finally, that short-run dependence helped labor develop significant institutional bargaining power. While New Deal era labor law and unionization certainly played a role, the governments need to avoid work stoppages at all costs gave labor substantial leverage to negotiate for longer-term power. Aiming to avoid catastrophic production stoppages, the National War Labor Board (NWLB) gave unions wide latitude to organize war plants in exchange for pledges not to strike in response to the

imposition of wage ceilings (Goldin and Margo, 1992; Wilson, 2016; Farber et al., 2021). By 1946, over 80 percent of productions workers in war-related industries—including automobile, aircraft, shipbuilding, steel, and aluminum manufacturing—were covered by union contracts (BLS, 1947). It is also important to note that these industries faced minimal international competition in the following decades as countries in Europe and Asia recovered from the ravages of war.

3. **The government directly arranged for the construction of plants that it paid for and owned at the outset.** In any other circumstance, the prospect of government-led construction and ownership of industrial facilities—even if built and operated by private firms under contract—would have been met by extreme resistance by the US public and the business community. However, facing total war, the government was able to win support for direct investments under the condition that all industrial assets be sold to the private sector at the conclusion of the emergency, which was encoded in the authorizing legislation to ensure that the government never competed with private producers during peacetime (Craven and Cate, 1955). As a result, the government was able to exert far more influence on where and how plants were built than it would have been able to otherwise. Direct government financing also made possible the pursuit of large capital projects with considerable long-term financial risk that no firm would have staked its private capital on even given generous capital subsidies.

These central features of US industrial policy during WWII stand in contrast to most contemporary industrial policy efforts in advanced economies. For starters, it is exceedingly rare for governments to directly arrange for the construction of production facilities outside of war emergencies. In both the US and Europe, it is far more common for governments to instead offer subsidies or grants to firms to construct and operate new facilities in target regions and locations. These tools limit the ability of policy to influence *how* and *where* production occurs. While governments frequently attempt to condition subsidies on specific conditions (for example, compliance with Buy American and prevailing wage laws), the policies are ultimately constrained by the need for firms to agree to accept those conditions, limiting the conditions that be imposed in practice. Indeed, the very purpose of government direct investment during WWII was to enable the construction of certain types of plants in certain locations, which could not attract private investment even with generous subsidies. In the end, industrial policy implemented through subsidies and grants must align with firms' longer-term private objectives.

More generally, while the primary imperative of wartime policy was rapid implementa-

tion, most peacetime industrial policy is oriented to longer-term goals. As a result, it is generally beneficial to consider longer-term efficiency when crafting policy meant to promote ends such as an energy transition, a robust supply chain for strategic goods, or the formation of self-sustaining industrial clusters. Encouraging firms to develop efficient production techniques, to minimize redundancy when possible, to center production around regions and workers with specific comparative advantage, and to source inputs and factors at lower cost all can help achieve such ends given available public resources and secure buy-in from private interests.

As a consequence, there is less inherent dependence of modern industrial policy initiatives on untrained labor in peripheral regions. In many contemporary settings, industrial policy aims to establish long term development and adoption of advanced production technologies that best overseen by highly-educated workers with specialized training (battery and silicon chip production are key examples). In such cases, it may be more effective to promote the development of specialized formal educational programs than to offer on-the-job training to otherwise untrained labor. Further, when production tasks can be completed by workers with minimal training, it may be advantageous for firms in nascent industries to automate or outsource tasks to remain competitive; this is particularly true in the present era in which domestic firms both face greater competition from foreign producers and have better access to low-cost suppliers abroad than during the postwar era. Thus, modern industrial policy efforts may naturally be more skill-biased relative to the WWII case, and need not generate opportunities for occupational advancement to workers without formal training in the same manner.

Thus, though the pursuit of production goals during WWII happened to generate new opportunities for advancement for a wide class of workers without training, one should not expect such alignment between industrial policy goals and distributional objectives to hold *as a general principle*. Arguably, that alignment was mostly *incidental* in the case of WWII and not a consequence of explicit distributional objectives. In many other cases, the core objectives of industrial policy may be in tension with hopes of making meaningful improvements in the outcomes of "left-behind" workers. In such cases, efforts to redirect investment to boost employment of target populations may undermine core production goals, as discussed in the previous section.

4 Evidence from Government-Funded Plant Construction During WWII

In this section, I discuss evidence from Garin and Rothbaum (2024) on the impacts of government-led WWII plant construction on local labor markets and incumbent residents, and provide supplemental analysis. The main analysis Garin and Rothbaum (2024) focuses on large, publicly-financed plants costing over $10 million ($200 million in 2024 dollars) built in dispersed locations outside of preexisting major industrial centers. These were plants that private firms were unwilling to build with their own capital; as a result, the siting and design of these plants was overseen by the military and largely driven by security concerns and short-run expedience. While these large plants needed to be sited near sufficient basic resources and population, location decisions were otherwise driven primarily by idiosyncratic considerations that would not have otherwise been relevant outside the context of the war emergency. Therefore, they estimate causal effects of plant construction by comparing counties where plants were built to other similarly-populated counties outside of major manufacturing centers—an approach which is supported by the absence of any association between "treatment" status and county characteristics in any year prior to the war among counties with comparable populations.

