Adapting an Incentive Simulation Model to a Michigan Program

Timothy J. Bartik
Senior Economist
W.E. Upjohn Institute for Employment Research
bartik@upjohn.org

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This study of the MBDP program was done by Tim Bartik & Jim Robey of the Upjohn Institute, & Ken Poole and Ellen Harpel of Center for Regional Economic Competitiveness and Smart Incentives, along with other Upjohn and CREC staff

Basics of Generic State Model

- Focus on incentive effects on state residents' per capita incomes.
- Assumes incentive % of firm's costs has % effect on probability of tipping job creation decision, with multiplier effects.
- Higher wages & local prices yield both benefits (workers, property owners), & negative effects on other jobs.
- Impacts of job creation on state employ/pop ratio & pop yields both labor market benefits, and effects on cost of public services.
- Job creation affects both revenue and public service costs, with a net fiscal benefit that offsets part of incentive costs.
- Net cost of incentive must be financed, with economic impact.
- For more, see new book, *Making Sense of Incentives*

Adapting Generic State Incentives Model to Michigan Business Development Program

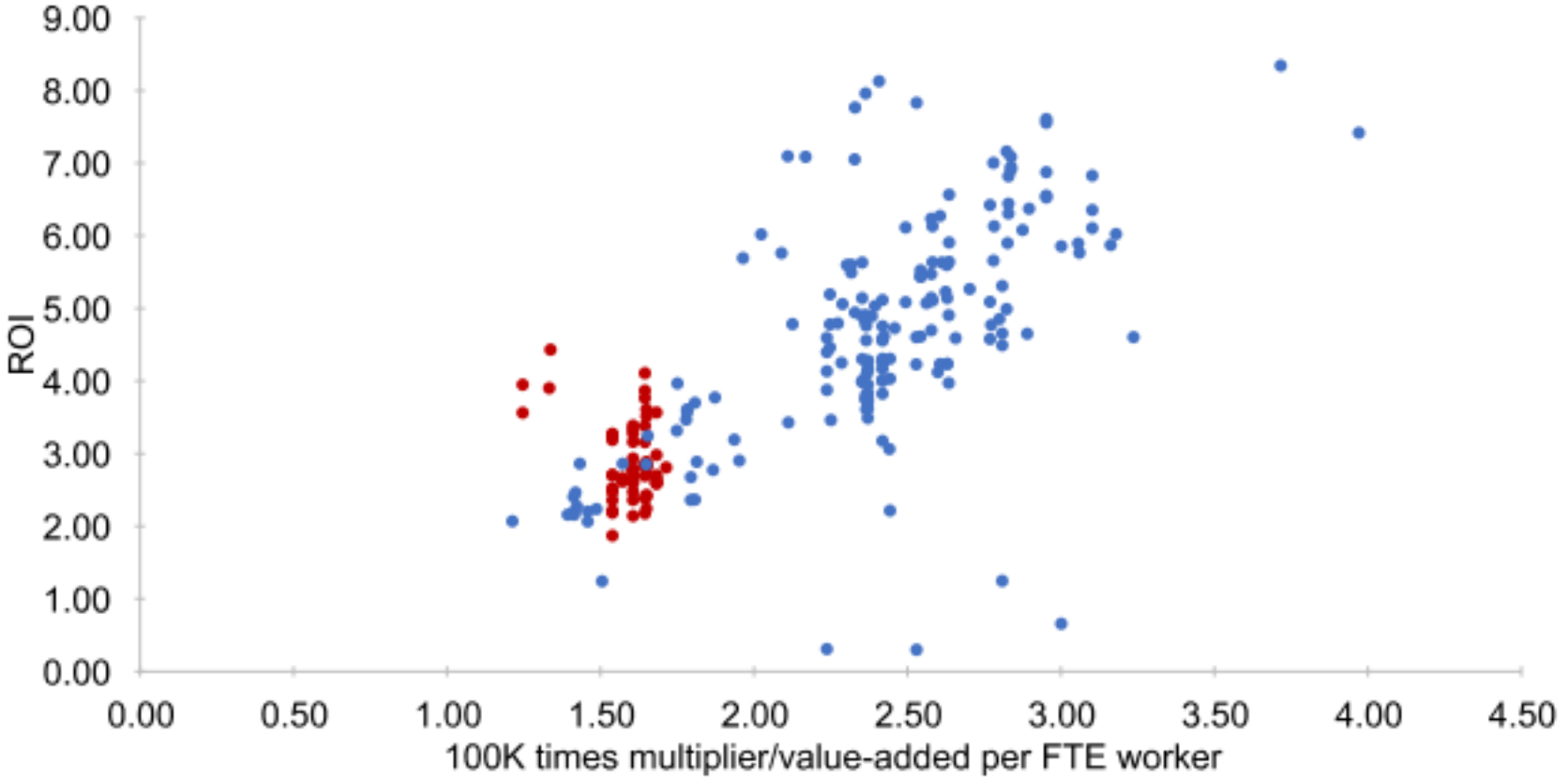
- Swap in Michigan-specific fiscal variables and tax elasticities.
- Use firm-specific #'s for incentives and jobs over time; use to calculate incentives as % of costs; assume last observed job # persists. Higher wages & local prices yield both benefits (workers, property owners), & negative effects on other jobs.
- Use firm-specific & Michigan-specific multipliers.
- Use county-specific border position, unemployment rate, & local housing elasticities to adjust incentive effects, E/Pop effects & housing price effects.
- Baseline assume business tax financing of incentives, but consider other types of financing.

