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Scoring SOAR

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ABSTRACT

This paper estimates the benefits and costs of the incentive package provided to the proposed Ford battery plant in Marshall, Michigan. This project, announced in February 2023, involves a state and local business incentive package whose undiscounted value is $1.7 billion, and which is awarded to a plant that will eventually create 2,500 permanent jobs. The incentive package is analyzed using the Bartik Benefit-Cost Model of Incentives. The model's estimates suggest that the incentive package has economic benefits whose present value is over 1.8 times the project's incentive costs. Most of these benefits are higher earnings per capita for Michigan residents, a product of the project's job creation and its resulting effects in boosting employment rates, real wage rates, and earnings per capita. Further analyses find that the project's positive net benefits are mainly due to the project's extraordinarily high multiplier, its location in a moderately distressed county, and the project's limited effects in reducing K–12 spending. The estimates from this case study suggest that generous incentive packages for megaprojects are more likely to pass a benefit-cost test if policymakers target high-multiplier industries in distressed counties, and avoid adverse effects on K–12 education.

JEL Codes: R13, R23, R28, H71

Key Words: Business incentives; local labor markets; state and local economic development policies; industrial policy; benefit-cost analysis

EXECUTIVE SUMMARY

Michigan's SOAR Fund was created in late 2021 to attract megaprojects with large business incentives. Critics have charged that the incentives, which sometimes exceed $600,000 per direct job, are too high. Is SOAR worth its costs?

The value of SOAR is an important question in its own right, but it also offers a useful case study for policymakers interested in how to avoid costly pitfalls in the design of incentive programs.

In this paper, I "score SOAR" by estimating the benefits and costs for one prominent SOAR project: the proposed Ford battery plant, to be located in Marshall, Michigan. I find that the benefits of this project are 1.8 times its incentive costs. Project benefits include higher earnings per capita for Michigan residents, capital gains from higher property values, and fiscal benefits from higher state and local tax revenues.

A benefit-to-cost ratio of 1.8, if realized, would be a solid benefit-cost ratio for an incentive program, although not extraordinary compared to some other public policies. Public investments in education, job training and child care often have benefit-cost ratios of 3-to-1, 4-to-1, or more (Bartik 2019, Figure 4.2, p. 50). In contrast, incentive programs typically have benefit-cost ratios that are less than 2-to-1 (Bartik 2019, Table 4.2, p. 55). SOAR scores in the average or slightly above average range for an incentive program that has benefits greater than costs. This finding is perhaps surprising for an incentive package that is so expensive, at almost $700,000 per job.

So, should we give three cheers for SOAR and expand it to as many other projects as possible? No. My conclusion is "two cheers for SOAR." The Ford project's positive net benefits

are due to three crucial assumptions, which may not extend to other projects supported by a major SOAR expansion.

First, the project is in an industry that is believed to create over three jobs indirectly for every job directly created. This Ford project is estimated to have an unusually high multiplier: 4.38. That is, for every direct job created by Ford, another 3.38 jobs will be created in Michigan. The auto industry in Michigan traditionally has been believed to have a high multiplier because of the state's concentration of auto supply jobs, headquarters jobs, and research jobs. But other industries have much lower multipliers. If we assume a more typical multiplier around 2.5, the project would have benefits that are less than two-thirds the incentive costs. Why? Because with a lower multiplier, fewer total jobs are created, and the resulting boost to earnings per capita is much lower. Therefore, if the SOAR approach were extended to attract more typical businesses, such large incentives per job are unlikely to be justified by the resulting benefits.

Second, the local economy around the proposed Ford project is in need of a boost. Calhoun County, where the Ford project is located, is moderately economically distressed. That is, its employment rate is significantly short of full employment. As a result, the new jobs at Ford and the resulting multiplier jobs will raise local employment rates and increase local per capita earnings. In contrast, if this Ford plant were located in a more booming local economy such as Grand Rapids, the change of location would reduce the project's benefits by over 20 percent. Why? Because in a booming local economy where more residents are already employed, fewer of the new jobs go to the local non-employed, and more go to newcomers. Therefore, if SOAR were expanded and extended to places with more flourishing economies, its benefit-cost ratio would drop considerably.

Third, funding for this project's business incentives is unlikely to significantly undermine investments in public education. The SOAR incentives for the Ford project are paid for by business taxes, and the state's School Aid Fund is reimbursed by the state's General Fund for any funding losses from the project's property tax abatements. This funding model reduces possible adverse effects on funding for K–12 schools. If similar projects had their incentive costs paid for by reducing K–12 funding, the resulting project would have huge economic costs of over 10 times the incentive costs. Why? Because lower K–12 spending reduces future earnings of Michigan residents. Therefore, any proposal for significant expansion of a program such as SOAR must consider its potential costs in reducing K–12 spending and hence future earnings. A large-scale expansion of SOAR would make it more challenging to avoid such adverse impacts on education funding.

The bottom line is that state incentive programs like SOAR—featuring large incentives per job for megaprojects—can have benefits greater than costs, but only if they are designed to be highly targeted by industry, focused on distressed locations, and limited in their impacts on productive public spending.

- By industry, SOAR-like incentive programs should target industries with high multipliers. They should function as an "industrial policy" that is highly selective in which industries are supported. State officials should resist the political impulse to spread such programs to a wide variety of industries.
- By location, generous incentives should target counties that are significantly short of full employment. They should function as a "place-based" policy that focuses more on places with higher distress levels. State officials should resist the political impulse to spread such high incentives to every location in the state.
- In terms of public spending, SOAR-like programs should avoid cutting into K–12 spending and other public investments. The potential impact on public spending is lower if (a) projects are tightly targeted by industry and location in order to boost earnings per capita and hence tax revenues, (b) program budgets are capped, and (c) expansions of incentive programs are financed by tax increases. State officials should resist the political impulse to create incentive programs whose costs are potentially unlimited or whose funding streams are unclear.

Programs like SOAR are only a part of a more holistic state economic development strategy. Such a strategy should invest in the public services that are the key drivers of long-term increases in earnings per capita. Public service investments are particularly beneficial in a state's distressed places. If incentive programs avoid harming public investments and are tightly targeted on the right industries and places, they may be a useful complement to public investments in a state economic development strategy.

INTRODUCTION

Since late 2021, Michigan has been using sizable incentives for megaprojects, many in the electric vehicle sector, with dollars provided via the "SOAR Fund" (Strategic Outreach Attraction and Reserve Fund). According to news reports (Gardner and House 2023), SOAR was in part motivated by Michigan's losing the 2021 competition for two Ford electric vehicle–related plants to Kentucky and Tennessee. In less than two years, SOAR has approved at least six large-scale projects (Eggert 2023), involving almost 14,000 direct jobs, over $1.2 billion in SOAR funding, and over $3.8 billion in total incentives. SOAR incentives include cash grants to firms, as well as site readiness spending. Projects that receive SOAR incentives also typically receive other large incentives, such as property tax abatements. SOAR-funded projects include both Ford and General Motors.

SOAR has a high cost per job. SOAR support per direct job has averaged almost $100,000 ($1.2 billion divided by 14,000 is about $86,000), and total state and local support for these SOAR projects is almost $300,000 per direct job ($3.8 billion divided by 14,000 is about $271,000). All of which raises the question, is SOAR worth it? Do benefits for Michigan residents exceed the costs?