To examine the incidence of the policy intervention Garin and Rothbaum (2024) estimate impacts both on *county-level* labor market outcomes and on *individual-level* outcomes of children born in affected counties prior to the start of the war measured in longitudinally-linked administrative and survey records. They implement the research design using a parsimonious linear regression specification that includes only a treatment indicator and controls for the available workforce using log population and the share of individuals on farms in the baseline specification. Additional specifications examine robustness to additional controls for geography, prewar infrastructure spending, and other economic characteristics. In individual-level regressions, these county-level variables are assigned based on one's *birth location* and standard errors are clustered by county. Then main analysis sample, which omits the 100 counties with the highest manufacturing employment levels in 1939 includes 90 counties in main treatment group with plant spending totaling at least $10 million and 1,400 untreated counties in the comparison group.[4]

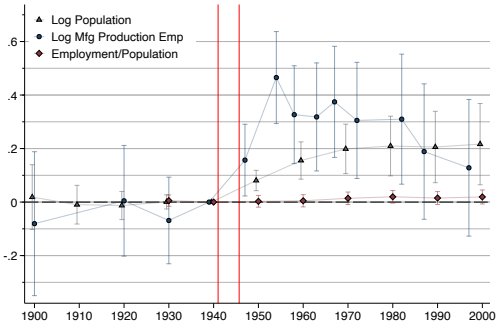
[4]Counties adjacent to other treatment counties are omitted from the control group to avoid contamination from localized spillovers. See Garin and Rothbaum (2024) for a more extensive discussion of the data construction and the research design.

4.1 County Level Results

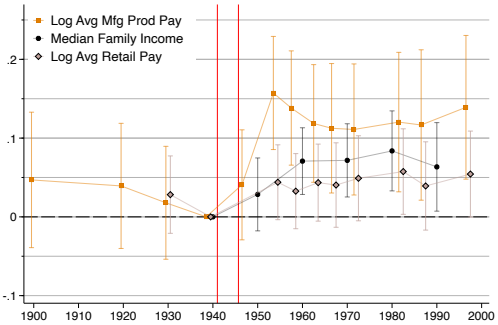
At the county level, wartime plant construction had large and persistent impacts on regional development. Figure 1 Panel A shows that, in the immediate aftermath of the postwar conversion, manufacturing employment in treatment regions expanded by roughly 30 percent in comparison to control regions. In the short run, local population growth through migration occurred gradually, manufacturing employment increased as a share of total employment by two percentage points. In the longer term, population in treated counties continued to grow, stabilizing at a new, permanently higher level about 20 percent above that of control regions. Meanwhile, the initial manufacturing effects waned somewhat over the long run until the extent of the manufacturing expansion was exactly proportional to the broader population expansion and the manufacturing share of employment in treatment regions converged back to the level in comparison regions. Garin and Rothbaum (2024) find that while short run effects were driven primarily by the presence of the single large treatment plant itself, the longer term effects are consistent with a permanent population increase that outlasted the initial plant and reflecting path-dependence in the regional development process.

Figure 1: Impacts of WWII Plants on County Development

(a) Effects on County Population and Employment



(b) Effects on Average Wages and Median Family Earnings



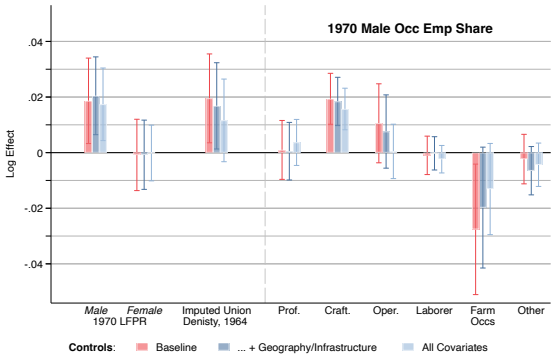
Notes: Figure displays OLS estimates of equations of the form $\Delta Y_c = \alpha + \beta Treat_c + \gamma X_c^{1940} + \epsilon_c$, with controls X_c only for 1940 log population and farm share. Sample includes 90 treatment counties with large, new government plants and 1400 comparison counties. All outcomes are differences relative to 1940 outcome levels (or 1939 as available) to compare differential increases in outcomes, 1940 effects are zero by construction. Each estimate and the associated 95% confidence interval is from a separate regression of the differenced outcome measured in the year specified in the x-axis on the treatment indicator. Outcomes observed in decennial years are tabulations from Decennial Censuses, all other outcomes are tabulations from Economic Censuses. Red lines denote beginning and end of U.S. involvement in WWII, during which time outcomes are not observed. See Garin and Rothbaum (2024) for additional details.

