1. Sieglinde Johnson Presentation

Mills article: Economic Effects of State and Local Government Capital Projects
Critique of the Way Multipliers are Calculated for Public Projects

Capital Projects and Public Goods
A. Examples of capital projects that increase employment and income:
   1. public schools
   2. transportation systems
   3. communication infrastructure
   4. water supply and waste management systems
   5. public safety
B. Definition of “public good”
   1. Two criteria:
      a. Non-excludability – nonpayers cannot be excluded from the benefits of the good
      b. Non-rivalrous consumption – one person’s benefit does not detract from others’ enjoyment of the good (zero marginal cost of production)
   2. Most government services are NOT true public goods
      a. Violate one or both conditions
      b. Benefit containment – difficult for state & local govts to produce true public goods
      c. True public goods produced at upper levels of govt (jurisdiction coincides with benefit areas)

Privatization and Productivity
1. Project benefits same for private and government ownership:
   increased income & employment = productivity benefits
2. Private ownership leads to lower costs or improvements because of market force incentives
3. Privatization opponents argue benefits (increased income, employment & tax base) can not be captured by privatization.
   a. Local economic modeling flawed
      1. Most systems based on estimation
      2. Lack of specific local data (inputs, outputs, assets & money)

Employment Effects
1. Typical local economy model measures two benefits:
   a. Increase in local employment (construction & operating jobs)
   b. Additional money spent at businesses surrounding the facility
2. Critiques of the way in which the benefits are measured:
   a. All employee wages shown as benefits
   b. Assumes each job created reduces unemployment
      1. Only true if all workers would have been unemployed in the absence of the project
2. **better measure is excess earnings from the project over the workers’ opportunity cost**
   c. Assumes the spending would not occur without facility
   d. Benefits do not change under private ownership

**Offsite and Multiplier Effects**

1. **Multiplier Model**
   a. Assumes each dollar spent generates an additional dollar of income.
   c. Does not include leakages:
      1. **first round**: workers/owners live outside the jurisdiction
      2. **second round**: portion of money goes to jurisdiction that created the inputs (i.e. food, raw materials)
      3. **inversely related to the size of the jurisdiction**

2. **Off-Site Spending**
   generates local income equal to spending \( x \) (1 – the leakage fraction)
   \[
   M = \frac{1}{1-e} \quad e = \text{what is retained locally} \quad M = \text{multiplier}
   \]

3. **Migration & Leakages**
   a. Example of increases in Off-site spending increases wages in the jurisdiction causing migration, which can lower wages to pre-facility wages – no reduction in unemployment & 100% leakage
   b. Calculations of employee migration should include leakages caused by migration

**Multiplier Effects and Taxes**

1. Services provided by government-owned facilities are very capital intensive: 5-10x the operating costs & subsidized by taxes
2. Off-site taxes on auxiliary businesses & services usually implemented but do not cover all of the costs
3. **Tax increases and spending reductions have negative effects**
   a. Tax increases decrease amount of disposable spending
   b. Spending reductions reduce income
4. Generally speaking, spending multipliers are larger than tax multipliers

**Conclusion**

1. Incorrect assumptions in economic analyses:
   a. All people hired for a capital project would be unemployed in the project’s absence
   b. Govts multiplier effects are large and positive
2. **Rules of Thumb** for evaluating local economic reports
   a. 90-95% of people would be employed without the facility with (possibly lower wages (5-10%))
   b. Net multiplier is less than 1, usually 0.5

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1. **O’Sullivan Chapter 7: Introduction to Land Rent**

**Assume land owner and land renter (paying rent for use over given period)**

**Market value of land (PV) = present value of stream of rental income (R)**

\[
PV = \left[ \frac{R_1}{(1+i)^1} \right] + \left[ \frac{R_2}{(1+i)^2} \right] + \left[ \frac{R_3}{(1+i)^3} \right] + \ldots + \left[ \frac{R_n}{(1+i)^n} \right]
\]
If $R$ lasts forever and $R$ and $I$ are constant, then $PV = \frac{R}{i}$

You can rent house for $12,000 a year and $i = 0.05$, $PV = 240,000$

Intuitive reason?

