Estimating the Local Economic Impact of U.S. University Activity Using a Bill of Goods Approach

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Outline of Today's Talk

- Focus on measurable aspects of university economic impact analysis

- Review the state of the art

- Show a relatively simple use of survey data to refine off-the-shelf multipliers

- Next steps for extensions: discussion of APLU interests

Literature Highlights

- Siegfried, Sanderson, and McHenry (2006)
  - Most studies fail to define a counterfactual
  - Econometric work on knowledge creation and diffusion may be misapplied

- Caffrey and Isaacs (1971)
  - How-to manual for university impact studies without multipliers
  - Helps identify all impacts a university can have on a region

What Should We Watch Out For?

- Disregarding the assumptions of input-output multipliers
- Ambiguous reporting of impacts
- Inconsistent definition of final-demand region
- Lack of attention paid to the public costs caused by the university's presence
- Less tangible impacts

Some Questions to Ask

- Is there a net final-demand change?
  - Are there additional expenditures required by the new program? Will this program create new jobs at the university?
  - Where would students go if the program was not available?
  - Are the new students from outside the region?
- What is the final-demand region?
  - What area provides most of the labor and other inputs?
  - What inputs are needed? Are they produced in the region?

- Final-demand change
  - $10 million increase in university expenditures as a result of a new program attracting students from outside of the region

- Final-demand region
  - The Austin-Round Rock-San Marcos, TX Metropolitan Statistical Area
  - Most of the program inputs and employees come from this region

Off-the-shelf Method

Type II Final-Demand Multipliers
for Junior Colleges, Colleges, Universities,
and Professional Schools (611A00)
Austin-Round Rock-San Marcos, TX MSA

Industry	Output (dollars)	Value Added (dollars)	Earnings (dollars)	Employ-ment (jobs)
Junior colleges, colleges, universities, and professional schools (611A00)	2.1871	1.2982	.7603	24.0

$10 million x 24.0 jobs/$ million =
240 total jobs

Additional Data for the Bill-of-goods Example

- New local employment: 140 new hires

- Local purchases
  - $6 million of local purchases to be converted to producer value, transportation costs, and trade margins

- Industries corresponding to local purchases
  - Local industries that produce and distribute the inputs purchased by the university

Bill-of-goods Method

Expenditures	Increase in Local purchases in producers' prices	Final-demand employment multiplier (jobs)	Employment impact (jobs)
Employee earnings	$5,000,000	10.6365	53.2
Electricity	$200,000	6.6949	1.3
Gas	$110,000	6.3108	0.7
Water	$65,000	11.9699	0.8
Maintenance and repair	$180,000	18.0354	3.2
Books for sale at bookstore	$300,000	10.2733	3.1
Laboratory supplies	$80,000	9.4066	0.8
Truck transportation*	$15,000	17.9329	0.3
Wholesale margin*	$50,000	11.6000	0.6
Subtotal	$6,000,000	n.a.	63.9
Plus: Initial change	**n.a.**	**n.a.**	**140.0**
Total	n.a.	n.a.	203.9
Implied final-demand employment multiplier**	**n.a.**	**20.4**	**n.a.**

* Truck transportation and wholesale services provided by local firms to deliver and sell the locally produced books and laboratory supplies

** Calculation of implied multiplier: 203.9 ÷ $10 million = 20.4

Expenditure Shares Vary by Age Group

Item	All consumer units	Under 25 years	Percent Difference
Food	12.7	14.8	16.5
Alcoholic beverages	0.9	1.5	66.7
Housing	34.4	34.8	1.2
Apparel and services	3.5	5.7	62.9
Transportation	16.0	17.1	6.9
Health care	6.6	2.8	-57.6
Entertainment	5.2	4.4	-15.4
Personal care products and services	1.2	1.3	8.3
Reading	0.2	0.1	-50.0
Education	2.2	6.9	213.6
Tobacco products and smoking supplies	0.8	1.0	25.0
Miscellaneous	1.8	1.0	-44.4
Cash contributions	3.4	1.1	-67.6
Personal insurance and pensions	11.2	7.4	-33.9
Personal taxes	2.8	0.4	-85.7

Source: Consumer Expenditure Survey, U.S. Bureau of Labor Statistics, September, 2011

Summary

- When using input-output multipliers for university impact studies:
    - Choose the final-demand region carefully
    - Detailed budget data can improve an impact study
    - Final-demand changes must be expressed in producer values
    - University economic impact studies should favor economics over impacts

Next Steps

- Joint work with Association of Public and Land Grant Universities
    - Tailor multipliers with additional university budget and regional data
    - R&D incubators, technology parks, museums
    - Cultural and sporting events
        - One-time events vs. on-going operations
- Incorporate research into an updated user handbook

Thank You

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