In this memo, I present evidence that for at least one prominent SOAR-funded project, the Ford battery plant in Marshall, benefits are significantly greater than incentive costs. But I also show that this research-based finding—that the Ford project's benefits exceed the costs—is contingent on some key project features: a high multiplier, its location in a county that needs jobs, and the incentives being paid for without significantly reducing funding for schools or other productive public services.

Some conservative Republican legislators have called for abolishing SOAR (Albert 2023). Other Republicans have called for more transparency and more requirements for clawbacks (Durnbaugh 2023). At least one left-of-center Democrat has opposed SOAR funding (Gibbons 2023).

As of early November 2023, bills are being considered in the Michigan legislature (currently Democratically controlled) that would overhaul SOAR. These reforms, already approved by a Michigan Senate committee, would require that at least 20 percent of SOAR funds go to supporting community infrastructure and services (Kasben 2023). Targeting distressed places and ties to workforce programs would also be strengthened. In my recent testimony about this SOAR reform legislation, I argued that these reforms are consistent with past research (Bartik 2023a) suggesting that customized services to businesses have a lower cost per job created than cash incentives.

But the key SOAR issue is whether the program's basic design makes sense. Does targeting a few megaprojects in selected industries with large incentives have benefits exceeding costs? This memo addresses that issue.

I am viewed as an incentives critic. My criticism argues that cash incentives are overused in the U.S. and should be reformed (Bartik 2019). However, my position is not that all cash incentives should be abolished. Rather, my position is that cash incentives should be reformed, and in particular, more tightly targeted in the following two ways. First, reformed incentives should be more tightly focused on businesses with high multiplier effects. Second, reformed incentives should be more tightly aimed at increasing job opportunities for state residents who are unemployed or underemployed. Targeting of the unemployed can be improved by targeting more jobs in distressed places and by tying economic development projects to local workforce

programs. In addition, before putting more money into cash incentives, states should adequately fund customized business services, such as customized job training and business advice programs. These customized services can have a lower cost per job created than cash incentives. States should also ensure that incentives do not reduce funding for productive public services, such as K–12 education.

And if reformed, more tightly targeted incentives can benefit a state's residents. Why? Because providing jobs to the unemployed has large social benefits.

Can SOAR meet this test of being sufficiently targeted? To examine this issue, I will consider a specific SOAR project: the Ford plant in Marshall, Michigan.[1] This project is to build an electric vehicle battery plant. The plant's forecasted investment is $3.5 billion, with 2,500 direct permanent jobs (Eggert 2023). The reported total incentives are over $1.7 billion, or around $700,000 per direct job (Eggert 2023). Ford, during the UAW strike, put the project on "pause." This pause continues as of early November of 2023 (White 2023a). Therefore, now seems an opportune time to reconsider and ask, does this project make sense?

I will evaluate the Ford Marshall project and its incentives using the Bartik Benefit-Cost Model of Incentives (Bartik 2023b). This model uses project information on job creation and incentives over the life of the project. The model also considers the project's multiplier effect and how the incentives are paid for. Finally, the model considers local labor market and housing market conditions. The model then simulates the project's benefits and costs. These benefits and

[1] Full disclosure: the operations division of the Upjohn Institute runs workforce programs in the four-county area around Kalamazoo, including Calhoun County, the location of the Ford Marshall plant. I know that the Institute's operations division has had some involvement with this project, but I have had no conversations about this project with the relevant Upjohn Institute staff and am privy to no inside information. The research division of the Upjohn Institute operates independently, is largely supported by our endowment, and does not receive any funding because of the Ford Marshall project. In addition, this policy memo is not being funded by any outside group and is supported totally by the Upjohn Institute endowment.

costs are effects on different types of income, for different income groups (e.g., low-income groups versus upper-income groups). Income effects include:

- income increases due to job creation generating higher employment rates and real wage rates;
- capital gains from higher population generating higher property values;
- fiscal benefits due to increased state and local tax revenue, net of increased public service costs due to higher state population;
- costs of paying for the project by tax increases or public spending cuts.

The model bases its estimates on research. Research provides information on how business job creation responds to incentives and other local public policy changes, as well as information on how local economies respond to job creation, population increases, and tax and public spending changes. The Bartik Model is a simulation model of a regional economy, but optimized to evaluate incentives. The model has previously been used to evaluate the Michigan Business Development Program (Bartik et al. 2019) and to evaluate five major incentive programs in Kansas (Kansas Legislative Division of Post Audit 2023).

As will be shown, the Bartik Model's baseline analysis of the Ford Marshall project finds that the project has economic benefits that exceed the costs of its incentives. The project's gross benefits are 1.8 times its incentive costs. The stream of incentives over time, which is over $1.7 billion, has a present value, discounting future cash flows, of over $1.4 billion. The gross benefits of the project have a present value for Michigan residents of $2.6 billion. Therefore, net benefits, after subtracting incentive costs, are around $1.2 billion.[2]

These benefits occur for Michigan residents in all income groups, but are particularly large for middle-income and lower-middle-income groups.

[2] In addition, as will be discussed in more detail later in this policy memo, it seems unlikely that these positive expected net benefits will be turned negative by the possibility that this Ford Marshall project does not proceed in its current proposed form.

The "economic benefits" measured in the Bartik model include any gains or losses in income for Michigan residents. Such income gains or losses include labor market benefits from higher earnings per capita in Michigan due to new jobs increasing employment rates or real wage rates; property value increases due to the project leading to population in-migration; and fiscal benefits if state and local tax revenue increases more than the increased public spending that will be required to keep public services quality constant, despite population in-migration. For the Ford project, most of the economic benefits are labor market benefits.[3] The Ford project also has some benefits from higher property values, as well as fiscal benefits. But note that the fiscal benefits only offset slightly more than half of the incentive costs, so the project does have some net fiscal costs. As with most economic development projects, the Ford Marshall project is unlikely to make money for the government, under realistic fiscal impact estimates. However, the purpose of state economic development policies, or indeed most state policies, is not to make money for the government, but rather to increase state residents' well-being sufficiently to justify the fiscal costs.

These economic benefits occur even though these incentives are extremely expensive. The model calculates that the incentives have a value to Ford of almost one-third of the value-added of the battery plant, calculated over an 80-year period. In other words, the incentives are roughly equivalent to subsidizing half the project's labor costs, or equivalent to subsidizing over 10 percent of the project's total costs. This project is a heavily subsidized industrial policy. Despite these large incentive costs, the project is able to have net economic benefits because of three critical assumptions. The first critical assumption is that the project has a very high multiplier, of 4.38. The high multiplier enormously increases the project's job creation and hence

[3] Labor market benefits are often a majority of the benefits for economic development projects. See a review in Bartik (2019), particularly Chapter 4 and Table 4.1 on page 42.

the project's boost in earnings per capita for Michigan residents. This multiplier assumption comes from the REMI model (a regional econometrics model) used by the Michigan Economic Development Corporation, the state economic development agency, to evaluate the project. The second critical assumption is that the project only has minor effects in reducing productive public spending, such as spending on K–12 education. The third critical assumption is that this particular project is in a county (Calhoun) that is still considerably short of full employment.