Not only did plant construction lead to long-run increases in manufacturing employment

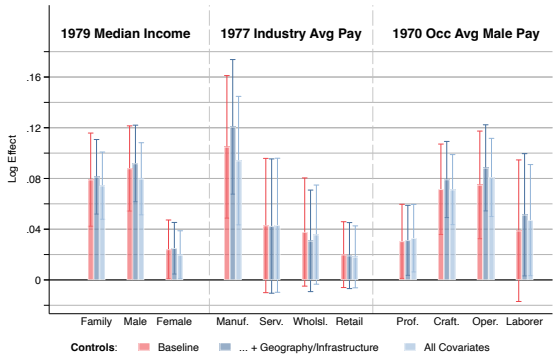
increases, it also led to a permanent 10 percent increase in the average manufacturing production worker wage, as evidence in Figure 1 Panel B. Notably, there was *not* a comparable increase in average wages in other sectors—for instance, the effect on retail wages was less than half the magnitude of the increase in manufacturing wages and not statistically different than zero in most years. Nonetheless, the large increase in manufacturing wages during a period of expanding manufacturing employment drove an increase in median family earnings by 7–8 percent during the postwar decades. Figure 2 shows that this increase in median family earnings was driving primarily by higher male earnings and, more specifically, higher wages *within* semi-skilled blue collar occupations. Interestingly, returning to Figure 1 Panel A, there was little impact on the overall employment rate in affected counties, particularly in the shorter term. Figure 2 shows that labor force participation among men in treated counties was higher by 1970 than in control counties, but not so for women (who were largely excluded from the blue collar occupations most impacted by plant construction).

Figure 2: Effects of WWII Plants on Labor Market Composition

(a) Effects on Employment Composition



(b) Effects on Wage Structure



Notes: Figure reproduces results from Figure 5 of Garin and Rothbaum (2024). Estimates are from OLS regressions of the form $Y_c = \alpha + \beta Treat_c + \gamma X_c^{1940} + \epsilon_c$ under alternative covariate specifications. Each estimate and the associated 95% confidence interval is from a separate regression of the specified outcome on the treatment indicator. The estimation sample includes 90 treatment counties and 1400 comparison counties. 1970 labor force participation rates and employment and average wages for men by occupation are tabulations from the 1970 Decennial Census and 1979 median incomes are from tabulations of 1980 Decennial Census; years are chosen based on availability of tabulated data. 1977 industry average pay are from tabulations of Economic Census data. "Imputed Union Density" is calculated using 1953 estimates of industry union density and the industry employment distribution within each county. See Garin and Rothbaum (2024) for additional details.

These wage effects raise two important questions. First, why did wages *within* manufac-

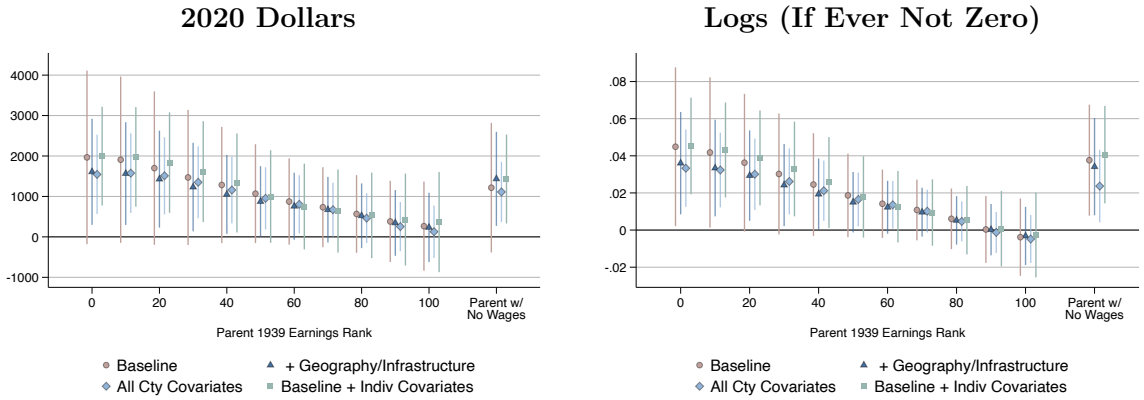
turing increase? If the explanation were simply higher local labor demand given mobility frictions (i.e. a finite local labor supply elasticity), then wages would have risen equally across all sectors, which is not what one observes in Figures 1 and 2. One potential explanation is "up-skilling" within the manufacturing sector; however, since Figure 2 shows that blue-collar wage increases occurred largely *within* occupation, any up-skilling would have had to occurred within fairly narrow occupational categories. Another explanation is rent-sharing—strong unions may have secured above-market wages from employers in highly profitable heavy manufacturing firms that faced relatively little foreign competition at the time. As noted above, union membership expanded dramatically at plants involved in war construction, and Figure 2 shows some evidence of higher imputed mid-century union membership rates in treated regions. At the same time, Garin and Rothbaum (2024) find that there is no evidence of smaller wage impacts in right-to-work states—though Farber et al. (2021) note that right-to-work laws may not have been binding in the postwar era.

A second question is whether higher wages in the local labor market translated to better outcomes for prewar residents. For instance, local workers might not have benefited if up-skilling occurred by attracting workers from other regions with specialized experience rather than by providing training to the local workforce. Assessing the distributional incidence of the policy intervention on *individuals* requires analysis of longitudinal data, which I turn to next.

