Sustainable Economic Development Strategies: Estimating the Unknown

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W.E. Upjohn Institute for Employment Research

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Regional and Economic Planning Services

- Data Dissemination & Analysis

- Economic Impact Studies

- Economic & Workforce Development Strategy

- Talent Assessment

- Urban & Regional Planning

Question: How do you do an economic impact when you don't have data?

- There are situations where hard data don't exist
  - Construction
  - Operations
  - Events
  - Visitors
- Actual or missing data may include:
  - Employment
  - Investment
  - Expenditures
  - Volume—visitors and attendees

Why do these things matter?

- Funders and incentives
- Return on investment/decisions
- Identify supply chain
- Identify workforce
- Estimate labor market capacity
- Identify staffing
- Migration?

Solutions?

- Estimate values (i.e., "best guess")
  - Strength: works well if event is close to estimate
  - Weakness: if input values come in lower than forecast, reduced expectations

- Scalable
  - Allows for flexibility to "right size" on the fly
  - Creates ability to do multiples
  - Does not take into account impacts in REMI from scale activities

Example 1: Investment Decisions

- Q: regional decision makers: bang for buck?
- Based on regional economic data
  - LQ and shift-share?
  - Supply chain
  - Workforce
- Choose industries
  - This example: 3 industries
  - Northeast Pennsylvania-high LQs

Example 1: Must be Balanced with Costs

Employment	Petroleum & Coal	Chemicals	Plastics & Rubber
Direct	100	100	100
Indirect	94	54	31
Induced	231	95	54
Government	3	2	1
Total	428	251	186
Value added (M$)	93	45	20
Personal Income (M$)	127	18	10

Be Careful in Assumptions

Category	w/nullify investment	w/o nullify investment
Petroleum and Coal Products Manufacturing	100	100
Construction	84	105
Oil and Gas Extraction	60	60
Retail Trade	34	37
Support Activities for Mining	21	27
Ambulatory Health Care Services	13	14
Food Services and Drinking Places	11	12
Professional, Scientific, and Technical Services	10	12
Social Assistance	7	7
Administrative and Support Services	6	6
Membership Associations and Organizations	6	7
Personal and Laundry Services	5	5
Wholesale Trade	3	3
Monetary Authorities - Central Bank; Credit Intermediation & Related Activities	3	3
Real Estate	3	3
Total	366	401

Remembering What Matters

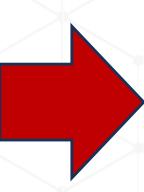| Category |
|---|
| Petroleum and Coal Products Manufacturing |
| Construction |
| Oil and Gas Extraction |
| Retail Trade |
| Support Activities for Mining |
| Ambulatory Health Care Services |
| Food Services and Drinking Places |
| Professional, Scientific, and Technical Services |
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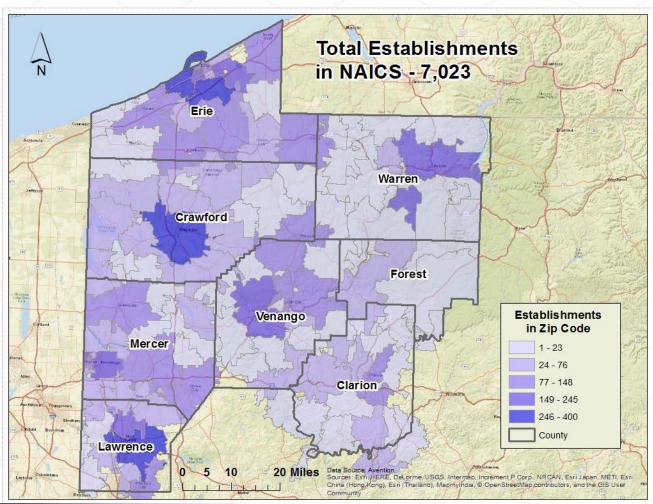| Category |
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Determining supply chain and "regionalness"

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Summary->Detail->Extra Detail

Category	Ur	2015
Construction and extraction occupations	Th	+1.305
Sales and related, office and administrative support occu	Th	+0.858
Management, business, and financial occupations	Th	+0.653
Computer, mathematical, architecture, and engineering	Th	+0.414
Transportation and material moving occupations	Th	+0.270
Installation, maintenance, and repair occupations	Th	+0.251
Production occupations	Th	+0.232
Life, physical, and social science occupations	Th	+0.125
Building and grounds cleaning and maintenance,persona	Th	+0.119
Healthcare occupations	Th	+0.110
Food preparation and serving related occupations	Th	+0.098
Education, training, and library occupations	Th	+0.067
Legal occupations	Th	+0.038
Protective service occupations	Th	+0.032
Arts, design, entertainment, sports, and media occupati	Th	+0.023
Community and social service occupations	Th	+0.021
Farming, fishing, and forestry occupations	Th	+0.003
Military	Th	0.000

Category	Ur	2015
Construction trades workers	Th	+0.859
Engineers	Th	+0.253
Extraction workers	Th	+0.227
Other installation, maintenance, and repair occupations	Th	+0.171
Business operations specialists	Th	+0.170
Material moving workers	Th	+0.166
Secretaries and administrative assistants	Th	+0.163
Retail sales workers	Th	+0.154
Other management occupations	Th	+0.152
Supervisors of construction and extraction workers	Th	+0.140
Other office and administrative support workers	Th	+0.121
Top executives	Th	+0.120
Financial clerks	Th	+0.117
Financial specialists	Th	+0.116
Computer occupations	Th	+0.107
Information and record clerks	Th	+0.087
Physical scientists	Th	+0.087
Motor vehicle operators	Th	+0.079
Plant and system operators	Th	+0.078
Operations specialties managers	Th	+0.076
Material recording, scheduling, dispatching, and distribut	Th	+0.062
Helpers, construction trades	Th	+0.056
Food and beverage serving workers	Th	+0.056
Other production occupations	Th	+0.051
Drafters, engineering technicians, and mapping technicia	Th	+0.045
Other personal care and service workers	Th	+0.039
Supervisors of office and administrative support workers	Th	+0.038
Health diagnosing and treating practitioners	Th	+0.037