The critical nature of these assumptions is shown by some alternative scenario simulations. First, if we reduce the multiplier to a more typical multiplier—2.50 rather than 4.38—the project's gross benefits are less than the incentive costs. This multiplier assumption is perhaps this project's key issue: What is the evidence for a multiplier of 4.38 versus a smaller multiplier? Second, if we assume that the incentive's net costs are totally financed by reducing K–12 spending, then the project's other economic costs are over 10 times its incentive costs. The loss in future earnings due to lower K–12 spending far exceeds short-term job creation benefits. Finally, if this project had been located in a more booming local area, such as Grand Rapids/Kent County, the project would still have net benefits, but its benefit-cost ratio would be lowered by 22 percent. In contrast, if the project had instead been located in a more economically distressed area, such as Flint/Genessee County, the project's benefit-cost ratio increases by 28 percent.

These simulations help clarify how a program such as SOAR—high incentive costs per job for megaprojects—should be designed. States cannot afford to provide incentives as hefty as the Ford Marshall project to all job creation projects proposed by export-based companies in the state. A state's export-base sector is huge, typically over a third of overall state output. If every export-base company received Ford Marshall-level incentives for every job creation proposal, eventually the state would be subsidizing over 10 percent of the costs for a third of the state's

economy. Such large-scale subsidies for the entire export-base sector are financially infeasible. Furthermore, even more modest expansions of SOAR-level incentives would create economic problems. Recently, SOAR funding has been tied to gross state business tax revenue, with this formula providing slightly less than $500 million per year (Senate Fiscal Agency, Michigan Legislature 2023). Within the context of an overall state budget that has about $18 billion annually in the General Fund, and another $18 billion in the School Aid Fund, $500 million can perhaps be absorbed without significant cutbacks in productive public services (State Budget Office, Michigan 2023). But expansion much beyond that level would almost surely require either significant tax increases or significant public spending cuts.

Therefore, a large incentive program such as SOAR must have a limited budget. With limited funds, wise use implies that SOAR should be tightly targeted on chosen projects with above-average benefits. The cost per job incented is so large that projects must be chosen that indeed have significantly above-average multipliers, and are located in state counties that are not already booming. And the funding structure of SOAR and other incentives must be such as to reduce the odds that the political default is to lead to some downward pressure on K–12 spending.

Highly expensive incentives such as SOAR therefore must be designed to be an implicit or explicit industrial policy or place-based policy. The large incentives per job only make sense if we have either an industrial policy that targets projects with high multipliers or a place-based policy that targets distressed places.

THE FORD MARSHALL PROJECT AND ITS INCENTIVES

The Ford Marshall project was announced on February 13, 2023, by Michigan Governor Gretchen Whitmer and Ford CEO Jim Farley (Michigan Economic Development Corporation 2023). The project is an electric vehicle battery manufacturing plant, to be located in Marshall, Michigan, in Calhoun County. The project is expected to require $3.5 billion in investment by Ford, and the plant is expected to eventually have employment of 2,500 (Gardner 2023).

During the UAW strike, Ford announced a pause to the project, as of September 25, 2023 (Gardner 2023). Ford said it has not made a final decision about the project. According to a Ford spokesman: "We're pausing work, and we're going to limit spending on construction at Marshall until we're confident about our ability to competitively run the plant." As of November 1, 2023, Ford was still in pause mode, with a spokesman saying, "We're still re-evaluating the economics of that investment, but remain committed to (lithium-iron phosphate) batteries in certain Ford EVs" (White 2023a).

The known cash incentives include:

- A $210 million cash grant to Ford from the Critical Industry Program, part of the overall SOAR program.
- A 15-year property tax abatement under the state's Renaissance Zone program, which eliminates most property taxes for 12 years, before phasing out in the last 3 years. The abatement's estimated total costs (undiscounted) over the 15 years are $772 million. This is not funded by SOAR.

These two incentives were announced as part of the initial incentive package on February 13, 2023 (Michigan Strategic Fund 2023).[4]

[4] The MEDC project packet on February 13, 2023, also mentioned another property tax abatement, to be approved by Marshall, under Public Act 198, the state's main property tax abatement program, with an estimated value of $52 million. However, I have so far been able to find no further information that this abatement has been approved, or how it is distributed over a likely 12-year period, which is typical for PA 198 abatements. In addition, the MEDC packet mentioned a $36 million loan to the Marshall Area Economic Development Alliance, for site improvements. The packet mentioned that this loan would likely later be paid for through a SOAR grant under

In March 2023, $120 million in SOAR funds, from the Strategic Site Readiness Program that is part of SOAR, was allocated to the Marshall Area Economic Development Alliance for site preparation related to the Ford Marshall project.[5] Also in March 2023, a supplemental budget bill provided another $300 million for site preparation work and $330 million for state department of transportation road work related to the Ford Marshall project (White 2023b). This road work included widening a nearby highway from two lanes to four lanes and upgrading intersections and interchanges in the area.

Thus, the total incentives for the Ford Marshall plant appear to be $1,732 million: a $210 million SOAR grant to Ford, $120 million in SOAR site preparation work, a $772 million property tax abatement, another $300 million for site improvements, and $330 million in road improvements. Of the $1,732 million, about 57 percent is "cash" that goes directly to Ford at some point (the $210 million SOAR Critical Industry Program grant plus the $772 million property tax abatement equals a total cash allocation of $982 million). The remaining 43 percent, or $750 million, is provision of site improvements and infrastructure ($420 million in site preparation work, $330 million in transportation upgrades). To divide the incentives up another way, about $960 million or 55 percent of the incentives is being provided relatively quickly (everything except for the property tax abatement). In contrast, a large portion of the property tax abatement will be paid out up to 15 years from now.

SOAR's Strategic Site Readiness Program (SSRP). I assume that subsequently announced SSRP grants associated with the Ford Marshall project encompass this grant. I will update the analysis if I receive more detailed information on either PA 198, or information that the $36 million is a grant in addition to other announced SSRP grants.

[5] Preliminary MEDC approval was granted in March of 2023. Final approval was granted by the legislature's appropriations committees in September of 2023. Under state law, such transfers only have to be approved by the appropriations committees.

In Table 1, I present one possible scenario for how these incentive funds might be allocated over time, and how Ford jobs might be allocated over time. These incentive and jobs figures are used as inputs in evaluating this project using the Bartik Benefit-Cost Model.

Table 1 Assumed Time Pattern of Ford Marshall Jobs and Incentives (incentive costs in millions)

Year	Ford jobs	Ren. Zone property tax abatement	Critical Industry program grant to Ford	Site prep and transport fund	SOAR site prep funds	Total
2024	500	$ 13	$ 210	$ 158	$ 60	$ 441
2025	1,000	$ 27	$ -	$ 158	$ 60	$ 244
2026	1,500	$ 40	$ -	$ 158	$ -	$ 198
2027	2,000	$ 54	$ -	$ 158	$ -	$ 211
2028	2,500	$ 67	$ -	$ -	$ -	$ 67
2029	2,500	$ 67	$ -	$ -	$ -	$ 67
2030	2,500	$ 67	$ -	$ -	$ -	$ 67
2031	2,500	$ 67	$ -	$ -	$ -	$ 67
2032	2,500	$ 67	$ -	$ -	$ -	$ 67
2033	2,500	$ 67	$ -	$ -	$ -	$ 67
2034	2,500	$ 67	$ -	$ -	$ -	$ 67
2035	2,500	$ 67	$ -	$ -	$ -	$ 67
2036	2,500	$ 50	$ -	$ -	$ -	$ 50
2037	2,500	$ 34	$ -	$ -	$ -	$ 34
2038	2,500	$ 17	$ -	$ -	$ -	$ 17
Total incentives of various types		$ 772	$ 210	$ 630	$ 120	$ 1,732

SOURCE: Author's calculations, based on Michigan Strategic Fund (2023), White (2023b), Eggert (2023).