Benefits and Costs of MBDP

	Completed/ terminated (41 projects)	In process projects (198 projects)	Total projects (239)
Earnings benefits	$ 122.2	$ 578.0	$ 700.2
Fiscal benefits	$ 13.2	$ 73.9	$ 87.1
Property value benefits	$ 19.7	$ 93.5	$ 113.3
Benefits from exporting business taxes	$ 5.3	$ 18.8	$ 24.1
Costs for local businesses	$ (8.2)	$ (39.3)	$ (47.5)
Gross benefits(=sum of above)	$ 152.3	$ 725.0	$ 877.2
Incentive costs	$ 33.7	$ 146.7	$ 180.4
Net benefits	$ 118.5	$ 578.3	$ 696.8
"ROI"=Net/incentive costs	3.51	3.94	3.86

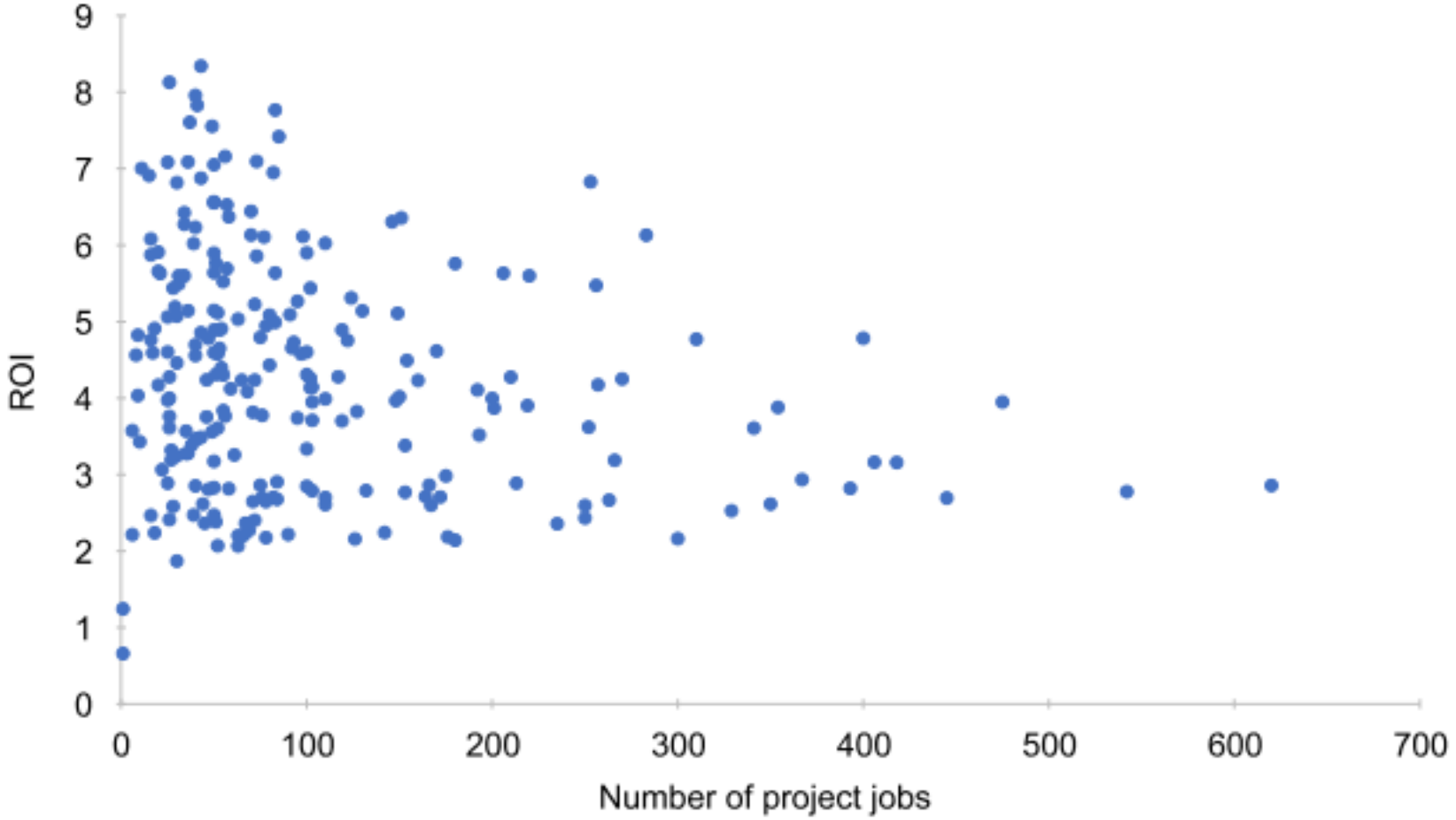
Note: All dollar figures are presented as 2018 present values, using 3% real discount rate, and are in millions of real dollars.