4.2 Individual Level Results

To assess whether wartime plant construction benefited the population living in affected region before the war, Garin and Rothbaum (2024) leverage longitudinally linked data in order to examine the long-run outcomes of prewar residents. Specifically, they compare individuals who were born between 1922–1940 in either treatment or comparison counties, as observed in Social Security records. They estimate impacts on wage earnings reported on 1040 individual income tax returns in 1969, 1974, 1979, and 1984. They further link individuals to the 1940 Census in order to study the incidence of plant construction on children of parents with different levels of prewar earnings and to 2000 Census Long Form survey data to measure impacts on education.

Figure 3: Long Run Earning Effects on Men Born Before WWII in Counties Where War Plants Were Built



Notes: Figure reproduces results from Figure 6 of Garin and Rothbaum (2024). Estimates are from OLS regressions of the form $Y_i = \alpha + \beta Treat_{c_{birth}(i)} + \gamma X^{1940}_{c_{birth}(i)} + \delta Z_i + \epsilon_i$ under alternative covariate specifications. Each estimate and the associated 95% confidence interval is from a separate regression, where standard errors are clustered at the county level. The sample is all men born 1922–1940 in one of the 90 treatment or 1,400 comparison counties who are matched to parents in the 1940 Census. The outcome is 1969–1984 average wage earnings reported on 1040 returns. For each percentile level $p \in 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100$ a separate regression is estimated where individuals are weighted by their distance of their father's rank r_i to p using a triangular kernel with a bandwidth of 25 (weight $\omega_i = max(0, 1 - |r_i - p|/25)$); estimates are plotted on the y-axis against the corresponding percentiles p on the x-axis. Estimates for the sample of male children matched to parents in the 1940 Census with no wage earnings are reported separately. See Garin and Rothbaum (2024) for additional details.

Figure 3 plots the main estimates of impacts on average 1969–1984 adult earnings for men, by 1940 parent earnings rank. On average, men born in treatment counties in the 18 years before the war had $1,200 (2020 dollars) more in annual wage earnings than those born in comparison counties. Figure XXX shows that these effects were largest for children of the parents with the lowest lower prewar earnings, for whom plant construction increased adult earnings by $1,800 dollars per year in adulthood, approximately a 3–4 percent increase, and that there were no effects for children of parents with the highest prewar earnings. Garin and Rothbaum (2024) find that although there were similar effects on *household-level* wage earnings for both men and women, these effects were driven entirely by increases in the earnings of male *individuals* in the household, consistent with the county-level results in Figure 2. Consistent with other research (Collins, 2001; Ferrara, 2018; Aizer et al., 2020), they find that wartime production led to a decline in earning gaps between black and white men, particularly among black and white children of higher-earning parents.

Why did men from low-income backgrounds benefit from war plant construction? Several pieces of evidence suggest that they benefited primarily increased access to higher-wage jobs in adulthood. Garin and Rothbaum (2024) find that treated individuals were more to be observed as adults living in counties with higher median earnings and higher wages for workers in blue-collar semi-skilled occupations. Further, the effects on adult earnings are

entirely accounted for by location in adulthood—and are driven by those who remain in their birth county. Additionally, they document that directly document that treated individuals were themselves more likely to work in industries paying higher wage premiums as adults. Meanwhile, accumulation of general human capital appears to play a smaller role. While plants led to modest increases educational attainment for children of the lowest-earning parents, the effects are not large enough to account for the observed increase in earnings in adulthood. Treated individuals are no more likely to move away from their birth counties than those born in comparison regions; if anything, the point estimates point in the opposite direction. There is also no evidence that effects were larger for younger cohorts with longer exposure to plants during childhood.

4.3 Discussion

In sum, the individual-level results indicate that the county-level expansion of higher-wage employment in semi-skilled occupations did in fact lead to improved outcomes for children growing up in the region. Access to better-paying jobs—jobs that facilitated occupational upgrading for those with limited formal education—effectively created a "ladder to the middle class" for economically-disadvantaged residents. At the same time, these results also suggest that it was not expansion of manufacturing work *per se* that benefited residents so much as the persistent expansion of employment in jobs that offered improved opportunities for economic advancement to local workers that would not have been available to them otherwise.

A further question, is whether this was a *cost-effective* way of improving the outcomes of local residents. If one extrapolates from our results and assumes plant construction increased annual earnings of the 1.2 million men born in treatment counties by 1200 2020 dollars over a 40-year career, then the net present value of the total transfer would have been $34 billion at a 3 percent discount rate. By comparison, the 90 treatment plants cost roughly $60 billion in 2020 dollars, with only about 40 percent of the cost of each plant recovered when sold to the private sector. If those 1.2 million men were the only beneficiaries of the plant and each had an average tax rate of 20 percent, the implied marginal value of public funds—the dollar in benefits per net government dollar spent—would then be roughly 1.15 Finkelstein and Hendren (2020). Importantly, this calculation does not reflect any impacts on older cohorts of workers or on residents in the broader region, who Garin and Rothbaum (2024) find to have experienced similar benefits through access to better jobs. Moreover, this calculation also does not reflect any broader industrial goals such as the benefits of victory in WWII. Thus, from a local government's perspective, the distributional impacts of war plant construction

were large relative to the budgetary cost and cost-effective relative to direct transfers.

