

Review of State-of-Practice in Integrating Economic Impact Analysis into the Transportation Planning Process

Judy A. Perkins, PhD., P.E., and Judith L. Mwakalonge, PhD

May 2, 2011

International Transportation Economic Development
Conference

Charleston, West Virginia, USA



Presentation Outline

- Background
- Current state-of-practice
- Data Used
- Project performance with different motivation
- Findings
- Recommendations



Background

- one billion dollar of annual spending on capital investment and operations , in public transportation within the U.S on average support up to 36,000 jobs a year given the current mix of 71⁰% operations and 29⁰% capital.
- Construction of new interstate highways raise earnings to counties served by the new construction in ranges of 6–8⁰% in 24 years after the initial opening.
- Bypasses have negative impacts to traffic-dependent businesses during the first 10 years but positive impacts thereafter.



State-of-Practice

- Agency coordination with external economic development department,
- Economic development as a factor in project selection process,
- Setting funds for economic development projects,
- Analyzing economic development potential of transportation projects using technical tools.

Economic Development Score in Project Selection

Agency	Measure				
	<i>Economic Development</i>	<i>Congestion</i>	<i>Safety</i>	<i>Environmental</i>	<i>Community Input</i>
Kansas DOT Expansion	25%	50%			25%
Modernization		80%			20%
Preservation		100%			
Wisconsin DOT	40%	20%	20%	10%	10%
Ohio DOT	25%	55%			20%
MPO's GA	10%	35%	20%		
Atlanta GA	4%	70%	5%		
Rural GA DOT	20%	20%	20%		

Funds for Economic Development Projects

Agency	Program Name	Funding Scope
Illinois Department of Transportation	Economic Development Program	provides up to 50% state matching funds for eligible projects
Minnesota Department of Transportation and Minnesota Department of Employment and Economic Development	Transportation Economic Development	pays up to 70% for trunk highway interchanges and up to 50% for non-trunk highway improvements
Wisconsin Department of Transportation	Transportation Economic Assistance	provides 50% for eligible projects to attract employers to Wisconsin



Data Used

- Transportation Project Impact Case Studies (T-PICS)
 - 100 case studies
- Project Motivations
 - Economy- 9 projects
 - Accessibility- 35 projects
 - Congestion Mitigation- 17 projects
 - Site development- 39 projects
- Distressed areas-56 projects

Project Implemented with Economy as a Motivation

Projects Characteristics			
Variable	Mean	Min	Max
AADT	64390	360	190107
Economical Distressed	1.139	0.89	1.413
Employment Growth Rate	0.019	0.007	0.045
Population Growth Rate	0.0148	0.0002	0.038
Income Growth Rate	0.032	0.015	0.0738
Distance to The Nearest Airport	44.81	17	110.24
Population Density	567.89	17	2242
Direct Jobs	5976	7	24000
Direct Income	334.66	0.289	1653.94

Projects Implemented with Congestion Minimization as a Motivation

Variable	Mean	Min	Max
AADT	32021	2970	145000
Economical Distressed	1.035	0	1.93
Employment Growth Rate	0.0149	0.0033	0.028
Population Growth Rate	0.009	-0.0018	0.021
Income Growth Rate	0.025	0.0007	0.049
Distance to The Nearest Airport	38.76	2	143.92
Population Density	440.59	25	2028
Direct Jobs	605.65	-48	3000
Direct Income	29.39	0	143.08

All Case Studies

Projects Characteristics			
Variable	Mean	Min	Max
AADT	59235	360	500000
Economical Distressed	1.031	0	1.935
Employment Growth Rate	0.013	-0.0777	0.109
Population Growth Rate	0.0088	-0.1514	0.0755
Income Growth Rate	0.02265	-0.0721	0.0977
Distance to The Nearest Airport	33.21	2	143.917
Population Density	1044.89	2	16200
Direct Jobs	4927.3	-48	50000
Direct Income	242.9	-0.41	4139.3

All Case Studies: Correlation Coefficients

Variable	Economic Output		
	<i>Direct Jobs</i>	<i>Direct Income</i>	<i>Direct Output</i>
AADT	0.2754	0.2886	0.3021
Economically Distressed	-0.0442	-0.0458	-0.0352
Population Growth Rate	0.174	0.1367	0.1637
Distance to Nearest Airport	-0.188	-0.1872	-0.1878
Population Density	0.2262	0.3535	0.2846



Conclusions

- Most transportation agencies incorporate some form of economic impact analysis into their transportation planning process
- Projects implemented with economic development as a motivation resulted in higher economic output than those implemented for congestion mitigation.
- Regardless of the motivation for project implementation, region economic distress and distance to the nearest airport show a negative linear relationship with economic development impacts induced by transportation investments.



Recommendations

- Compare economic development performance of projects implemented with economy being used in the scoring during project prioritization and those that did not.
- Compare the performance of programs implemented with funding from economic development funds.



Questions?

Judy A. Perkins, PhD., P.E.
Professor of Civil Engineering
juperkins@pvamu.edu

Judith L. Mwakalonge, PhD
Post-Doctoral Researcher
jumwakalonge@pvamu.edu