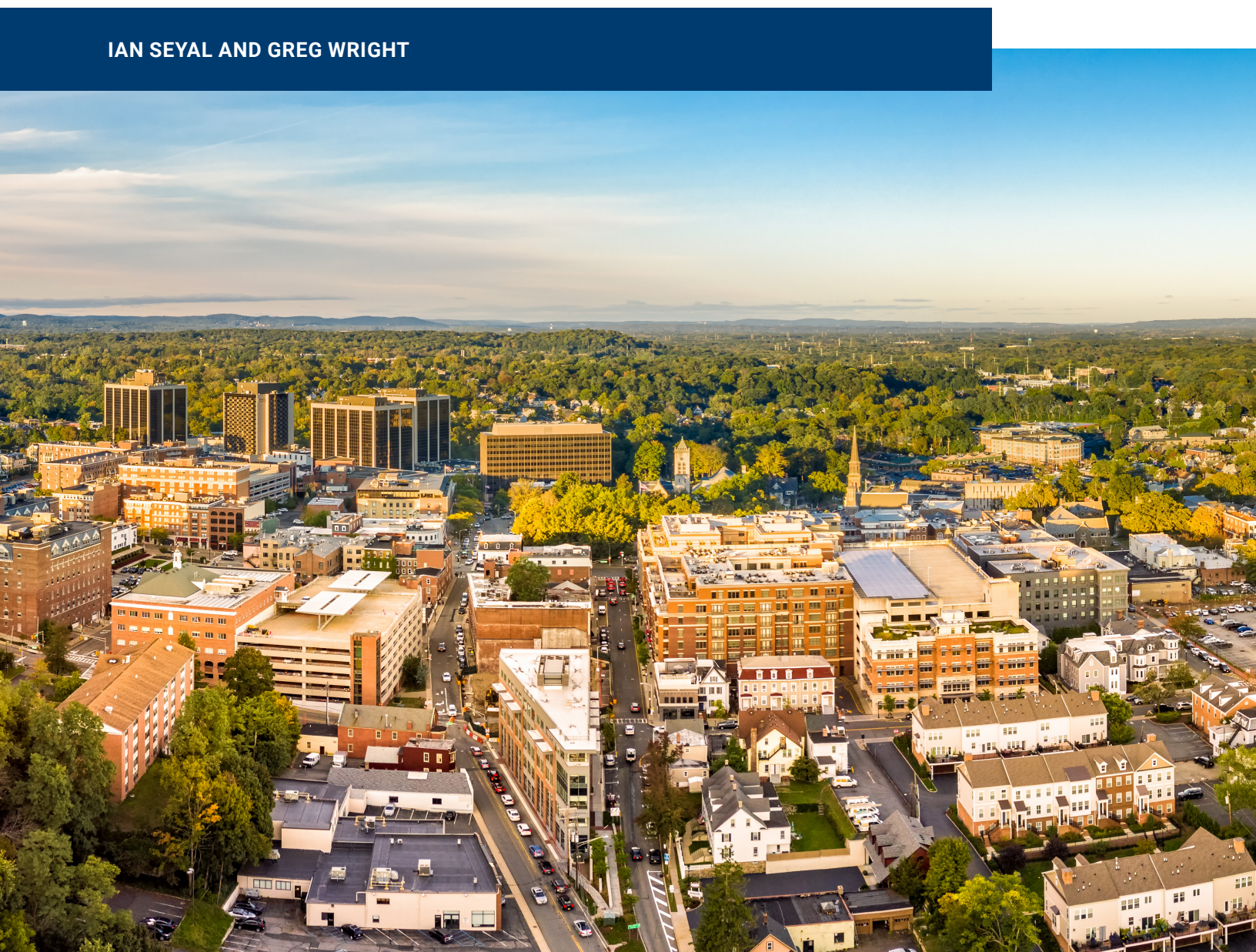# PLANNING FOR PROSPERITY
ANALYZING THE EFFECTIVENESS OF LOCAL ECONOMIC PLANNING

IAN SEYAL AND GREG WRIGHT

Planning for prosperity:
Analyzing the effectiveness of local economic planning

Ian Seyal and Greg Wright

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Report

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Acknowledgements

Summary

Economic development planning is meant to provide a roadmap to guide policymakers toward greater economic well-being and quality of life in a region. This report explores the effectiveness of planners in achieving these objectives. To do this, we use natural language processing to characterize the text of several hundred economic development plans and ask two primary questions. First, we ask whether planners are backward-looking—primarily documenting the recent growth experience in a region—or are forward-looking—going beyond this and identifying and creating the conditions for future growth opportunities. Second, we compare the economic development plans in key dimensions and relate these differences to differences in local economic growth rates.

Our findings reveal that planning documents serve a dual purpose, on average providing an accurate description of the recent composition of growth in a region while also anticipating the composition of future growth and, possibly, laying a foundation that leads to faster growth. In addition, we find that more detailed and quantitative planning correlates with faster growth. These results hold even when accounting for local income, population density, and document length. At the same time, a focus on equitable growth during the planning process is not associated with a decline in income inequality.

These facts suggest that federal and state policymakers should continue to support the regional planning process, especially for regions (like U.S. Economic Development Districts (EDDs)) that host distressed communities. Currently, the U.S. Economic Development Agency (EDA) provides funding and hosts resources for economic development professionals to use when developing regional plans. As of now, these resources do not describe the features of economic development plans that lead to greater economic success in a region, mainly because research on this topic is scarce. This report should begin a process of uncovering these features of effective planning in order to guide economic development professionals toward more effective planning strategies.