Importantly, however, the benefits to the local workforce may overstate the gains at the national level if wartime plant construction crowded out economic activity in other regions. Even though the government directly invested in new plants rather than creating incentives for firms to shift investment from one location to another, building government-funded plants in treatment areas may have ultimately reduced private investment in other regions, particularly investment in large cities where private investment had been concentrated before the war. For instance, the opportunity to buy war plants from the government at a significant haircut over construction costs may have lead firms to forgo plans to build new plants elsewhere. From a national policymakers perspective, the net benefits of war plant investment depends first, on the degree of crowd-out of investment in other regions and any resulting benefits that would have counterfactually accrued to workers in those regions; and second, the desirability of redirecting investment across regions due to either distributional preferences or disproportionately large benefits to increasing investment in target regions, as discussed in Section 2.

Table 1: County-Level Effects: Heterogeneity by Prewar Market Access and Manufacturing Density

Outcome:	Log 1970 Population			Log 1972 Manuf. Production Emp.			1970 Manufacturing Emp Shr			1970 Med Fam Income		
	1	2	3	4	5	6	7	8	9	10	11	12
Panel A: Interaction with 1940 Log Market Access (Standardized and De-Meaned)												
Per Capita New Public Plant $	.018***	.02***	.018***	.029***	.027***	.029***	.002***	.002***	.002***	.003*	.003**	.004***
(2020 Dollars)	(.003)	(.003)	(.003)	(.008)	(.008)	(.006)	(.001)	(.001)	(.001)	(.002)	(.001)	(.001)
Interaction	-.009***	-.011***	-.008***	-.023***	-.021**	-.015**	-.002***	-.001**	-.001**	0	0	-.001
	(.003)	(.003)	(.003)	(.008)	(.008)	(.006)	(.001)	(.001)	(.001)	(.002)	(.001)	(.001)
Panel B: Interaction with 1940 Manufacturing Employment Share (Standardized and De-Meaned)												
Per Capita New Public Plant $	.016***	.019***	.016***	.029***	.03***	.03***	.003***	.003***	.002***	.003*	.004**	.005***
(2020 Dollars)	(.003)	(.003)	(.003)	(.007)	(.007)	(.006)	(.001)	(.001)	(.001)	(.002)	(.001)	(.001)
Interaction	.001	.001	.001	-.008	-.009	-.012**	-.002***	-.002***	-.002***	-.001	-.001	-.001
	(.003)	(.003)	(.003)	(.007)	(.007)	(.006)	(.001)	(.001)	(.001)	(.002)	(.001)	(.001)
Included Covariates												
Baseline County Size	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
County Geography/Infrastructure		✓	✓		✓	✓		✓	✓		✓	✓
Extended County Covariates			✓			✓			✓			✓

Notes: Table presents estimates of a modified version of main regression specification that includes an interaction of the treatment of the indicator with the specified county characteristic as well as controls for the main effect of that characteristic along with the specified covariates. Both 1940 log market access and 1940 manufacturing employment share are standardized and de-meaned within the analysis sample, such that the main effects of per capita spending is approximately the effect for a county with the mean value of the interaction variable. *** indicates $p < .01$, ** indicates $p < .05$, * indicates $p < .10$.

Did WWII plant construction have larger impacts in some types of places than others? Table 1 presents estimates of regressions that interact per-capita spending on new government plants with either 1940 market access (based on road travel) or the 1940 share of employment in manufacturing. I use per-capita spending as the independent variable rather than treatment status in order to isolate heterogeneity due to county characteristics from differences in the size of the investment relative to the local population. The estimates in Table 1 show that the impacts of an additional investment dollar per resident were larger in regions that were more economically isolated. In particular, effects on regional growth and manufacturing expansion were substantially larger in places with worse market access, though the impacts on median earnings were similar across regions with different levels of market access. Prewar industrialization, measured by the 1940 manufacturing employment share, appears to have mattered less; Table 1 shows that the manufacturing employment share expanded more in places with lower baseline shares, but this did not translate into broader regional growth. Thus, the evidence about the potential gains from spatial reallocation of activity in this setting is mixed.

5 Evidence from Other Settings

The evidence presented above shows that localized industrial interventions can be effective at improving economic outcomes for disadvantaged individuals in the target region, at least under the right conditions. But should we expect place-based industrial interventions to have similar effects in other settings? In this section I review the evidence from studies of other place-based industrial interventions implemented in advanced economics in different periods and settings. These studies can be roughly divided into: 1) those that examine historical industrialization efforts, 2) modern regional development initiatives, particularly in Europe, and 3) studies of individual plant openings. Consistent with the focus of this chapter, I focus on studies that provide direct evidence about the incidence of interventions on the local population, rather than those that only examine effects on aggregate employment or investment. An important limitation is that only a small number of studies use longitudinal data to estimate individual-level impacts. Accordingly, I also discuss evidence from studies that examine effects on average wages, earnings, or employment rates of the local population measured on aggregated data, with the caveat that effects on such outcomes may reflect compositional changes in the population rather than individual-level benefits.

