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EMPLOYMENT RESEARCH

Realistic Local Job Multipliers

Timothy J. Bartik and Nathan Sotherland

ARTICLE HIGHLIGHTS

- *Improved estimates show state and local job multipliers are about one-quarter lower than commonly assumed by economic development policymakers.*
- *Multipliers are lower because commonly used models do not adjust for how job growth increases local land prices, wages, and other costs.*
- *We estimate job multipliers are similar regardless of community or market size.*
- *Local job multipliers are higher when the employed share of the population is lower.*
- *High-tech industries in high-tech areas can have multipliers twice as high as those of other industries, reflecting greater benefits of clustering near other similar firms.*

Economic development policymakers often claim large job multipliers. For the recent Amazon project in New York, the claimed job multiplier for New York State was 2.7—for every 100 jobs at Amazon, 170 other jobs would result.

At the state level, job multipliers are often claimed to be 2.5 to 4.0, while for local labor markets, such as metropolitan areas, job multipliers are claimed to be 2.0 or higher. High-tech multipliers are sometimes claimed to be as great as 6—each high-tech job will create 5 other local jobs.

Correctly estimating the multiplier is important because size does matter. Consider the benefits for local residents from firms locating in their area in exchange for tax incentives. Benefits include increases in local employment-to-population ratios. However, these benefits depend on total jobs created, which scale roughly proportionately with the multiplier. If the multiplier is twice as big, the benefit-cost ratio will be twice as big.

Currently claimed multipliers rest on many assumptions. Compared to prior models, we take a more data-driven approach with fewer assumptions, and, crucially, we allow for cost feedbacks. When a local economy grows, local costs (land prices, wages) rise. Higher local costs repel other firms, lowering multipliers. Excluding cost feedbacks could lead to overestimated multipliers.

Our estimates lead to several important findings:

- 1) **Job multipliers are lower than commonly assumed.** We find job multipliers about one-quarter lower than is often expected: at the state level, around 2.0 rather than 2.7; at the local level, around 1.5 rather than 2.0.
- 2) **As a result, benefit-cost ratios for incentives are lower.** These new estimates imply benefit-cost ratios for incentives that would be about one-quarter lower.
- 3) **Even smaller areas have similar multipliers.** Multipliers don't increase for larger states

or larger local labor markets. Advantages of larger size are offset by disadvantages; more population might increase congestion.

- 4) **Multipliers are localized.** County multipliers are only one-quarter below local labor market multipliers. Local labor market multipliers are only one-quarter below state multipliers.

Higher costs reduce the net multiplier by one-quarter.

- 5) **Multipliers increase with more available labor.** Local multipliers may be 5–15 percent higher in local labor markets with a depressed employment-to-population ratio.
- 6) **High-tech multipliers are higher, but only in areas with preexisting high-tech clusters.** High-tech multipliers in local labor markets may be as high as 2.9, but only in areas with significantly more high-tech clusters than the national average. High-tech clusters benefit high-tech firms by allowing workers and ideas to migrate from one firm to another.

How Multipliers Evolve

Creating jobs at a new or expanded facility may immediately spur the creation of other jobs in the area for two reasons:

- 1) **Supplier linkages.** The new or expanded facility may purchase from local suppliers, increasing these suppliers' sales and their need for more workers.
- 2) **Worker demand.** Workers at the new or expanded facility, and workers at the facility's suppliers, may spend money at local restaurants, brewpubs, grocery stores, hardware stores, farmers' markets, clothing stores, yoga studios, etc. This local spending will in turn create jobs in these service industries. In addition, some of these goods and services

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will be produced locally (beer from breweries, produce from farmers, yoga instructors from a nearby college), which will also generate local jobs.

However, these initial job effects can eventually produce broader impacts, both good and bad:

- **Cost feedbacks.** Job growth increases demand for local land and labor, which will consequently increase land prices and wages. As a result, other businesses will find it more expensive to hire workers or rent a building. These increased costs will discourage job creation.
- **Agglomeration economies or industry cluster spillovers.** For some industries and areas, a greater concentration of similar jobs or workers may increase productivity. In high-tech industries, especially, ideas (and workers) may move between firms. Higher productivity will make the area

more competitive for adding jobs.

How do these factors play out over time? The supplier and worker demand effects begin immediately but continue to increase as local suppliers and retailers gear up production. The negative effects of cost feedbacks take longer to become apparent, as firms only gradually adjust their job creation decisions in response to higher costs. Cluster spillovers, when they're present, also take some time to occur.