How Project ROI varies with Project Multiplier & Value-added/worker

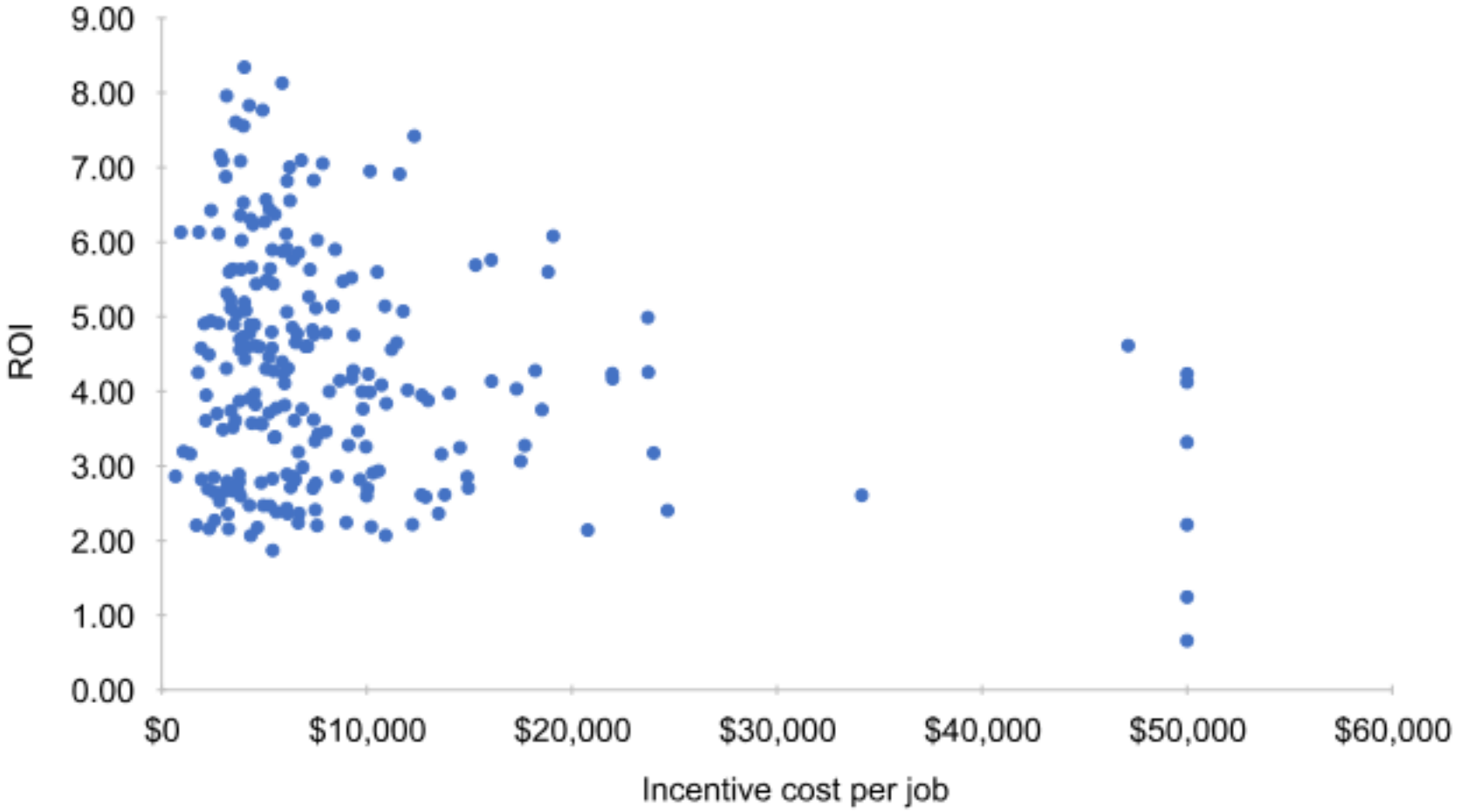


NOTE: Horizontal axis is 100k times multiplier/value-added per FTE worker. Each dot corresponds to one of the 239 projects. Dots in red are in auto industry.