Category	Ur	2015
Construction laborers	Th	+0.191
Petroleum engineers	Th	+0.163
First-line supervisors of construction trades and	Th	+0.140
Carpenters	Th	+0.138
Derrick, rotary drill, and service unit operators,	Th	+0.124
Electricians	Th	+0.118
Office clerks, general	Th	+0.109
General and operations managers	Th	+0.106
Secretaries and administrative assistants, excep	Th	+0.104
Pumping station operators	Th	+0.092
Pipelayers, plumbers, pipefitters, and steamfitter	Th	+0.090
Bookkeeping, accounting, and auditing clerks	Th	+0.083
Retail salespersons	Th	+0.083
Environmental scientists and geoscientists	Th	+0.082
Accountants and auditors	Th	+0.082
Construction equipment operators	Th	+0.079
Roustabouts, oil and gas	Th	+0.077
Miscellaneous plant and system operators	Th	+0.075
Driver/sales workers and truck drivers	Th	+0.069
Cashiers	Th	+0.059
Architectural and engineering managers	Th	+0.058
Business operations specialists, all other	Th	+0.053
Construction managers	Th	+0.051
Heating, air conditioning, and refrigeration mech	Th	+0.051
Laborers and material movers, hand	Th	+0.050
Executive secretaries and executive administrat	Th	+0.048
Painters and paperhangers	Th	+0.043
First-line supervisors of office and administrative	Th	+0.038

Direct, indirect, and induced impacts on occupations

- Three options here:
  - REMI basic included in PI+
  - REMI optional output with detailed occupations
  - Using REMI industry data with BLS industry/occupation matrix
- Identify training providers and opportunity
  - IPEDS: http://nces.ed.gov/ipeds/
  - Finding Career Technical Education (CTE) can be tricky at best

A Few "Add Ons"

- Tie occupations to labor market conditions
  - Using LMI data to see how large the labor market is
    - Can "scaled" opportunities support the demand?
    - What are the wage rates for each occupation?
    - For attraction efforts, are the competitors known?
  - Using IMPUMS data
    - Age of the workforce
    - New demand needs to be tied to exits as well as churn/turnover

Example 2: Visitor Study

- A large metro CVB has asked us how to consider the impacts of state funding on event and convention attraction

- Problems in the answering the question:
  - Diversity in event attendees
    - Business organizations, trade shows, religious groups, and athletic conferences and events
    - Creates a variety of spending patterns
  - Diversity in size: minimum of 4k up to 50k
  - Actual size of the specific event

Creating a "Straw Man"

- Determine an expected attendance pattern with associated spending

- Need to include spending: accommodations, eating and drinking, retail, transportation, entertainment

- Factors affecting data use:
  - Where are they from—import/"but for"
  - Why are they here—causality w/discounting
  - Length of stay—overnight versus day tripper
  - Where or maybe who they are staying with

Developing a Straw Man

- Only include attendees from outside study area—again the "but for"
  - But units of analysis can change based on clients or funders
- Determine shares per 1,000 of each type of visitor—driven by type, length of stay, number in party, and why they are there
- Use as inputs into REMI PI+
  - Be sure to watch the usual things like "nullifies"

Visitor Straw Man

- Dilemma:
  - Using knowns and unknowns
- Solution:
  - Provide cover: these are *estimates*
  - Conduct sensitivity analysis
    - Change shares by home location
    - Change spending assumptions

Visitor Straw Man

- Dilemma:
  - Spending numbers are reliable
  - Shares by place of residence are estimates
- Solution:
  - Once the spending numbers are "fixed" the share of visitors creating an economic impact is adaptable
  - Inexpensively create with client three scenarios to give them cover: expected and a high and low
  - These only add tables or columns to the report

Example 3: Hotel Development

- Client is looking to build a 100+ room franchised hotel

- Two components
  - Building/retrofit
  - Operations

- Unknowns:
  - Occupancy rate
  - "Other" spending

Hotel Development

- The build out is easy—
  - Just need to annualize the hard and soft costs
  - More detail is good—doesn't necessarily change the level of impacts, just more precision in the estimates

- To solve for unknowns:
  - Most clients should have a pro forma
  - Will likely need an NDA in place

Hotel Development

- The pro forma should provide
  - Operating expenses
    - Do fixed and variable costs matter?
  - Some type of per-room revenues
- Unit of analysis can matter here
  - But for this study all hotel nights are from non-residents—meets 'but for" condition of EI
- Work with client to develop reasonable spending per night
- It may be helpful to estimate share who is "passers through'" and share who is "destinations"

Hotel Development

- Using data to create a series of profiles for visitors
  - Including secondary spending
    - Eating and drinking, entertainment, retail
- Create the profiles in sets of 100 or 1,000 of room nights
- Create sets that are neutral, as well as aggressive, and one that is a little more "humble"
- May need time series for startup, ramp up, and steady state
- Should be defensible but able to give the client tools needed

Summary

- It's always better to have clean and hard data
- When those don't exist or when the target is subject to change
  - Use scalable impacts in either dollars or employment
  - These have a shelf life that is longer than the "hard data" analysis
  - Caveat: Don't let the client assume reliability of the scalables into perpetuity

Questions and comments?

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