Figure 1 shows our estimates of how the typical local job multiplier evolves over time. The immediate multiplier is 1.4: for every 100 jobs created at a new or expanded facility, another 40 local jobs would also be created very quickly. This multiplier expands over the next two years to 1.9, due to the creation of another 50 jobs as local suppliers, retailers, and other service-providers respond to the increased demand for their wares. However, the negative effects of higher costs then begin to kick in. These higher costs destroy about 40 jobs, reducing the net

multiplier after five years to 1.5. The multiplier approximately stabilizes after this point.

Because most current estimates of the job multiplier ignore cost feedback effects, they conclude that the multiplier is 1.9 or 2.0, about one-fourth higher than the true long-run multiplier.

Differences in Multipliers

These multiplier estimates are for a local labor market, which we define as the *commuting zone*—groups of U.S. counties within which there is significant commuting. What about other types of areas?

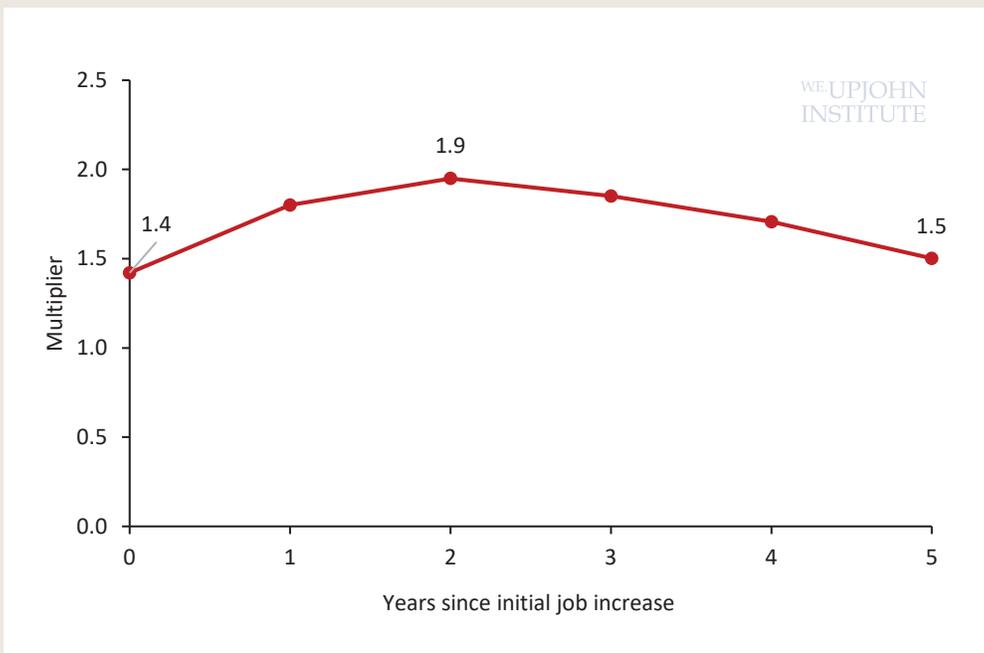
At the state level, the long-run multiplier is about one-quarter higher, at 1.9 rather than 1.5 (Table 1). States are big enough to include more suppliers. In addition, if the new jobs create some fiscal benefits, the state government may cut taxes or increase spending, boosting the state economy.

At the smaller, county level, the long-run multiplier is about one-quarter lower, at 1.1 rather than 1.5. Some of the supplier and service jobs created in the commuting zone will be outside the county in which the new or expanded facility is located, thus lowering the county multiplier.

However, across commuting zones of different sizes, we find similar long-run multipliers. This is surprising. Wouldn't larger commuting zones have more suppliers and retailers whose job creation would be stimulated? Yes, but larger commuting zones also have more problems with higher costs and congestion. As a larger commuting zone gets more jobs, land may become scarcer, roads more crowded, etc. These congestion effects reduce the multiplier. Apparently, the advantages of more suppliers and retailers in larger commuting zones are roughly offset by the larger congestion costs. As a result, even smaller commuting zones can count on at least some multiplier effects.