The Table 1 numbers are not based on inside information, but rather on news reports and the original state project memo. The memo referred to creating 2,500 jobs by 2027. I assume that with the pause, this might well be delayed until 2028. The $772 million property tax abatement is allocated over time based on the assumed time pattern of job creation, as well as the Renaissance Zone program's provision that the abatement is scaled back by 25 percent per year in the last 3 years of the 15-year abatement period.[6] The grant to Ford is assumed to be made in 2024. The site preparation work and transportation work is somewhat arbitrarily allocated over the next

[6] The Table 1 figures appear to be reasonably close to MEDC's assumptions. The February 13, 2023, memo by MEDC states that the property tax abatement's value will be between $17 million and $66 million annually (Michigan Strategic Fund 2023).

four years, with the $630 million in general site prep funds and transport funds assumed to be spent a bit more slowly than the initial $120 million from SOAR for site preparation. I will update these figures if more precise numbers become available, or if the project changes in its scale or timetable.[7]

BASELINE BENEFIT-COST ANALYSIS OF FORD MARSHALL PROJECT

If you plug the Table 1 job numbers and incentive numbers into the Bartik Benefit-Cost Model of Business Incentives, you get the results in Table 2.

To focus first on the bottom-line numbers: after discounting future cash flows, the $1,732 million in incentive costs have a present value of $1,446 million.[8] Total net benefits have a present value of $1,179 million. In other words, gross benefits, before incentive costs, are $2,665 million. After subtracting out incentive costs of $1,446 million, we get net benefits of $1,179 million. This represents a benefit-cost ratio of 1.815 (equals $2,625 million gross benefits divided by $1,446 million incentive costs).[9]

[7] The Upjohn Institute's Information Center has made a FOIA request for more information from MEDC on my behalf.

[8] This present value is calculated as of 2024, in 2019 "national dollars"—that is, the model adjusts the figures for Michigan's lower cost of living, and also adjusts for inflation from 2019 to what is predicted for 2024. The discount rate used is a 3 percent real discount rate, which is often used in benefit-cost analyses. See Bartik (2023b).

[9] How do these compare with the official benefit-cost evaluation? The February 13, 2023, MEDC memo on the project says that the state personal income effects of the project over 20 years total $29.7 billion, with this figure apparently coming from using the REMI model to estimate impacts. According to the Bartik Benefit-Cost Model, the project's total personal income effects over 20 years total $20.1 billion. These numbers are reasonably close. Ascertaining exactly why they differ would take a detailed comparison of the outputs of both the REMI model and the Bartik Benefit-Cost Model. However, from a perspective of benefits and costs for state residents, most of this $20 or $30 billion in increased state personal income is not a benefit for state residents. State residents benefit only if per capita income in the state goes up. Most of the $20 or $30 billion reflects higher state personal income with higher population. But higher income that is due to higher population is not really a benefit for any individual in the state. Only per capita gains in income should be counted as a true economic benefit. These per capita income benefits are at least 80 percent lower than counting all personal income gains as benefits.

Table 2 Baseline Benefit-Cost Analysis of the Ford Marshall Project If It Proceeds as Planned (all figures in millions of dollars except for income shares in percentage terms; negative numbers in parentheses)

Income Group	Total	1 (low-income)	2 (lower-middle)	3 (middle)	4 (upper-middle)	5 (highest income)
Quintile income share before project (%)	100.0	5.1	9.2	13.7	20.0	52.0
Total net benefits	1,179	73	185	378	64	479
Net local budget costs	(654)	(70)	(81)	(102)	(128)	(273)
Labor market benefits	2,390	279	409	621	320	760
Property value benefits	576	18	28	38	69	422
Education cutbacks	(540)	(128)	(119)	(104)	(96)	(93)
Local business effects	(109)	(2)	(2)	(4)	(7)	(93)
Real value of non-labor income	(485)	(25)	(50)	(73)	(94)	(243)
Pure incentive costs	(1,446)	(154)	(180)	(225)	(283)	(604)
Percent share of total net benefits (%)	100.0	6.2	15.7	32.1	5.5	40.6

SOURCE: Author's calculations.

These bottom-line figures stem in part from two key features of this project and its incentives. First, these incentives are large enough that the "but for" of this project—the expected job created compared to the incented jobs—is very large, at 99.7 percent. Second, the multiplier assumed for this project is also very large, at 4.38. For every "direct job" created by this project, another 3.38 "indirect jobs" in Michigan are created. These indirect jobs are at suppliers to the direct jobs, or at Michigan retailers serving the workers at the direct jobs or their suppliers.

Are these project assumptions reasonable? Can the "but for" and the multiplier really be that high? On the "but for," keep in mind that this represents the model's estimates of the "expected direct jobs" created divided by the 2,500 announced jobs. The direct jobs created by Ford at the Marshall site could well exceed the 2,500 jobs announced. Therefore, it is not crazy that the *expected* jobs created, based on the model, could be close to the *announced* jobs.

The model generates such a high "but for" because the incentives have a present value of over 30 percent of the project's direct value-added, which is far in excess of "average incentives." Average incentives, which are more like $50,000 per job, tend to generate a "but for" of less than 25 percent (Bartik 2018). But the Ford Marshall incentives are far above average, at almost $700,000 per job. Therefore, the plausible "but for" is far greater (McClallen 2023).[10]

As for the 4.38 multiplier, auto multipliers in Michigan have traditionally been estimated to be high.[11] The high auto multiplier is due in part to the dense supplier networks that are part of the auto production process, with many such networks located in Michigan. The high multiplier is also due in part to the above average wages traditionally paid in autos. More wages yields more demand for local goods and services, boosting local jobs in these sectors.

With electric vehicles, the labor required is less in engine parts (Smith 2023) and more in the batteries and their components (Pontecorvo 2023). The Ford Marshall project is a battery plant. The relevant issue, from a multiplier perspective, is whether the suppliers for that plant will be in Michigan or in some other state, or outside the United States. This is unknown at present.

Another issue is how the Ford Marshall project will affect Ford's future Michigan headquarters jobs or research and development jobs. A plausible argument is that if Ford moves heavily into electric vehicles, the future of its headquarters jobs and research and development jobs in Michigan may depend, in part, on whether there are nearby Ford electric vehicle plants.

[10] Therefore, my past work arguing that typical incentives probably have a "but for" of less than 25 percent does not necessarily suggest that significantly above-average incentives, such as for the Ford Marshall project, will have a "but for" of less than 25 percent) (McClallen 2023).