Introduction

Economic growth rates vary widely across regions of the U.S., leading to large differences in standards of living. For instance, Figure 1 depicts recent economic growth rates across EDDs, which are regions experiencing economic distress that we will focus on in this report. These differences can be explained by a variety of factors, including different local resource endowments, proximity to institutions like universities or state or federal government buildings, or simply better local governance and planning. This report focuses on the last explanation. More specifically, we explore how local economic development planning fits within the actual growth that is—or is not—experienced by communities. Are economic development planners backward-looking—i.e., focused on documenting recent growth trends? Or are they forward-looking, identifying future opportunities for growth? And how much of the difference in future economic growth is attributable to different approaches to planning? To the extent that some economic development plans are more predictive of future growth, there may be lessons to be learned about the nature of effective planning.

Figure 1. Economic growth rates across US Economic Development Districts
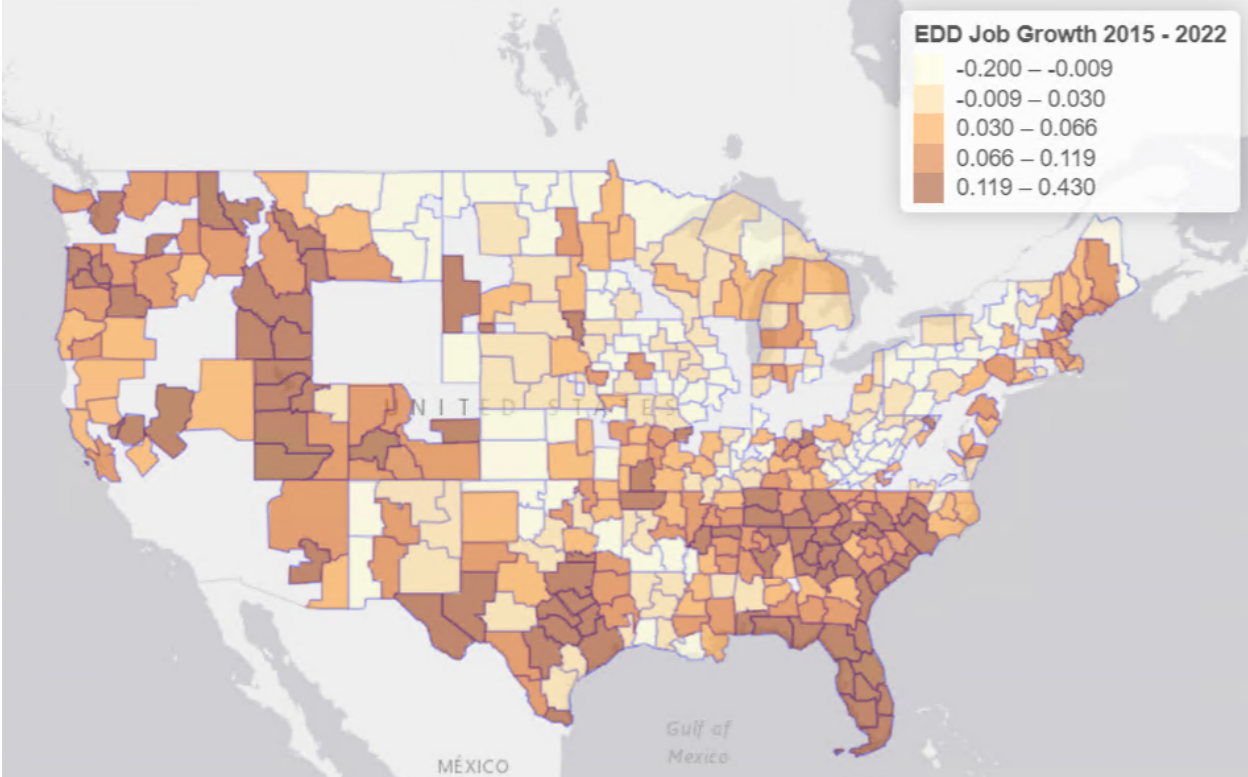
Source: Census County Business Patterns and authors' calculations.

Of course, economic growth is not everything. But it is the remit of hundreds of economic development professionals who are charged with raising standards of living, especially for the most economically vulnerable. To highlight the importance of local economic growth, and hence economic growth planning, we begin the report with an analysis of its impact

across the income distribution. Using state-level data from the Current Population Survey (CPS) over the period 1984-2013, we find that increases in gross state output led to increases in income across the income distribution, but much more for those with lower incomes. For instance, for every 1% increase in state output, the poverty rate—the share of individuals living below the federal poverty threshold, which is around $30,000 per year for a family of four—falls by around half a percentage point. We find that the income gains associated with local economic growth are especially large for young people without a high school degree and single mothers.

In principle, economic development planners play an important role in generating local economic growth. Moreover, there is a range of anecdotal evidence suggesting that smart investments and forward-thinking policies at the local level have led to sustained periods of rising incomes in some places. To address this question more systematically, we apply natural language processing methods to several hundred local economic development planning documents. We focus specifically on U.S. EDDs, which are required to produce an economic planning document—called a Comprehensive Economic Development Strategy (CEDS)—on a regular basis. Because portions of these districts are distressed, the importance of effective economic development planning is heightened. And because the districts produce plans under identical guidance and at regular intervals, we can compare these plans knowing they were produced by planners with very similar objectives.

We start by identifying industry mentions in the documents and measure the relative importance of each industry to each economic development plan, where more mentions signal greater importance. We then ask whether the industries that receive relatively more focus within a plan 1) had grown relatively rapidly over the recent period in that EDD (indicating that planners are backward-looking) or 2) subsequently grow faster relative to other industries in the EDD (indicating planners are forward-looking). In the latter case, it may be due to a causal relationship from planning to growth, a continuation of existing growth trends, and/or because planners accurately anticipate the composition and extent of their region's future growth.