Besides the size of the area, multipliers are affected also by local labor supply conditions. In

Figure 1 Local Job Multiplier



SOURCE: Authors' calculations.

commuting zones with a lower share of the population aged 25–54 in employment—the so-called prime-age employment-to-population ratio—the multiplier is slightly higher, at 1.6 rather than 1.5.

Furthermore, some industries have higher multipliers than others. For example, multipliers can be significantly higher for high-tech industries, at 2.9 rather than 1.5. This only holds, however, in commuting zones that already have significantly above-average high-tech clusters: commuting zones whose high-tech employment share is in the top one-fifth of all commuting zones (Figure 2). In more average commuting zones, with a more average high-tech industry share, the high-tech job multiplier is only 1.7, which is close to the average multiplier for all industries.

The Advantages of More Flexible Models

We have calculated all these multipliers using a strategy relying on national increases in demand for an area’s specialized industries. This strategy imposes few assumptions and allows the data to drive the estimation.

In contrast, the predominant approach used by most economic development policymakers is regional input-output models. These models rely on national relationships of the inputs industries purchase from each other, as well as how much workers buy from retailers and other stores. The models then apply assumptions about the proportions of these purchases that come from local suppliers and retailers. These assumptions may not be correct, and there is no guarantee that relationships that hold nationally also hold for a given local area. Most importantly, however, regional input-output models do not allow for any negative impacts from higher local costs. Yet, our results show such negative cost feedback is important, reducing long-run job multipliers by roughly one-quarter.

Table 1 Long-Term Job Multipliers

	Commuting zones	States	Counties
Baseline assumptions	1.5	1.9	1.1
Low employment rates	1.6		
High-tech jobs in high-tech cluster	2.9		

SOURCE: Authors’ calculations.

What Is Needed: Realistic Multipliers

Large multipliers are not magic pixie dust that should be sprinkled on every economic development project to give it a large payoff. Job multipliers certainly exist: an economic development project that directly creates jobs will also induce some additional, local spinoff jobs. But the number of these spinoff jobs is less than is often claimed.

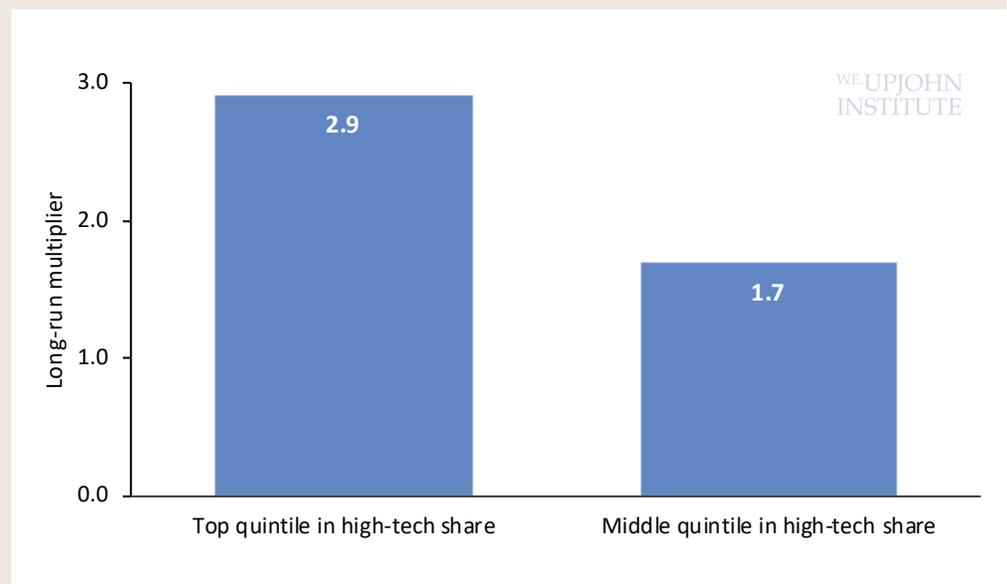
What should policymakers do? When evaluating projects, we recommend that the multipliers from regional input-output models should be scaled back. Does the project still make sense if the job multiplier is one-quarter to one-third less than the number “estimated” by a regional input-output model?

More generally, we need to invest in developing better estimates of job multipliers and applying them under diverse circumstances. We hope our paper will lead to further work that helps inform policymakers about what multipliers might be realistic for different industries in different local economies.

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Figure 2 High-Tech Multiplier in Areas with Different Current High-Tech Clusters



SOURCE: Authors’ calculations.