[11] An important caveat: the "estimated multipliers" used by many regional econometric models are to some extent empirically based on input-output relationships. But most of these multipliers are not empirically confirmed by rigorous estimation of how local job creation responds to demand-induced job shocks in different export-base industries. The Bartik and Sotherland (2019) paper attempted to begin more rigorous estimation. But much more should be done to establish a more rigorous empirical basis for multiplier estimates.

This is a potential "multiplier" effect of the Ford Marshall plant that is not part of ordinary multiplier calculations.

Therefore, the claimed 4.38 multiplier is not implausible. However, it should be admitted that we do not know at present exactly how this new industry of electric vehicle production will be supplied. So, the 4.38 multiplier is plausible, but alternatives should be considered, which I will do later. This is perhaps the most needed further research that is relevant to evaluating this project.

Table 2 assumes that the project goes forward close to the original February 2023 plan. What if this does not occur? For example, what if there is a 50 percent probability that this Ford Marshall Project does not go forward?

In that case, the benefits and costs should reflect a 50 percent weighting of the Table 2 net benefits of $1,179 million, and a 50 percent weighting of the net benefits or costs that would occur under the "project no-go" possibility.[12] The net benefits or costs in this no-go possibility are hard to estimate. However, it seems unlikely that the net costs would be anything close in absolute size to the $1,179 million in "project goes forward" net benefits. If the project does not go forward, most if not all of the $772 million in property tax abatements will not be provided, and the $210 million in direct payments to Ford are unlikely to be fully retained by Ford. As for the various site improvements and road improvements, these infrastructure costs are likely to yield considerable economic development benefits. For example, some other firm or firms may locate facilities where the Ford Marshall plant would have gone. And these road improvements

[12] One can also use the Bartik Benefit-Cost Model of Incentives to calculate the minimum "but for" for the Ford Marshall project to have a benefit-cost ratio greater than 1. This calculation yields a minimum "but for" of 70.1 percent. But this minimum "but for" is exaggerated because it essentially assumes that all the incentives are paid out, and only 70.1 percent of the originally incented jobs are actually created. Therefore, I do not think that this minimum "but for" represents the minimum needed for the project to pass a benefit-cost test.

have some benefits for motorists even if no added jobs go at the Marshall site. The bottom line: the expected net benefits of the project are probably still positive if there is even a 50 percent chance that the project goes forward close to its original plan.

If the project goes forward, why are the net benefits so large, even with large incentives? As Table 2 shows, the project has large labor market benefits, with a present value of $2,390 million. Labor market benefits are the boost in earnings per capita, due to either higher employment rates (employment to population ratios) or higher real wage rates (wages adjusted for increases in local prices). These labor market benefits are so large because 1) the incentives are high enough that the direct jobs created are expected to be over 99 percent of the incented jobs; and 2) with an assumed multiplier of 4.38, the indirect spillover jobs in Michigan are also quite high. As a result of this high net job creation, the project causes large boosts to earnings per capita.[13]

These large labor market benefits are accompanied by property value benefits ($576 million). These property value benefits are capital gains due to property values going up. These property value increases are due to the project's effects on boosting Michigan's population.

Due to the higher earnings and property values, state and local tax revenues go up. But the increased population requires increased public spending in order to keep public service quality constant. For example, as people move into Michigan with their children, more teachers must be hired to keep K–12 class sizes the same. On net, there are fiscal benefits sufficient to

[13] Note that these large boosts to earnings per capita occur even though a majority of the jobs go to in-migrants, not local residents. The model estimates that as of 2030, for example, 71 percent of the jobs end up going to in-migrants, and 29 percent to local residents. The local jobs that are created directly lead to hiring from three sources: 1) already-employed local residents, 2) non-employed local residents, and 3) in-migrants. But hiring already-employed local residents leads to job vacancies, filled in the same three ways. At the end of these job vacancy chains, all jobs ultimately either result in jobs for the local non-employed or jobs for in-migrants. See Bartik (2019) for more discussion. But even a minority of the jobs going to the local non-employed has large effects on local earnings per capita.

reduce the net fiscal costs of the incentive from the gross incentive costs of $1,446 to a net cost of $654 million. The implied fiscal benefits are $792 million (equals $1,446 million minus $654 million). These fiscal benefits are over half of gross incentive costs. However, the incentive is not self-financing.[14]

These net fiscal costs must be paid for. Taxes must be higher than they otherwise would be, or public spending must be lower. The model's default is that half of the fiscal costs of a project are paid for through higher taxes, and half through lower public spending. Either alternative reduces real income of state residents.[15] Table 2 uses this model default.

In addition, the model treats one type of state and local public spending as having longer-run benefits: higher (lower) K–12 spending per student is assumed to significantly increase (decrease) future earnings per capita of former students. Most of these effects occur years later, when former students are in their prime earnings years, their 40s and 50s. The model only counts such earnings effects for former students who remain in Michigan.

The model's default is to assume that when state and local public spending is cut, the share of this cut that comes from lower K–12 spending is equal to K–12's share of state and local spending. For Michigan, that percentage is 20 percent. Therefore, about 10 percent of net fiscal costs due to an incentive project are paid for by lower K–12 spending (10 percent = 20 percent K–12 share of state and local public spending times 50 percent of net fiscal costs paid for by lower public spending). Based on research, a given cut in K–12 spending will lower the present

[14] How does this compare with the official fiscal effects claimed for the project? MEDC, in its February 13, 2023, memo on the project, said the REMI model estimated state revenue gains of $1.6 billion over 20 years. The Bartik Benefit-Cost Model does not separate out revenue and spending effects by state versus local governments, but instead combines the two. My model calculates $3.5 billion in added state and local tax revenue over 20 years, and $3.0 billion in added spending requirements due to added population. The net undiscounted fiscal benefit is then $0.5 billion.

[15] The model assigns an income equivalent value to lower public spending.

value of future earnings by significantly more than the spending cut. The estimated effect of the K–12 spending cut is to reduce future earnings per capita of Michigan residents by $540 million.

Is it realistic to assume that 10 percent of the costs of the Ford Marshall project would be paid for by lower K–12 spending, compared to what K–12 spending otherwise would be? Inherently, this is a subjective judgment. The SOAR fund diverts some business tax revenues that otherwise could be used for enhanced school funding. The Renaissance Zone tax abatement immediately reduces property tax revenues for schools,[16] but this is required by state law to be reimbursed by the state General Fund (Michigan Renaissance Zone Act, 1996 and 1999). However, dollars in the state's General Fund and School Aid Fund are fungible. The state has over the years either made transfers from the General Fund to the School Aid Fund, or shifted support for various postsecondary programs from the General Fund to the School Aid Fund (Ansen, Delpier, and Nagel 2019). Therefore, the reimbursement dollars paid for the Renaissance Zone abatements instead could have been used to increase K–12 spending per student. Overall, it is certainly plausible that 10 percent of this incentive package lowers Michigan K–12 spending, compared to what it otherwise would be. The model's baseline assumptions about how a project's net fiscal costs are financed—half the funding from taxes being higher than they otherwise would be, and half the funding from lower spending, with spending categories reduced proportionately to their budget share—could be argued to be a neutral assumption. Where project funding really comes from would be determined by politics.