Finally, we explore the relationship between planning document characteristics and local economic outcomes. We find little evidence that a focus on equitable growth during the planning process leads to a decline in income inequality in subsequent years. However, we do find evidence that relatively more detailed and quantitative planning is associated with faster economic growth in a region, even holding local income, population density, and the length of the planning document fixed. We conclude with a short list of planning elements that are correlated with better outcomes and that may be useful guideposts for economic development planners.

This evidence on the efficacy of planning and its consequences for growth and inequality is especially important in light of the recent ramp up of federal industrial policy. Over the next few years, the Infrastructure Investment and Jobs Act, the CHIPS Act, and the Inflation Reduction Act will continue to direct billions of dollars to local governments to build and expand high-tech industries, repair critical infrastructure, and boost workforce

development. At the local level, policymakers will use these funds to achieve a variety of objectives, including finding new sources of economic growth, often with the hope of reducing local inequality. The findings in this report suggest that clear and careful economic development planning is a key input to this process.

The report is organized as follows: Section 1 of the report explores the impact of local economic growth on the income distribution, and in Section 2 we examine the role that local economic development planners play in generating economic growth and reducing inequality.

Section 1. The consequences of local economic growth

A large literature demonstrates that economic growth is important for many (though clearly not all) of the outcomes that policymakers care most about (e.g., Killingsworth, et al, 2023; Stevenson and Wolfers, 2013; Weil, 2014). Here, we explore the relationship between local economic growth and changes in family income across the income distribution. To do this, we follow the approach of Dube (2019), who estimates the impact of state minimum wage changes on the family income distribution. We use state-level earnings data for the working-age population from the Current Population Survey (CPS) over the period 1984 to 2013 and focus on the impact on incomes due to growth in gross state output obtained from the Bureau of Economic Analysis. We also estimate the effects separately for those without a high school degree, those under 30, Black and Latino individuals, children (under 18), and single mothers. Appendix A provides more details on the construction of the dataset. A key caveat is that the CPS is "top-coded", so that the largest U.S. incomes are in effect unobservable. We focus instead on the bottom and middle of the family income distribution.

We measure family income as a percentage of the federal poverty line (FPL), which is sometimes referred to as an "income-to-needs" ratio given that it increases with family size and the number of dependents in the household (i.e., it increases with family needs). In 2023, the federal poverty line was \$30,000 for a family of four. We then estimate a series of 12 separate "dynamic" regressions on samples of workers at different income-to-needs cutoffs ranging from half of the FPL up to six times the FPL.[1] These regressions produce estimates of the relationship between local economic growth and the change in the share of people earning below these different income cutoffs. The regressions are "dynamic" because they estimate these effects at one-, two-, and three-year lags of economic growth.

The sum of the lagged effects ($\beta_{c0} + \beta_{c1} + \beta_{c2} + \beta_{c3}$ in the regression in footnote 1) represents a cumulative long-run (three-year) semi-elasticity of the share below some threshold

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[1] We estimate 12 separate regressions—each of which estimate the relationship between local economic growth and family income below some income cutoff—via the following dynamic two-way fixed effects regression:

$$I_{ict} = \sum_{k=0}^{3} \beta_{ck} \ln\left(Emp_{s(i)t-k}\right) + \alpha_c X_{it} + \gamma_c W_{s(i)t} + \mu_{cs(i)} + \theta_{ct} + \epsilon_{ict}$$

where the variable, I_{ict} indicates whether an individual i lives in a household whose income-to-needs ratio falls below some cutoff c in year t; $s(i)$ refers to individual i's state of residence; X_{it} is a vector of individual-level covariates including dummies for sex, race, ethnicity, marital status, family size greater than two, one or more children, education more than high school, and age greater than 35; and $W_{s(i)t}$ are state-level controls including the state unemployment rate and per capita GDP. Finally, $\mu_{cz(i)}$ are state fixed effects, θ_{ct} are year fixed effects, and ϵ_{ict} is the residual.

income-to-needs ratio with respect to state output. In other words, it indicates how much the share of the population living below one of the 12 income cutoffs changes due to a percent increase in state output.

These estimates clearly do not fully reflect the causal impact of economic growth on incomes, since there may be a variety of explanations for their co-movement, even with the relatively strict specifications that we estimate. With this in mind, we have repeated the analysis using a "shift-share" instrumental variables approach, which is common in empirical work.[2] The estimates produced with this approach are somewhat larger but also more noisy and so indistinguishable from zero along much of the income distribution; however, the pattern of the estimates along the income distribution remains the same.