5.1 Evidence From Historical Industrialization Pushes

Most closely related to the WWII industrial mobilization are other historical interventions that promoted the *initial* industrial development of specific regions. Studies examining these interventions, which are able to examine outcomes over a long time horizon, often find large, persistent effects on regions and inhabitants, reflecting movement of the workforce out of traditional agriculture and into higher-productivity industrial work.

Particularly relevant is recent work by Mitrunen (2023), who leverages rich longitudinal data to examines the individual-level impacts of an industrialization push in Finland spurred by the need to make reparations payments (in the form of shipments of industrial products) to the USSR at the end of WWII. Mitrunen (2023) uses a "shift-share" research design that predicts which regions were more likely to be impacted on the basis of prewar industrial composition of employment in each location. The study finds that adult individuals living in impacted regions before the war were more likely to leave agriculture by 1950 and had higher incomes through the 1970s. The study further finds that younger individuals who were still children during the war ended up with higher incomes and higher levels of education in the long term. Though specific institutional details differ between the Finnish reparations context and the WWII industrial mobilization, the estimated effects are comparable across both settings.

Other early regional development initiatives fostered industrial development through major infrastructure improvements and investment incentives for private firms. One of the the most well-known regional development initiatives in US history was the New Deal era creation of the Tennessee Valley Authority, which made large-scale infrastructure improvements to facilitate transportation and electrification in the US Upper South. Using county-level data, Kline and Moretti (2014a) find evidence that these investments promoted a transition from agriculture to manufacturing and led to faster median family income growth (about 2 percent per decade). Freedman (2017) studies a contemporaneous initiative in Mississippi (the Balance Agriculture with Industry program) which attracted 13 large manufacturing plants to the state and finds that counties where plants were built had higher labor force participation rates in the long run, particularly among women. Looking outside the US, Bianchi and Giorcelli (2023) study postwar infrastructure reconstruction in Italy funded through the US Marshall plan, and find that workers in affected regions were more likely to shift into the manufacturing and service sectors. Also focusing on Italy, Cerrato (2023) and Incoronato and Lattanzio (2024) both study different regional variation in access to infrastructure and investment grants made by the *Cassa per il Mezzogiorno* to promote development in southern Italy over 1960–1992. Cerrato (2023) finds that grants led to higher employment rates in affected regions, and, in other data, Incoronato and Lattanzio (2024) find that average

wages were persistently higher in targeted regions as the resident population became more highly educated.

5.2 Evidence From European Regional Development Policy

A second body of evidence on place-based industrial interventions comes from studies of more recent regional development initiatives, particularly European policies aimed at ameliorating regional disparities.[5] These programs direct infrastructure investment, capital subsidies, and other incentives to promote industrial development in lagging regions (Ehrlich and Overman, 2020). Research on these policies often finds that they promote regional development to some extent, but the evidence is mixed whether "left-behind" populations actually benefit.

Multiple studies find that capital investment subsidies directed at firms stagnant regions lead to reductions in joblessness but do not increase wages conditional on working (or labor productivity more generally). Criscuolo et al. (2019) study the impacts of localized capital subsidies made as part of the EU Regional Selective Assistance (RSA) program in the UK and find that manufacturing employment increased on net accompanied by a decline in involuntary employment, though there was no effect on average wages or productivity. Notably, they find that the employment gains were driven entirely by small firms that received subsidies; large firms accepted subsidies but did not expand employment. In related work, Siegloch et al. (n.d.) examine the phasing out of the German GRW program, which directed manufacturing investment subsidies towards regions in East Germany. They find that removing subdies reduced manufacturing employment and find suggestive evidence that unemployment rose as a result. As in Criscuolo et al. (2019), they find no effects on average wages.

Several studies examining the regional effects of EU cohesion policy find that, to the extent there are resulting income increases, they are not well targeted to "left-behind" workers.Lang et al. (2022) study the impacts of EU cohesion policy on the income distribution within funded regions and find significantly larger income increases for richer households than for poorer households. Similarly, Albanese et al. (2023) find that the reduction of EU structural funds in Italy reduced average earnings in the impacted region, but this was driven entirely by earnings at the top of the income distribution with little impact lower-income workers. Becker et al. (2013) focus on regional heterogeneity in the impacts of structural funds and find that only regions with sufficient baseline human capital experienced any per-

[5]There is also a large literature on the impacts of empowerment zones, enterprise zones, opportunity zones, and other neighborhood development initiatives in the US. This literature finds evidence that interventions that directly subsidize employment of local residents (rather than just targeting investment) raise local wages (Busso et al., 2013) while other programs that target local investment have less clear impact on earnings of residents (Freedman et al., 2023).

capita income gains. On the whole, these studies suggest that any reduction in disparities in aggregate performance across regions resulting from EU cohesion policy does not translate to any significant reduction in overall inequality or improvement in outcomes for struggling workers (Lang, 2024).