How Project ROI varies with Project Size



How Project ROI varies with Cost Per Job



Other Results

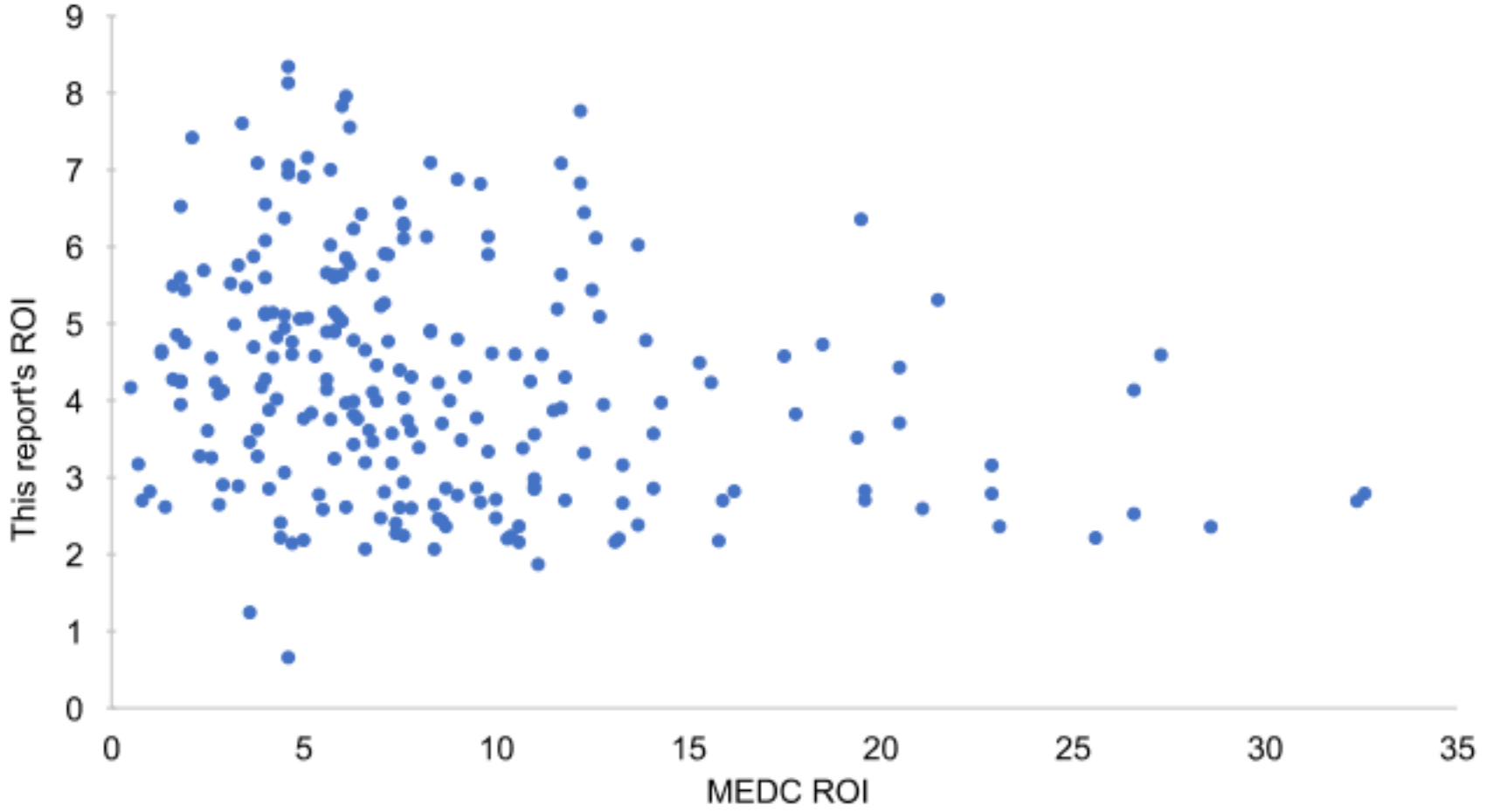
- Each 1% higher county unemployment rate increases ROI by about 10%.
- Projects in border counties have about 5% higher ROI.
- Projects in less housing elastic area have about one-quarter lower ROI.

Why MBDP ROI is higher than ROI of "Average" Incentive Program

	ROI
U.S. average incentive program	0.22
Assuming no future incentives awarded to retain jobs	1.31
Business tax financing rather than mixed financing	2.01
Upfront incentives	3.04
Increase multiplier from 2.5 to Michigan's 3.69	4.76
Reduce scale of incentives to Michigan's smaller scale	4.93
Michigan ROI in this study	3.86

NOTE: All except the last row are modeled based on characteristics of average state in U.S., and use model described in Bartik (2018). The last row is taken from the current study's results for 239 MBDP projects.

This Report's ROI vs. MEDC ROI, 237 Projects



How MBDP ROI Varies With Program Financing

Type of project	Baseline (financing by business taxes)	Financing by non-business taxes	Financing by reduced K-12 spending	Financing by reduced non-K-12 spending
Completed/terminated	3.51	3.41	-0.86	3.32
In process	3.94	3.86	0.51	3.83
Total projects	3.86	3.78	0.25	3.73

ROI, Financing, & the Time Horizon

	Baseline(business tax financing)	Education cut financings
ROI over 80 years	3.86	0.25
ROI over 10 years	3.60	3.23

Summary

- This incentive simulation model can be used for real-world evaluation of economic development projects, with some adaptation.
- I plan to modify the model to make this easier for evaluators to do, and make this modified model available for free download.
- Key factors in determining incentive ROI include: assumed effects of costs on business location; multiplier; local labor market conditions; local housing market conditions; whether incentive is upfront; incentive financing.
- Evaluators cannot avoid making some assumptions, & must choose reasonable range for results to be credible.
- Incentive financing is as much political issue as a social science fact.

Questions?