Figure 2. Impact of state output growth on income-to-needs ratios along the Federal Poverty Line
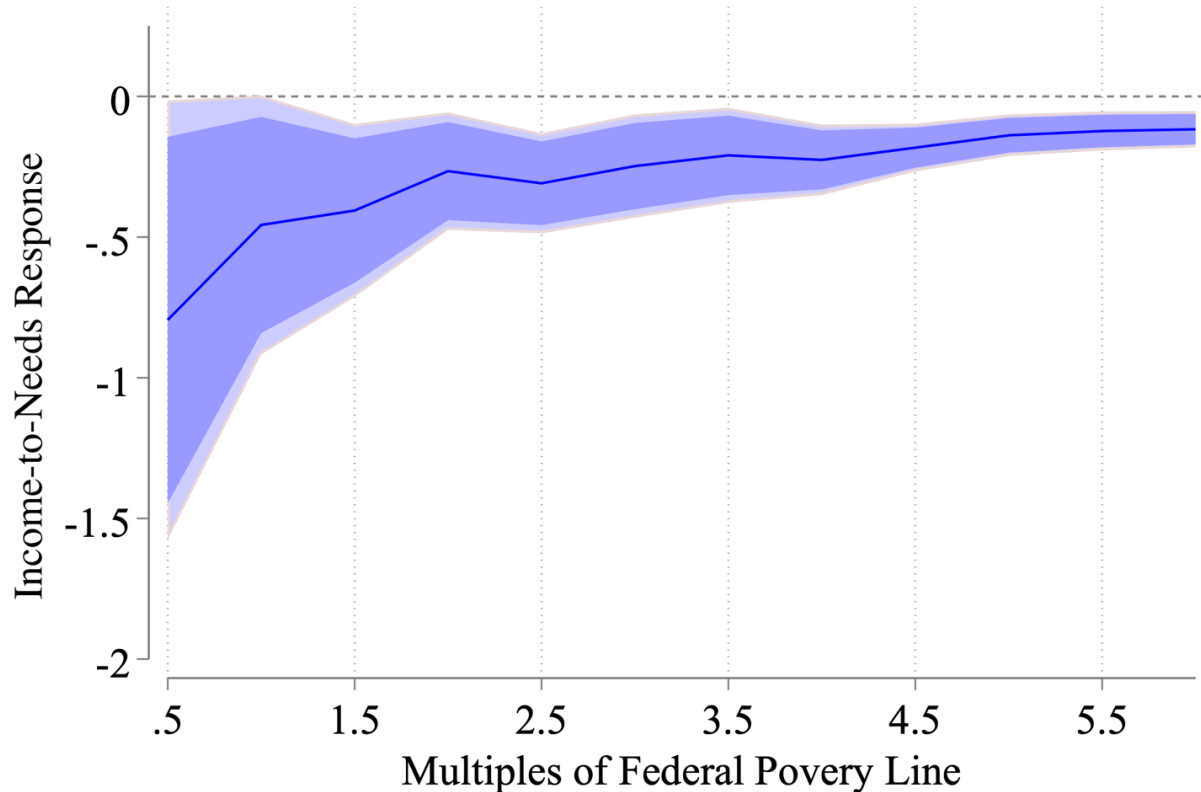
Notes: The Y-axis measures the percent change in the share of individuals living below a given Income-to-Needs ratio due to local economic growth. The X-axis shows the income group the estimate applies to, measured as a share of the FPL.

Source: Authors' calculations

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[2] In short, we allocate national-level economic growth at the industry level to states based on the state's output in each industry ten years prior to the period of study. These industry values are then aggregated up to the state-year level and serve as the underlying ("first stage") source of variation behind the estimates.

Results

Figure 2 summarizes the impact of an increase in gross state output on the 12 different income-to-needs ratios, where negative values indicate a *reduction* in the share of families living below a given income ratio, therefore capturing gains to the families. The figure highlights two facts. First, everyone gains materially from economic growth—i.e., there is a decrease in the share of individuals living below every income threshold when there is faster growth. Second, the largest gains accrue to families at the bottom of the income distribution, who are much more likely to move up in the distribution relative to richer families. Again, we lack data on the very largest incomes and so these effects set the richest Americans aside.

Importantly, these poverty-alleviating effects of economic growth vary across demographic groups. Table 1 reports the results for groups beyond our main sample of working-age individuals. Here we focus only on the very bottom of the distribution—specifically, the bottom 5 (out of 12) income cutoffs (reported in column 1 as the family income cutoff).[3] Again, the reported coefficient is the sum of the three-period lagged coefficients. Most importantly, we see much larger estimates at lower family income cutoffs and the estimates are more likely to be statistically significant. The largest effects are for single mothers (the last column), individuals under 30 (column 2), and Black and Latino individuals (column 5), each of whom saw large declines in poverty due to broad state-level economic growth. At the same time, the effects are strong for nearly all groups below half of the federal poverty line (first row).

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[3] Due to the reduced sample sizes in these groups, there are few statistically or economically significant effects beyond 1.5 times the FPL and so we do not report these.

Table 1. Estimates of the impact of state output growth on different income-to-needs ratios, by group

Family income cutoff	< HS, under 30	< HS	≤ HS	Black and Latino	Children	Adults	Single mothers
0.50	-1.726**	-1.342*	-1.000*	-1.718*	-1.607*	-0.146	-1.777**
	(0.759)	(0.698)	(0.588)	(0.955)	(0.805)	(0.379)	(0.729)
1.00	-0.527	-0.335	-0.242	-0.761**	-0.405	-0.039	-0.710**
	(0.348)	(0.304)	(0.267)	(0.352)	(0.351)	(0.202)	(0.320)
1.50	-0.143	-0.117	-0.051	-0.106	-0.072	0.039	-0.290
	(0.244)	(0.219)	(0.187)	(0.221)	(0.256)	(0.179)	(0.213)
2.00	-0.063	-0.024	0.050	0.142	-0.005	0.026	0.042
	(0.157)	(0.151)	(0.119)	(0.140)	(0.157)	(0.135)	(0.145)
2.50	-0.068	-0.038	-0.034	0.128	-0.049	-0.053	0.084
	(0.148)	(0.135)	(0.110)	(0.118)	(0.149)	(0.120)	(0.091)
Observations	4,421,529	1,399,367	1,664,253	2,583,825	991,496	1,269,646	2,665,556

Source: Authors' calculations

Section 2. Do economic planners shape economic growth?

The findings in Section 1 highlight what is at stake for economic development planners. Ideally, the next step would be to determine whether planners are, in fact, able to influence rates of local economic growth and how they are able to do so. This, however, is challenging for at least a couple of reasons. First, planners are continually making decisions, making it difficult to relate any specific decision to a particular outcome. Second, planners are not assigned to regions randomly—for instance, the best planners may work in fast-growing areas, which confounds cause and effect. With these challenges in mind, in this section we simply ask how attuned planners are to the trends and possibilities of their region. The most important finding is that industries that are emphasized in economic planning documents subsequently grow faster than industries that are not emphasized, suggesting that planners are, at the least, good at documenting and anticipating local economic growth, if not causing it. We also find no evidence that a focus on equity in economic development documents translates into more equitable outcomes.