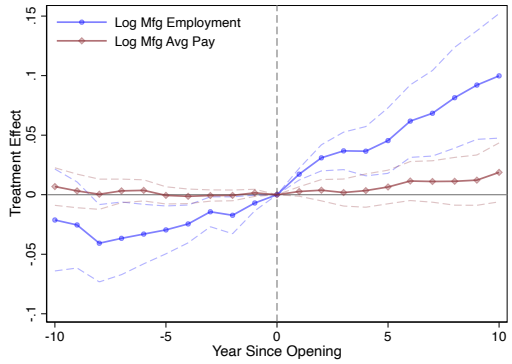
5.3 Evidence From Large Plant Openings

A final body of evidence comes from studies of the opening of large plants on local labor markets. Even if the construction of a plant is not driven by policy, evaluating its impacts relative to a suitable counterfactual is informative about the potential effects of policies that incentivize similar investments in target regions.

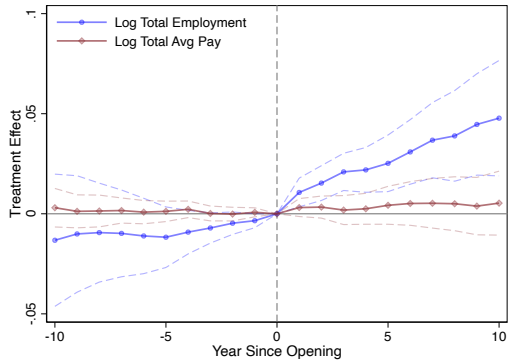
In an influential study, Greenstone et al. (2010) compare regions where large "million-dollar" plants were sited during the 1980s and 1990s to the "runner-up" regions that were also under serious consideration for each plant. While the original study finds significant impacts of plant construction on productivity at neighboring establishments, the incidence on the local labor market is less clear. In Figure 4, I plot follow the event-study specification from the replication of Greenstone et al. (2010) in Monte et al. (2018) to estimate effects of manufacturing plant openings on county-level employment and pay. Whereas both manufacturing employment and total employment expanded in treated counties, average manufacturing pay—and average pay more generally—did not change. Patrick (2016) re-examined the impacts of these same plant openings and found similar results.

Figure 4: County-Level Effects of Greenstone et al. (2010) "Million Dollar" Manufacturing Plant Announcements 1982–1993

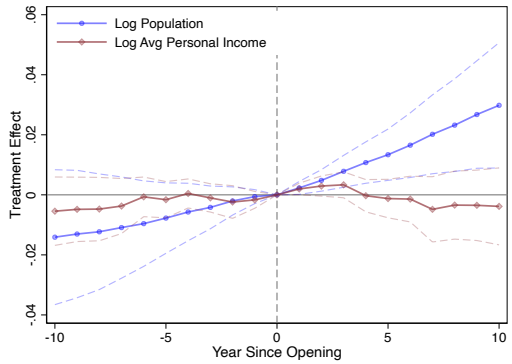
(a) Manufacturing Employment



(b) All Employment



(c) Population



Notes: Panel A replicates Figure 4 of Monte et al. (2018) using their replication code and data, which in turn examine the plant openings documented by Greenstone et al. (2010). We limit our sample to the 63 manufacturing plant sitings out of the 82 total plant sitings in the full sample. Panel B replicates the same specification for the 63 manufacturing plant but uses county-level manufacturing employment and average annual earnings from QCEW as the outcome. Panel C displays effects on log population and per capita personal earnings from BEA GDP data. Each panel's y-axis is plotted on a different scale.

In a similar vein, Slattery and Zidar (2020) compare places were plants were built since

1990 to close runner-ups, focusing specifically on plants that received generous subsidies from the local government to locate in their jurisdiction. While they find that plant openings increased local employment in the target industry, they find no evidence that local employment increased overall. Further, they find that winning a plant did not increase average incomes or increase employment rates. Thus, in contrast to plant construction during WWII, there is little reason to think that local residents benefited from the construction of those more recent plants.

While many place-based industrial policies promote manufacturing investment, others promote the development of cutting-edge industries using advanced production methods. Recent work by Qian and Tan (2021), which studies high-skilled firm entry into regions, is useful for assessing the incidence of such interventions. They use longitudinal data to compare outcomes for residents living closer to entry locations to those living farther away, and find that highly-educated incumbents benefit from the arrival of the firm. Workers with less education, however, gain less, and any gains are largely offset by higher rents. These results suggest that it is not safe to assume that the benefits of advanced industrial development will "trickle down" to "left-behind" workers.

5.4 Unpacking Differences Across Settings

Why have recent plant openings failed to raise wages similarly to what was observed in the case of WWII, even in cases that lead to local job growth? One potential explanation is that new plants do not offer opportunities for occupational upgrading and up-skilling to untrained workers to the same degree as WWII plants did. In a globalized economy characterized by highly-automated production processes, the jobs created that are available to untrained workers may not require any up-skilling, and more skill-intensive jobs may only be open to those with specific educational backgrounds. For instance, Dey et al. (2012) document that workers have become increasingly interchangeable in manufacturing plants, with a growing share of production jobs being performed by leased and temporary workers. In addition, new manufacturing facilities may not share engage in rent-sharing with workers to the same degree as in the past. New plants are less likely to be unionized, with many new plants built in right-to-work states, and workers facing greater competition from low-cost labor abroad and new production technologies may not be able to exert the same degree of bargaining power as in the past (Stansbury and Summers, 2020).