[16] One possible objection to this analysis: given that the estimates suggest that almost all the jobs were induced by the incentives—that is, the jobs would not have occurred without the incentives—the Renaissance Zone property tax abatements could be argued to not represent foregone property tax revenue. But this objection overlooks that when a state experiences an increase in jobs and population and K–12 students, the way in which these increased spending needs are paid for is by the tax revenue raised by this growth. To put it another way, the model calculates a default fiscal benefit or cost from the effects of the job growth and population growth, before considering property tax abatements. The tax abatements represent a subtraction from that default fiscal benefit, or a greater fiscal cost.

The higher local housing prices and other prices also have effects that reduce the income of two other groups of Michigan residents: local business owners who sell to markets outside the state, and residents who receive non-labor income from outside the state. For locally owned businesses, the model assumes that businesses selling to a Michigan market can pass their increased costs on to Michigan consumers. But if the business sells to markets outside the state, this is infeasible. For these locally owned businesses, higher local costs reduce profits and income per capita by a percent value of $109 million. Michigan residents receiving non-labor income from outside the state include persons receiving Social Security or dividend and interest payments. These types of income do not increase because of the project,[17] yet local prices go up, reducing the real value of these income types. The present value of their loss in real per capita income is $485 million.

Table 2 also shows how these benefits are divided among five different income quintiles. The quintiles come about by ranking all households by household income, and then dividing into five equal size population groups.[18] If all households had equal income, each income quintile would have 20 percent of total income. However, in reality, the baseline share of the lowest income quintile is about 5.1 percent of total income, whereas the baseline share of the highest income quintile is about 52 percent of total income. Thus, the lowest income quintile has average income that is about one-fourth of the overall average, and the highest income quintile has average income that is about two and a half times the average. The highest income quintile's average income is about 10 times that of the lowest income quintile.

[17] Perhaps Ford's dividends go up, but almost all of this would be paid to stockholders outside the state. Only state residents' income gains and losses are counted in the model.

[18] As explained more fully in the various reports about this model (Bartik 2023b), the quintile definitions, which come from the U.S. Congressional Budget Office, actually rank households by household income adjusted for household size.

The model divides different types of income changes among different income groups based on two factors: how important each income type is for each income group, and what research shows about how shocks to different income types are distributed across different groups. Job shocks that raise employment rates and real wage rates tend to be modestly progressively distributed. Above-average shares of the earnings per capita effects of job shocks go to the lowest three income quintiles. These lower-income groups have more people who are unemployed or underemployed, and who therefore benefit from more job availability. For example, out of total labor market benefits of $2,390 million, $279 million is estimated to go to the lowest income quintile (Table 2). This is more than 10 percent of the total labor market benefits over all quintiles, which is more than double the group's baseline income share of 5.1 percent. Similarly, the middle-income quintile has a gain in labor market income of $621 million, which is over one-quarter of total labor market benefits of $2,390 million; this middle-income group's baseline share of all income is only 13.7 percent. In contrast, the upper-income quintile gets labor market benefits of $760 million, which is less than one-third of the total labor market benefits of $2,390 million; this upper-income quintile at baseline gets over half of the total income. Therefore, the labor market benefits of the Ford Marshall project tend to distribute above baseline shares of the benefits to the bottom three quintiles, and less than baseline shares to the top two quintiles.

In contrast, capital gains from higher property values tend to go to the highest income quintile. This is because the highest income quintile is the most likely to own more expensive properties.

Net budget costs are distributed modestly regressively. State and local taxes tend to be a higher percentage of income for lower-income groups. Cuts in public spending also tend to hurt

lower-income groups. This is even more so for education cutbacks. Research suggests that K–12 cutbacks have similar dollar effects on the earnings of children in different income quintiles, and the lower-income quintiles tend to have more children per household, on average.

The income losses of higher local costs for some local businesses tend to mainly hurt the upper-income quintile, which owns most of these businesses. As for the effects of higher local prices for real non-labor income, this tends to be distributed across income quintiles in proportion to their initial share. Lower-income groups have more persons whose non-labor incomes come from sources such as Social Security, whereas higher-income groups have more persons with non-labor incomes from sources such as stocks and bonds.

The net result is that the project tends to particularly help the middle-income quintile and the lower-middle income quintile. For example, the net benefits for the middle-income quintile of $378 million are 32.1 percent of the total net benefits of $1,179 million. This 32 percent share far exceeds the middle-income quintile's baseline income share of 13.7 percent. These middle- and lower-middle quintiles gain a lot from the labor market benefits and do not bear an undue burden from the net fiscal costs and education cutbacks. The lowest income quintile also gains an above baseline share of the benefits. But this lower-income group's share of the benefits of 6.2 percent only slightly exceeds this group's baseline income share of 5.1 percent. For this group, much of their greater labor market benefits are offset by the earnings losses from cutting K–12 spending, as well as other fiscal costs. The upper-middle quintile and the upper quintile tend to gain less than their baseline share of total income. For the upper-income quintile, their share of total net benefits of $479 million, or 40.6 percent of total net benefits of $1,179, is only modestly less than their baseline share of 52.0 percent. This is largely because the upper-income quintile gets a lot of property value benefits from capital gains. In contrast, the upper-middle-income

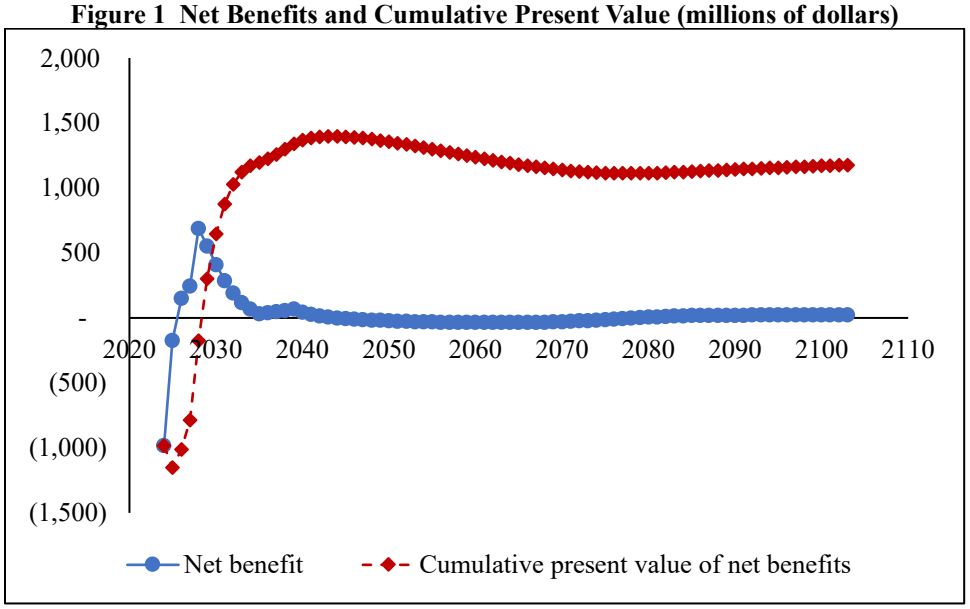
group's share of total benefits is only 5.5 percent ($65 million out of $1,179 million), far behind its baseline income share of 20.0 percent. This group does not benefit as much from labor market benefits as the bottom three quintiles, and also does not benefit as much from property value benefits as the upper-income quintile. Most of the benefits of economic development policies miss this upper-middle-income group.