To do this, we analyze the text of Comprehensive Economic Development Strategies (CEDS)—the economic planning documents that EDDs are required to produce every five years and update annually.[4] The EDD regions themselves are designated and administered federally by the EDA, whose funding grew by $1.2 billion in 2023 reflecting Congress's increasing commitment to local economic development.[5]

The development documents produced by EDDs are of particular interest because these multi-jurisdictional regions must be economically distressed to receive the designation. For these regions, resources are often scarce and economic development planning can be especially costly. Whether this planning is effective is therefore an important question.

Evidence from Comprehensive Economic Development Strategies

Our starting point is 363 CEDS covering 1998 to 2021. This is not the full universe of CEDS, nor does it cover all EDDs. Only about 75% of EDDs have a CEDS in the sample, and several EDDs have multiple CEDS. We therefore trim the sample such that each EDD has one CEDS, prioritizing CEDS published around 2014 to maximize the number of years before and after publication in the dataset.

We first measure the extent to which different industries are mentioned in each CEDS, which reflects the attention paid by planners to those industries. To do this we begin with the text of all North American Industry Classification System (NAICS) industry titles as well as the text of all NAICS industry descriptions at all levels of industry aggregation (NAICS two- through six-digit.) We parse each two-word combination from this text and

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[4] CEDS are intended to be the product of a "regionally owned" planning process that "guides the economic prosperity and resiliency of an area or region."

[5] https://www.whitehouse.gov/omb/budget/

search for these two-word terms in each CEDS. A two-word term is determined to be meaningfully associated with an industry if it is in the name or description of the industry or if it is in the name or description of any of the industry's subsectors. Figure 3 depicts the most mentioned industry descriptors in our CEDS sample.

A more informative measure, and the one we use in practice, is the *relative* number of meaningful mentions of a term. For example, references to "public safety" industries appear in almost every CEDS but appear most often in the 2012 CEDS of a northern Mississippi EDD. By comparison, references to "wood products" industries appear in only half of CEDS, and most often in the 2020 CEDS of a north-central Idaho EDD. To capture this idea more formally, we construct a measure of the Relative Emphasis (RE) of an industry.[6] Taking the above example, the RE of Justice, Public Order, and Safety Activities in northern Mississippi is 0.8 whereas the RE of Sawmills and Wood Preservation in the north-central Idaho EDD is 18.9. This difference reflects the fact that public safety industries are simply more common in all regions, so that any regional concentration in them is less significant.

