Economic Impact Modeling

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Agenda

• Economic Impact Study
• Input-Output Modeling
• Process for an economic impact study
• Key economic impact indicators
• Types of Impact
• Industry Multipliers
• Modeling tools
• Real Estate Focused Impact Modeling
Economic Impact Study

Economic Impact Analysis: estimate the impact, in terms of jobs, labor income, taxes, etc. of an initial change in the local economy.

Economic Impact:
- Washington – Economic Impact of aerospace industry tax credit
- California – Economic impact of research & development tax credit
- Nevada – Economic impact of tax incentives for Tesla
- Missouri – Economic impact of new Rams stadium complex

Social or Political impact:
- The impact of carbon emissions
- The impact of better schooling
- The impact of a new president
Input-Output Modeling

• The initial direct impact (Input) to the economy create additional business and consumer spending (Output)

• Business and consumer spending ripple throughout the local economy until it is lost to leakages. Leakages include: Imported goods, Savings, Taxes, and Commuters

• For example, if construction is the initial impact, they will need to buy hammers from a hardware store. The hardware store has to buy uniforms for their employees. The uniform supply store will hire an accounting firm to complete their taxes. This spending multiplies or ripples throughout the economy until it is lost through leakages.
Process for study

1. Frame the study
   - Who are the actors?
   - What is the value of the economic change in production or expenditures?
   - When does it take place?
   - Where does it take place?

2. Gather information
   - Historical accounting data
   - Budgets
   - Interviews

3. Analysis
Key economic impact indicators

• Employment: Jobs created

• Labor Income: Employee Compensation + Proprietor Income
  – Proprietor Income: Total income to a sole proprietor or self-employed “employee”

• Value added: Labor Income + Indirect Business Taxes + Other Property Type Income
  – Indirect Business Taxes: All payment to governments except for payroll and end-of-year income taxes
  – Other Property Type Income: All monies collected by an industry that are not paid into operations of the company. It includes profits, capital consumption allowance, payments for rent, royalties and interest income

• Output: Value added + Intermediate Inputs
  – Intermediate Inputs: The goods and services produced by one industry that will be incorporated in the production of another industry. Intermediate inputs are the materials and services (other than employment) required by an industry to create its products.
Types of Impact

**Direct Effect:** The initial change in production or expenditures that are driving the impact.

**Indirect Effect:** The effects that stem from purchases required by the direct industry to produce its products. The firms that supply inputs to these ‘first-round’ producers must adjust their purchases to meet the change in demand, which stimulate the additional round of indirect results.

**Induced Effect:** Induced spending stems from spending of employee wages. The labor change resulting from a change to directly affected industry will initiate a change of wage spending that initiates the first round of induced impacts. In turn businesses experience increased demand when these workers purchase from them, which generates the additional round of induced effects.
## Industry Multipliers

Output Multipliers example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Direct Effects</th>
<th>Indirect Effects</th>
<th>Induced Effects</th>
<th>Total Effects</th>
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<td>520</td>
<td>Other federal government enterprises</td>
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<tr>
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Industry Multipliers

Other determinates of economic impact
• Employee multiplier (number of jobs)
• Labor Income multiplier
• Value added multiplier
• Local purchase percentage
Modeling Tools

Basic: Regional Input-Output Modeling Systems (RIMS II)

Cost: $275 per region
Modeling Tools

- Intermediate: Implan
- Cost: $2,000 - $6,000 per state
Modeling Tools

- Advanced: Regional Economic Models, Inc (REMI)
- Cost: $17,000 for single geography model using 3-digit NAICS data
Modeling Tools

Economic Impact of Tesla on Washoe and Storey Counties

Project: Telsa Gigafactory

Tools:
• The Governor’s Office of Economic Development in UTAH used IMPLAN
• The University of Nevada Reno used a REMI Model

Results:
• Regional REMI results were 28.7% higher than IMPLAN’s regional results. IMPLAN was declared the conservative option for the study.
What is it?

- What is Real Estate Econometrics?

“Halo effect” of real estate developments
- Jobs
- Earnings
- Commercial activity
- Tax revenue

Any new real estate development or lease
Economic “Halo effect”
Who uses it?

Who uses it?
• Large regional employers
• Developers
• Development authorities
• State and Local governments

How do they buy it?
• Direct RFP’s for RE economic or fiscal impact studies
• Bundled in urban planning RFP’s
• As part of redevelopment planning studies and initiatives
Why does anyone care?

Prudent use of Taxpayer funds

Great Ideas for a Site
- High indirect benefits
- Higher risk than alternatives
- Limited clarity on direct tax income
- Often done with high mix of grant and private equity funds in capital structure

Tax income yielding ideas
- Clear long term new tax income
- Often limited, possibly negative, indirect benefits
- Limited financial risk to City
- Private equity and debt markets will fund

Prudent use of Taxpayer funds
Example – State of New Jersey

The State needed the ability to:

- Fairly distribute incentive financing
- Insure positive impact
- Prioritize funding
- Quickly screen applications
- Size packages to impact
- Withstand scrutiny
Example – State of New Jersey

- Federal Econometric Multipliers
  - Rigorous econometric and statistical modeling

- Customizable add-on decision logic

- Scalable, Flexible, Defensible Real Estate Econometrics Model

- JLL Real Estate Research & Data
Common Challenges

• Real estate owners (Landlords)
  – Financial incentives for companies to move lessen landlords’ negotiation leverage
    • Solution- Rigorously defensible analysis, fairly applied statewide

• Local interest groups
  – Substitution effects can diminish true impact
    • Solution – across the board discounts to sales taxes in heavy retail projects (more conservative than classic market analysis)
Common Challenges

• Applicant “Optimism”
  – Almost every applicant for incentives overestimates the impact his/her project will have
    • Solution- Market based benchmarks for construction values, employee density, salaries

• Industry Classification
  – Example : Is the accounting function of a manufacturer isolated offsite site a financial services use, or a manufacturing use?
    • Solution : Depends on the context