From my prior work exploring this model, this pattern of benefits is fairly typical for economic development projects with moderate but not extraordinary benefits (Bartik 2023b). This pattern explains a great deal of the politics of economic development. Middle-income and lower-middle- income groups have good reasons to support economic development policies. Economic development policies also benefit some members of the upper-income group. In contrast, upper-middle-income groups see less obvious gains from such policies. This income group may oppose economic development policies on environmental grounds, for example. And the lowest income group may be worried that they will bear the brunt of paying for these programs through higher taxes and lower public services.

Figure 1 shows the time pattern of net benefits from this project, along with the time pattern of the cumulative net present value of the project.

As the figure shows, net benefits and cumulative present value start out negative. The project front-loads its incentives. But net benefits turn positive by 2026, as jobs are created, boosting earnings per capita and generating capital gains. Most of the benefits of the project occur within the first 10 or 15 years. As time goes on, the initial effects of the job creation, in

Figure 1 Net Benefits and Cumulative Present Value (millions of dollars)



SOURCE: Author's calculations.

terms of effects on boosting employment rates and real wage rates, tend to fade.[19] Furthermore, as time goes on, some of the negative effects of lower K–12 spending begin to occur. As a result, the cumulative present value of the project does not change dramatically from 15 to 80 years after project initiation.

ALTERNATIVE SCENARIOS FOR THE FORD MARSHALL PROJECT

To see how the benefit-cost analysis of the Ford Marshall project varies with the model's underlying assumptions, or with public policy variations, I now consider alternative scenarios, in Table 3. These scenarios differ in the assumptions made about the local economy and the design

[19] This feature of the model could be questioned. We do not have great information on the truly long-term effects of economic development, such as intergenerational effects. The model assumes that effects dissipate over time as Michigan residents disperse around the country or die. But intergenerational effects due to effects on children's upbringing might persist, and such intergenerational effects are not part of this model. Some evidence suggests that some economic development programs may have intergenerational benefits—for example, there is some evidence that intergenerational effects occurred due to Mississippi's economic development programs of the 1930s (Freedman 2017).

of the incentives policy. Each of these scenarios is based on re-running the model, using the different assumptions.

Table 3 Alternative Scenarios for the Ford Marshall Project

Scenario	Benefit-Cost Ratio
Baseline	1.815
Lower multiplier	0.643
Financed by ed. spending cuts	−11.141
Financed by tax increases	2.330
Project in Kent County	1.423
Project in Genesee County	2.330
Lower housing price effects	2.152

SOURCE: Author's calculations.

Lower Multiplier

I first consider a lower multiplier. Rather than the baseline model's assumption of a multiplier of 4.38, I assume a multiplier of 2.50. Based on prior research, this lower multiplier is more typical of export-base industries.[20] In contrast, the baseline multiplier of 4.38 is unusually high.

As shown in Table 3, this more typical multiplier would lower the benefit-cost ratio of the Ford Marshall project to 0.643. That is, gross benefits are less than incentive costs, at 64 percent of incentive costs. Therefore, the project fails a benefit-cost test.

Why this difference? With a lower multiplier, there is lower job creation. With lower job creation, the labor market benefits and property value benefits of the project are significantly

[20] Bartik and Sotherland (2019). This statement is based on estimates of long-run multipliers that consider economic feedbacks from the resulting higher costs. The negative feedback is that, because of higher costs, some job losses occur in some local export-base firms that do not directly benefit from the Ford battery plant. The 4.38 and 2.50 multipliers are the input-output multipliers before such feedbacks. After such higher-cost feedbacks, the 4.38 multiplier ends up being reduced to a net multiplier of 3.08. The 2.50 multiplier is reduced by cost feedbacks to a net multiplier of 1.94, which is a typical net long-run multiplier in Bartik and Sotherland (2019). The 3.08 multiplier is closer to a net multiplier one might get for a more high-tech industry with a local high-tech cluster. In Bartik and Sotherland (2019), the auto industry is classified as a high-tech industry. Michigan certainly has a cluster in the auto industry.

lowered. The detailed results show these benefits are cut in half.[21] As a result of lower job creation benefits, the fiscal benefits of the project are lower as well. With lower fiscal benefits, the project has higher net fiscal costs for Michigan residents in tax increases or spending cuts. Education spending is cut more, which also harms future earnings.

As this comparison of the baseline scenario and the lower multiplier scenario suggests, it is hard for expensive incentives to have net benefits unless multipliers are unusually high. They may be high in the Ford Marshall case, but multipliers would not be so high for every major project that Michigan might consider.

Additional model runs suggest that the cutoff project multiplier, for the Ford Marshall project to have benefits exceeding costs, is 3.08. Therefore, an important issue is what are the odds that this project has a multiplier that exceeds 3.08.

Alternative Financing Scenarios

I now consider different ways of paying for incentives. As already explained, the baseline scenario assumed that incentives would be financed half by tax increases and half by spending cuts (after first adjusting the financing costs down by any fiscal benefits). Of the spending cuts, 20 percent came from K–12 education spending, so 10 percent of the total net costs comes from reduced K–12 funding. As already mentioned, this 10 percent figure does not appear to be implausible. I consider two alternative ways of financing: 100 percent of financing comes from reducing K–12 spending, or 100 percent of financing comes from tax increases rather than spending cuts.

[21] For example, the labor market benefits in the baseline of $2,390 million are cut to $1,235 million in the lower multiplier scenario.

As shown in Table 3, funding this Ford project through reduced K–12 spending is disastrous for Michigan's economic development. The benefit-cost ratio becomes negative, at −11.141-to-1. That is, even before considering incentive costs, the project reduces per capita income of Michigan residents.

This effect occurs totally because of the negative effects on future earnings of Michigan's children due to cutting K–12 spending. Under this scenario, the Ford Marshall project still has net benefits for the first few years. But net benefits turn sharply negative after about 10 years, as the students affected by the K–12 funding cutbacks enter the labor force and experience lower earnings. These lower earnings of Michigan residents in turn have other negative effects on Michigan's economy, eventually significantly reducing Michigan jobs. In the baseline scenario, considering all feedback effects, the Ford Marshall project in the long run created about 8,000 jobs. In the 100 percent K–12 cuts scenario, the Ford Marshall project in the long run on net *destroys* over 7,000 jobs.

In running alternative scenarios, the project has a benefit-cost ratio greater than 1 as long at K–12 spending cuts comprise no more than 23 percent of project financing. Beyond that point, net benefits turn negative.[22]

Education spending cuts can be avoided by financing the incentives totally by increased taxes. Under this scenario, the benefit-cost ratio increases to 2.330, which is 28 percent greater than the 1.815 benefit-cost ratio under the baseline scenario. This mostly occurs because earnings losses due to education cutbacks are eliminated.

[22] These alternative scenarios assume that 50 percent of project financing comes from increased taxes, 50 percent from reduced public spending, and then varies what share of reduced public spending comes from K–12 spending reductions.