Figure 3. Most mentioned industries in EDD CEDS
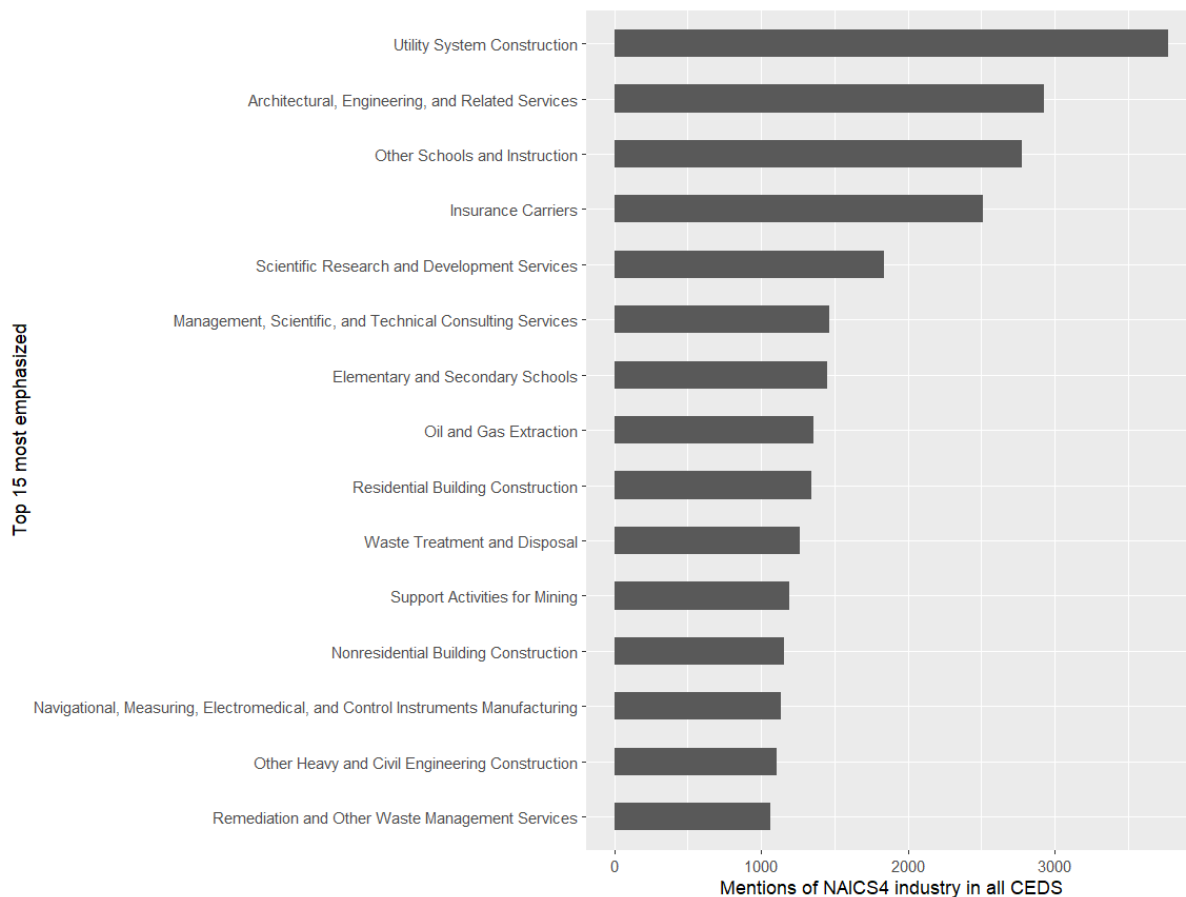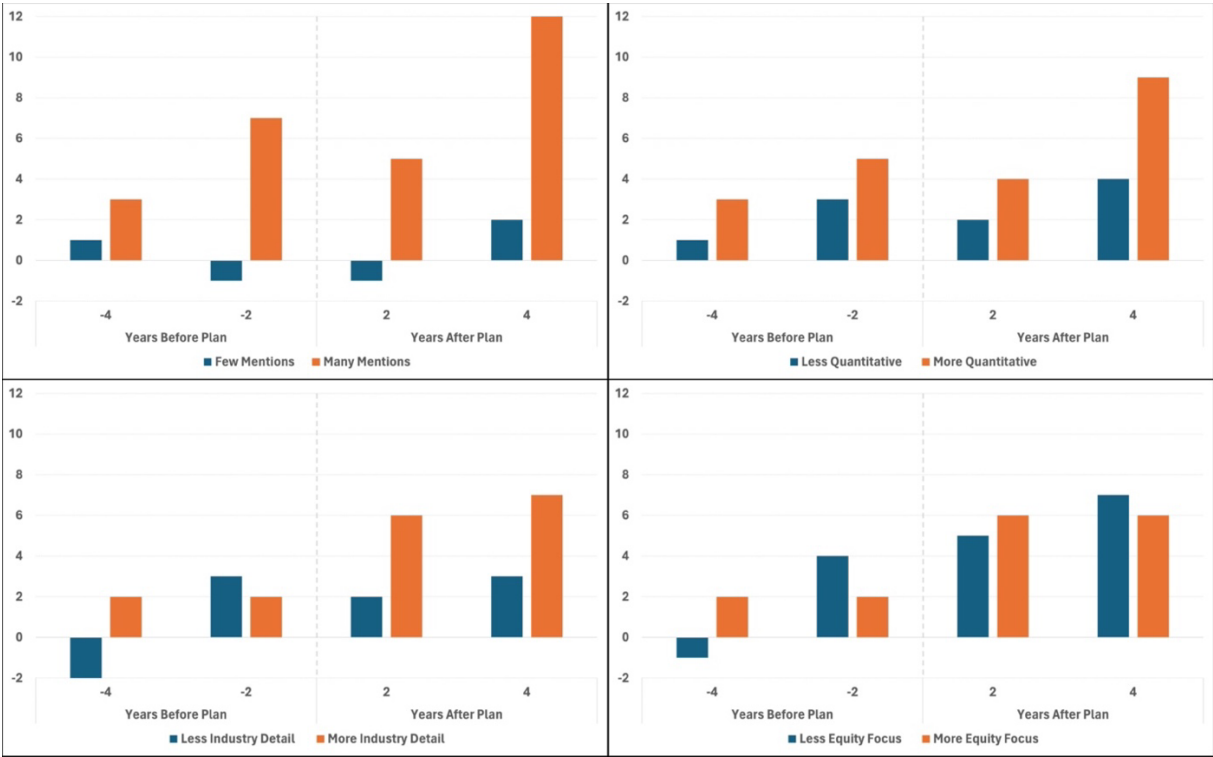

Source: Authors' calculations

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[6] Formally, the RE is the meaningful mentions (mm) of an industry in a CEDS divided by the mm of all industries in that CEDS, all over the mm of that industry in all CEDS divided by mm of all industries in all CEDS.

Planners are both backward- and forward-looking

Figure 4 documents industry (panel A) and CEDS document (panels B-D) features and their associations with economic growth (the Y-axes are growth rates), both before and after the publication of a CEDS plan, where CEDS publication is indicated by the dotted line. Panel A looks across all CEDS plans and shows clearly that industries that are mentioned the most (as measured by their RE and depicted by the orange bars) were both relatively fast growing *before* the CEDS was produced, as well as *after*, compared with industries not frequently mentioned (the navy bars). This suggests that planners are both backward- and forward-looking, constructing the document with an eye to both what has recently happened in the region as well as what will happen in the coming years. What stands out is that growth in the industries with many mentions was particularly fast over the four-year period following the production of the CEDS, an indication that planning either sets the groundwork for future growth, that planners are good at predicting the industries that will grow (possibly, in part, by extrapolating past trends), or some combination of the two. In any case, this finding suggests that CEDS planners are clearly well informed and, possibly, laying the groundwork for future growth.

Next, we explore features of the CEDS documents themselves that may be reflective of the "quality" of the planning document. In panels B through D we ask whether planning documents that are more quantitative, more detailed, or more focused on equity are associated with different rates of growth before and after publication of the CEDS.