Even in competitive labor markets, growing employment in a region need not drive wage growth. Even if average rates of geographic mobility among Americans is declining, it remains the case that international migrants are highly responsive to local demand conditions

(Cadena and Kovak, 2016) and may fill jobs created by new plants—or fill other roles vacated the by workers moving into new jobs—in a highly elastic manner. Indeed, new plant openings also drive *population increases* in targeted regions, as apparent in Figure 4 Panel C, reflecting residential mobility responses. Further, jobs in a region may also be filled by long-distance commuters from other regions, which may increase the effective local labor supply elasticity, as highlighted in Monte et al. (2018).[6] Of course, it should be noted that all of the analyses in Sections 5.2 and 5.3 use average wages and earnings calculated based on average data and therefore does not hold the composition of the workforce fixed. Thus, it is possible that plant construction increases market wages but *down-skilled* jobs targeted at lower-earning types of workers moving into regions or joining the labor force.

There are also important differences between the respective economic contexts in which early industrialization efforts and modern place-based interventions took place. In each of the historical settings discussed here, the policy intervention promoted the *initial* industrialization of target regions, as opposed to reemergence of industry in regions that had experienced industrial decline or stagnation. In these historical settings, local workers were for the most part primarily employed in agriculture prior to the intervention. As a result, moving workers into more productive work in modern manufacturing and service sectors—relatively young industries that were not yet globalized—helped drive an increase in living standards. Each of these interventions all centered on infrastructure development or development of new industrial capacity that was under-supplied by the private market and facilitated structural change. In contrast, modern place-based initiatives rarely promote investments that require firms to up-skill the local workforce. Thus, when there are gains to the local workforce, it is typically in the form of reduced joblessness in slack local labor markets rather than higher earnings for working individuals. Nonetheless, for many individuals regions affected by industrial decline, reducing joblessness may be an important goal Austin et al. (2018).

In sum, there is no guarantee that localized industrial interventions that promote regional development or other social objectives will in turn generate meaningful benefits to the local workforce. The evidence presented here underscores the points raised above in Section 3: although production goals can align with distributional goals in some settings, such alignment appears to be the exception, rather than the rule, in most modern contexts.

5.5 Lessons For Future Policy

Given the persistence of high rates of joblessness and low rates of upward economic mobility in certain regions despite low rates of outward mobility, place-based industrial interventions

[6] In Figure 4, employment is measured based on job location, while population is based on residential location, so any growth of employment in excess of population might reflect increases in commuting.

can be a powerful tool to improve circumstances for "left-behind" workers in those regions without resorting to direct transfers Austin et al. (2018); Bartik (2020). However, while the results from WWII presented here highlights that industrial interventions can promote upward mobility in target regions, the evidence from more recent settings shows that policymakers should not assume that policies that increase investment and production in target regions will meaningfully benefit the resident population. Even policies that lead to substantial increases in local job counts often do not make incumbent residents better off. The foregoing discussion shows that details matter.

Taken together, the evidence surveyed here indicates that local industrial interventions benefit residents of target regions the most when they promote expansion of good jobs accessible to underemployed individuals or opportunities for up-skilling and occupational advancement to local workers with minimal training. There is also evidence that providing key specialized infrastructure and support help small firms get an initial foothold and expand is effective at creating jobs open to the local workforce, consistent with the argument in Bartik (2018). By contrast, there is little evidence that attracting large plants that need to pay low wages or fill positions with long-distance commuters and migrants from other regions to be profitable is effective at helping incumbent residents.

Thus, if current policy initiatives that promote advanced industrial development (such as the CHIPS Act) aim to benefit the local workforce, it is crucial for policymakers to create pathways by which local workers can gain get access to the higher-skill, higher-wage positions opening at new facilities. In a sense, the greatest challenge to the success of the CHIPS Act—the shortage of workers with specialized skills involved in semiconductor manufacturing (Martin and Galloway, 2023)—is also the greatest opportunity to promote upward mobility among the local workforce. A "big push" intervention that solved the coordination problem simultaneously created jobs in a region requiring specialized training and programs that equipped the local workforce with the local skills could lead to self-sustaining improvements similar to those observed after WWII. This view is further supported by recent studies of sectoral and on-the-job training initiatives, which find that programs that pair specialized training with job placement are particularly effective at generated sustained increases in earnings (Katz et al., 2022; Dillon et al., 2024). At the same time, policymakers should be careful not to put restrictions on implementation of industrial policies that might substantially undermine the primary industrial objective (i.e creating a self-sustaining domestic semiconductor manufacturing sector). In many cases, it may be better to purse separate targeted interventions that promote industrial cluster formation and distributional goals than to pursue a single initiative that falls short on both dimensions.

Ultimately, good policy decisions should be based on solid evidence. Yet, to date, there

is insufficient research on which types of demand-side interventions *actually* improve employment rates and earnings for "left-behind" individuals. There are therefore large social returns to future work assessing the impacts of regional polices on *individuals* using longitudinal data rather than aggregated job counts. Efforts by public officials to partner with researchers to evaluate prior interventions will yield crucial insights to guide future policy design.

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