Variations in Local Area Distress and Jobs Going to Unemployed

The Ford Marshall project would also have significantly different benefits if we imagined a hypothetical world in which the same project was located in a different local labor market. The resulting different benefits in the Bartik Benefit-Cost Model are primarily due to differences in the local area's employment to population ratio, or employment rate, for prime-age workers, those aged 25–54. Based on research, the Bartik Benefit-Cost Model estimates that if the local area's prime-age employment rate is lower, a higher proportion of the created jobs will go to the local non-employed, and a lower proportion will go to in-migrants. This pattern occurs because, if the employment rate is lower, more local non-employed are available to fill job openings. As a result, any particular level of job creation will result in higher benefits in pushing up employment rates and earnings per capita, and lower costs due to increased in-migration pushing up public spending needs.

The alternative local labor markets considered for this project are Kent County (Grand Rapids) and Genessee County (Flint). Kent County has a higher employment rate than the Calhoun County location of the Marshall project, whereas Genesee County has a lower employment rate. The estimated prime-age employment rates used in these simulations for 2024 are 82.1 percent for Calhoun County, 84.5 percent for Kent County, and 79.9 percent for Genesee County.[23]

If we imagined plopping down this Ford battery plant project in the more-booming Kent County, rather than Calhoun County, Table 3 shows the benefit-cost ratio declines from 1.815 to

[23] These 2024 estimates start with 2022 estimates from the American Community Survey for the prime-age employment rate and unemployment rate in each county. I then use September 2023 unemployment rates for each county, which are assumed to adjust over time by one-fifth each year towards a "full employment" unemployment rate of 3 percent. Regressions previously done for the model establish a statistical relationship between changes in a place's unemployment rate and its prime-age employment rate, which is then used to predict the prime-age employment rate for 2024 and subsequent years.

1.423, a decrease of 22 percent. If we plop down the Ford battery plant project in the more-distressed Genessee County, the benefit-cost ratio increases from 1.815 to 2.330, an increase of 28 percent. Most of these differences are due to differences in labor market benefits of the project in the three counties.[24]

Because these local area effects on the project's benefit-cost ratio are largely due to what proportion of jobs go to the non-employed, alternative policies that affect who gets the jobs could have similar effects. For example, if the Ford Marshall project cooperates more with local workforce programs to target more jobs on the unemployed or underemployed, then project benefits might increase beyond 1.815.[25] However, it seems unlikely that even the best coordination of economic development with workforce development would boost the benefit-cost ratio as much as simply relocating the project to a more distressed local labor market. But of course, "relocating the project" is ultimately a decision of the private-sector decision-maker, in this case, Ford. Economic developers cannot force Ford to choose a different local labor market. What economic development policymakers can do is, first of all, fund economic development programs that increase the capability of distressed local labor markets to boost their job creation, for example, by improving local infrastructure, site availability, and workforce training. Second, given whatever plant location decisions are chosen by the private sector, policymakers can then

[24] Total net benefits decline from $1,179 million in Calhoun County (see Table 2) to $612 million in Kent County, a decline of $567 million. Labor market benefits decline from $2,390 million in Calhoun County to $1,923 million in Kent County, a decline of $467 million. Considering Genesee County, net benefits increase to $1,922 million, which compared to Calhoun County is an increase of $743 million. In Genesee County, labor market benefits are $3,000 million, an increase relative to Calhoun County of $610 million. Some differences are due to housing price effects of more population being slightly higher in Kent County than in Calhoun County, and lower housing price effects in Genesee County. But if we assume the different labor market conditions, but alter the housing price effects so they are the same as Calhoun County in all three counties, we get a benefit cost ratio of 1.442 in Kent County, and 2.259 in Genesee County.

[25] I once again point out that the Upjohn Institute's operations division runs workforce development programs in Calhoun County, and hence potentially I might have a conflict of interest in advocating for better coordination of this project with local workforce programs. However, I have consistently advocated for this position for many years, for programs throughout the United States.

seek to maximize the resulting labor market benefits by linking these projects with the local unemployed via local workforce programs.

Reduced Housing Price Effects of Local Population Growth

I now consider lowering housing price effects of the population growth that will result from the Ford Marshall project. How might housing price effects be lowered? Possible policy methods include changes in zoning and housing codes that allow more housing supply. Subsidies for affordable housing developments also might help.

If housing price effects in Calhoun County are cut in half, the project's benefit-cost ratio increases from 1.815 to 2.152, an increase of about 19 percent.[26] Most of these increased benefits come from higher labor market benefits and lower reductions in the real value of non-labor income. With smaller increases in local prices and other local costs, the project has less adverse effects on squeezing out other local job creation. In addition, because local prices go up less, persons relying on non-labor income from out-of-state sources, such as from Social Security and stock dividends, have less adverse effects on their standard of living.[27]

HELPING SOAR SOAR—AND BEYOND

Based on these simulations, what policy measures could help make sure that SOAR funds are used effectively?

[26] The baseline housing price elasticity used for Calhoun County actually comes from estimates for nearby Kalamazoo County, which has an elasticity of 0.405 with respect to local population increases. The alternative scenario cuts this to 0.202.

[27] Net benefits in the lower housing price scenario are $1,666 million, an increase from the baseline of $1,179 million by $487 million. Labor market benefits increase from $2,390 million in the baseline to $2,763 in the lower housing price scenario, an increase of $373 million. Adverse effects of higher local prices on non-labor income are $277 million in the lower housing price scenario; compared to the $485 million in real income losses in the baseline scenario, these adverse effects are reduced by $208 million.

First, I consider reforms that will help SOAR more effectively accomplish what seems to be its implicit goal: intervening with large subsidies for jobs in selected Michigan "megaprojects."

With such large subsidies per job, as in the Ford Marshall project, the projects chosen must be tightly targeted, both by type of project and location. Targeted projects should have unusually high multipliers. The targeted locations should not be booming counties, and ideally should be more distressed counties. Benefits can also be increased by linking these economic development projects with local workforce programs, and complementing these job creation efforts with local efforts to boost housing supply.

Also important is that the incentives be paid for without significantly reducing productive public services such as K–12 education. Right now, this is not really a problem for the SOAR fund, which is funded out of Michigan state business tax revenue at less than $500 million per year.

Impacts of SOAR on reducing productive public services would be a bigger concern if the SOAR Fund's size was greatly expanded. In that case, it would be more difficult to finance SOAR without adverse effects elsewhere in the state budget.

As I testified (Bartik 2023a), the proposed SOAR reform package is probably reasonable. It requires that 20 percent of SOAR funds be used for various local services that would help complement the direct job creation. For example, such services might include job training or child care that would help local residents to access any jobs that are created. The language also encourages greater targeting, in particular, by location.

Second, what about more far-reaching reforms to Michigan's economic development programs? As I have argued in the past, the highest benefit-cost ratio economic development

policies target distressed places with various customized services to encourage job creation and help target more jobs on the non-employed (Bartik 2022). The targeting of distressed places and the targeting on the non-employed increases labor market benefits per job created. Furthermore, customized services to overcome the key local barriers to economic development can often be far more cost-effective in creating jobs than handing out cash.

In a prior report (Bartik 2022), I outlined a block grant program to help distressed places in Michigan that would have annual costs of $1.2 billion. The proposed program is a full-scale "ideal program"—one could still accomplish quite a bit with a program half as large.

Michigan is a relatively slow-growth state that includes many places that need more good jobs. An aggressive state economic development policy is warranted. But in order for such economic development policies to do more good than harm, they must be selective in targeting firms and places, emphasize cost-effective services more than handing out cash, and avoid harming the state's investments in productive public services.

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