Figure 4. Industry growth before and after publication of a CEDS, by industry and CEDS document features
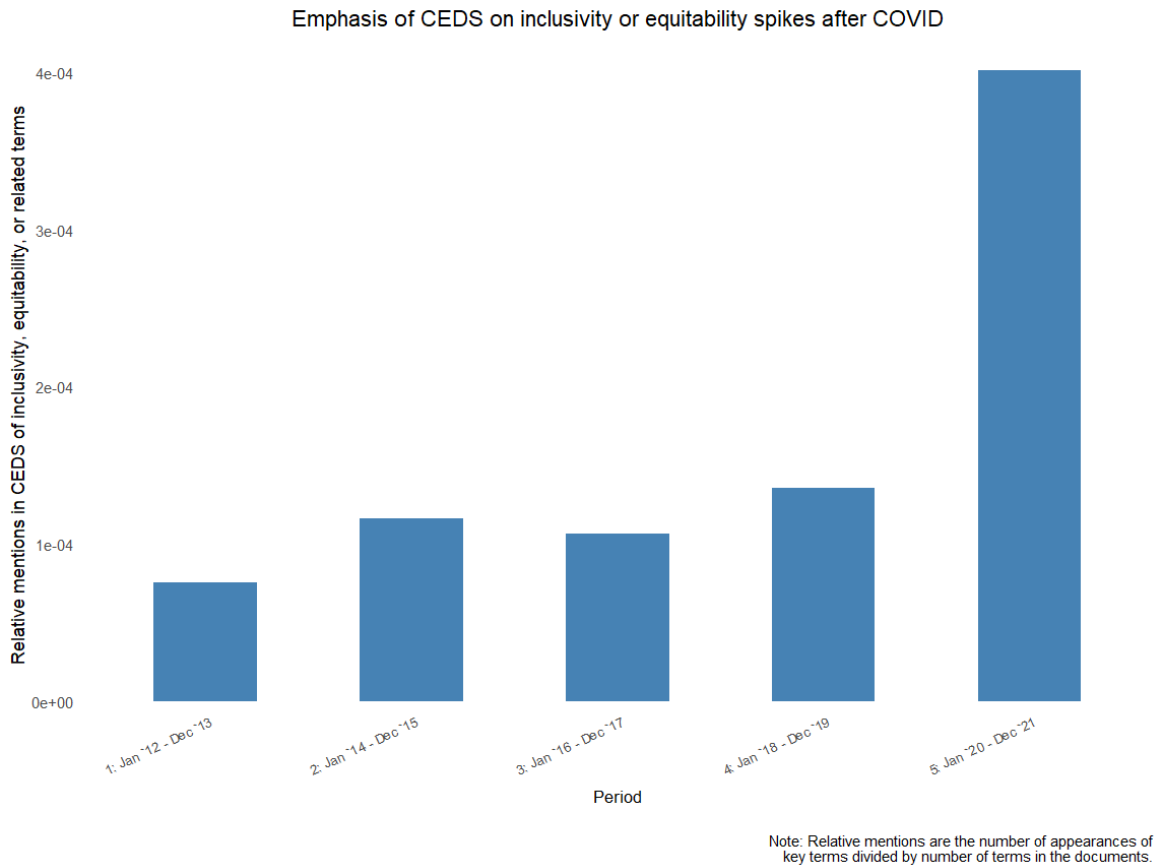
Panel B suggests that more quantitative analyses of industries found in CEDS documents (in orange) are indeed associated with somewhat faster growth of those industries compared to less quantitative documents (in navy), both before and after CEDS publication. An emphasis on quantitative analysis may be correlated with a variety of other EDD and planner characteristics that drive this correlation. We can rule out some of these characteristics by asking whether future four-year growth remains correlated with the production of a CEDS even controlling for EDD population density, average income, and the length of the CEDS document. We find that the correlation remains strong under this regression approach.[7] This indicates that the quantitative nature of the CEDS, or possibly other unobserved factors correlated with it, are driving the association with future growth.

Panel C focuses on the level of detail used when discussing industries in a CEDS. Specifically, we measure the share of industry mentions that are referencing the titles of four- or six-digit industries (more detailed) relative to two-digit industry titles (less detailed). Panel C indicates that more detailed industry mentions are associated with faster economic growth of those industries only after the CEDS is published, a result that again holds even controlling for population density, average income, and CEDS length.

Finally, we explore the relationship between expressed equity concerns within economic development plans and subsequent economic growth or changes in local inequality. First, Figure 5 documents a fairly stable amount of concern with equity within CEDS prior to the COVID pandemic, followed by a sudden rise in equity mentions during the pandemic period. Second, returning to Figure 4, Panel D we see that there is little difference in economic growth outcomes between CEDS that do, or do not, emphasize equity.

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[7] The sum of three-year lagged coefficients is 0.179 and is significant at the five percent level.

Figure 5. Relative mentions of equity keywords within economic development plans over time

Emphasis of CEDS on inclusivity or equitability spikes after COVID

Note: Relative mentions are the number of appearances of key terms divided by number of terms in the documents.

Source: Authors' calculations

A more direct question is whether equity concerns are correlated with changes in inequality across regions. With this in mind, we repeat the exercise in Figure 4, panel D but focus on the regional share of income going to individuals earning in the bottom 20th percentile of income between CEDS that do or do not emphasize equity. Here, again, we find no statistically significant difference between the groups for any period. We find similar results when focusing on the income share of individuals in the bottom 40th percentile, individuals holding a high school diploma or less, Black individuals, and Hispanic individuals.

Discussion

In Section 1, we showed that local economic growth reduces local inequality by raising the incomes of families near the Federal Poverty Line, a straightforward but important finding that confirms an important role for planning and policies that can generate growth. In Section 2, we showed that, on average, economic development planners are good at describing and anticipating growth opportunities for their region, though whether they are themselves causing that growth is uncertain. Moreover, more sophisticated (detailed and quantitative) planning is associated with faster growth.

These facts should serve as a starting point for additional work that seeks to understand the role of economic planning in regional growth. Some of that work may extend our use of natural language processing, for instance to look at how development strategies change over time within a region, how the demographic composition of planning boards and staff impacts planning documents and economic outcomes, or how policy changes at the state and federal level impact planning objectives. More ambitious empirical work could try to tease out the causal impact of planning on outcomes.

Finally, while Section 1 showed that economic growth reduces inequality between the bottom- and middle-income percentiles, the results in Section 2 suggest that explicit concerns about equity that are expressed within planning documents do not, on average, result in more equitable outcomes. Further research could explore the relationship between stated equity concerns and the types of policies that are carried out, which may strengthen the link between these findings.

Policy recommendations

This report finds strong evidence that economic development planning is related to local economic outcomes, both in the past and the future. This suggests that planning is broadly effective and useful. Federal and state policymakers should therefore continue to support the regional planning process, especially for regions (like EDDs) that host distressed communities.

Currently, the EDA directly supports the EDD planning process through annual and multi-year financial support and technical assistance. This technical assistance would clearly benefit from a better understanding of the channels through which economic development planning leads to better economic outcomes. As our report hopefully demonstrates, researchers' ability to analyze the text of policy documents should help move technical assistance in this direction by uncovering new insights that policymakers can apply when guiding economic development professionals toward more effective planning strategies. Federal and state agencies should support research in this area and incorporate findings in the technical assistance that they provide.

Appendix

Identifying industries in CEDS

Many terms appear in multiple industry titles or descriptions. For example, the term "motion picture" appears in the NAICS industry title Motion Picture and Video Industries, but it also appears in the description of a subsector of the industry Employment Services, as in, "Casting agencies (i.e., motion picture, theatrical, video)."

To ensure that each two-word term uniquely identifies a 4-digit NAICS industry, we count the appearances of the term in all the subsector branches (i.e., all the 5- and 6-digit NAICS industries with the same first four digits,) then associate the term with the industry in which the term appears most. For instance, we assume that if a CEDS were to mention "motion picture" they are most likely referring to the NAICS industry Motion Picture and Video Industries because the term "motion picture" occurs most often in the descriptions and titles of that industry and that industry's subindustries.

Many CEDS contain summary tables describing employment, wages, or growth of dozens or more industries. These industry mentions can be distinguished from more meaningful industry mentions in the CEDS by identifying only the mentions of two-word terms that are not immediately preceded or followed by terms associated with another different industry.

The text processing procedure described above can be performed using terms of various word lengths as well as at various levels of NAICS specificity (NAICS level of 2-, 3-, 4-digit, etc.) To validate the process and to determine the most suitable level of analysis, we compare the log number of meaningful mentions of an industry with the national log employment of the industry. Intuitively, and in general, CEDS ought to be more often mentioning industries in which more people are employed. The correlation is greatest when using two-word terms at the NAICS 4-digit level.

The industries mentioned most often are shown in the figure below.

n = 221, r = 0.45
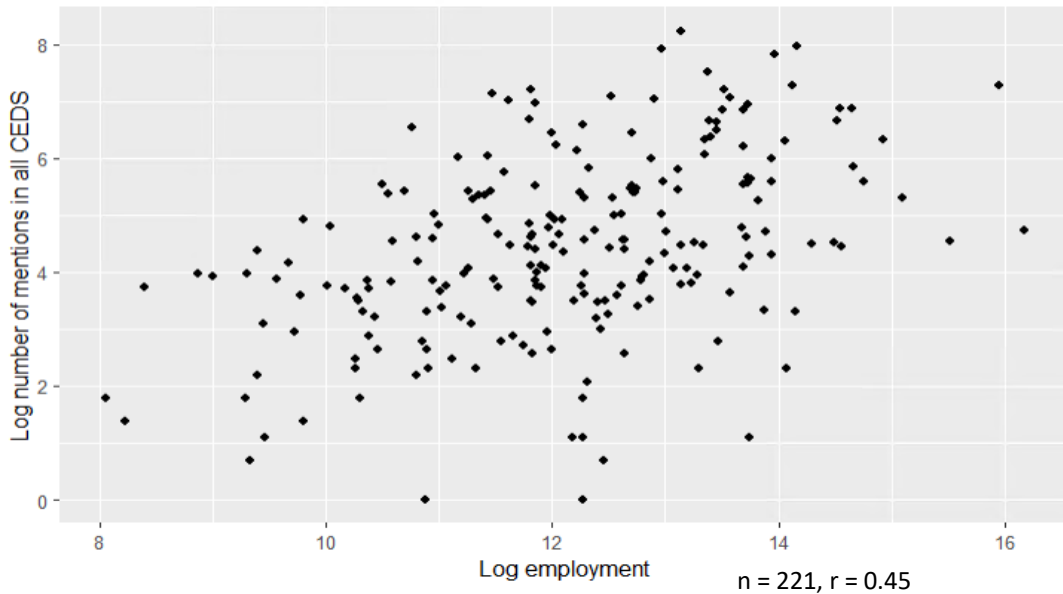
Source: Authors' calculations

Identifying the features of CEDS documents

To characterize an economic development document (CEDS in this case) as more or less quantitative, detailed in its industry discussion, or concerned with equity, we applied natural language processing using ChatGPT's API. We did this by asking ChatGPT to write python code that reads in the set of CEDS and accesses its own API to score each CEDS on each metric. Importantly, the code that ChatGPT produced was reviewed and edited. Documents that scored above the median were deemed "more" and those below the median "less."

We also consulted ChatGPT on the formal definition for the metrics, iterating and refining the definitions using our own judgement. The resulting definitions are the following:

Quantitative Reference Score: analyzes the text for occurrences of numbers, data-related terms, and statistical measures. Results are robust to including, or not including, tables or figures in the definition. The value is then divided by the total number of words in the document, so can be interpreted as a quantitative intensity.

Detailed Industry Discussion: analyzes the text for mentions of standalone phrases or words present in the titles of industries at different levels of aggregation. For instance, mentions of "manufacturing" on its own (not surrounded by text describing the type of manufacturing) would be categorized as lacking detail, while "asphalt shingle and coating materials manufacturing" would be categorized as detailed. Again, the value is divided by the total number of words in the document.

Equity Concern: Analyzes the text for occurrences of the word "equity," its variations, and a set of synonyms and their variations: fairness, justice, and equality. Again, the value is divided by the total number of words in the document.

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BROOKINGS