Land rent and agrarian fertility

Assume

- Fixed input and output prices
- Zero economic profit
- High, medium, and low fertility land
- Land owners free to rent to who choose
- Zero transport costs

Figure 7.1 shows perfectly competitive outcomes

What will 3 types of land rent for?

- Leftover principle

Land rent and public policy

Federal and state governments build canals and provide free irrigation

Figure 7.2 shows new perfectly competitive outcomes

- Greater economic profits capitalized into land values
- Capitalization
- Greater supply of agricultural profits
  - Lower price
- Smaller geographic area, greater benefits to landowners

Price of agricultural land is high because goods produced on it

- Command high market price
- “Greedy landowners in SF have increased price of land”
- Perfectly inelastic supply of land
- “Price of land in Boston is so high; few can afford to live there”

Land Taxation

Henry George, Progress and Poverty (1880)

100% tax on rental income from land: single tax

Equity and efficiency justification
- Stimulate improvements

Problems

- Return on land falls to zero
- Government confiscates and owns
- How to determine

Alternatives

- Partial land tax (less than 100%)
- Split roll tax (land and improvements at different rates)
  - Pennsylvania
  - Pittsburg renaissance
  - CA situation?

3. O’Sullivan, Question 1 and 2, Chapter 7

1. a. Rice farmers are now willing to pay only $350 per acre for land. They still outbid corn farmers, so the output of corn and rice is unaffected by the field-burning law, so consumers are unaffected by the law. Farmers make
zero economic profit in the long run, so they are unaffected by the law. Landowners bear the cost of the law, receiving $150 less per acre.

b. Rice farmers are willing to pay only $250 per acre, and so are outbid by corn farmers ($300). All land will be converted to corn, so the total supply of corn will increase and the total supply of rice will decrease. Landowners lose only $200 per acre. Under the assumption that the prices of corn and rice are fixed, consumers are unaffected by the law.

c. If the state's output is large enough to affect the prices of corn and rice, consumers will be affected by the law: rice consumers will lose (increased price), and corn consumers will gain (lower price). As the price rises, rice farmers will be willing to pay more than $250 per acre; as the price of corn falls, corn farmers will be willing to pay less than $300 per acre. As the relative price of rice increases, the bid-rent of rice farmers will increase, causing some land to be converted back to rice production.

2. If the area affected by public policy (allowing burning instead of forcing farmers to bail and haul) is relatively small, most of the benefits go to landowners (or growers if they are landowners too), not consumers.

4. O'Sullivan Chapter 8 (pp. 167-83): Land Use in Monocentric City

Why study monocentric?
- Dominant for long time, many small and medium areas still, understand transition, lessons extended to polycentric

Assumptions
- Central export node, horse drawn transport, hub and spoke, agglomeration economies

Bid-rent of manufacturers

Assume
- Fixed factor production, fixed output price, competitive markets, freight cost per ton fixed
- \( U = \text{distance from city center} \)

Profit \( u \) = \( (P_{\text{Man}} \cdot Q_{\text{Man}}) - \text{Nonland Cost}_{\text{Man}} - (t_{\text{Man}} \cdot Q_{\text{Man}} \cdot u) - R_{\text{Man}}(u) \)

Set equal to zero

\( (P_{\text{Man}} \cdot Q_{\text{Man}}) - \text{Nonland Cost}_{\text{Man}} - (t_{\text{Man}} \cdot Q_{\text{Man}} \cdot u) = R_{\text{Man}}(u) \)

Leftover principle in action
- Land rent per acre falls as move away from central node
- Assume \( t_{\text{Man}} = 200 \) per block
- See Figure 8.1 (straight line)

If factor substitution occurs, then use more non-land inputs

Profit \( u \) = \( (P_{\text{Man}} \cdot Q_{\text{Man}}) - \text{Nonland Cost}_{\text{Man}}(u) - (t_{\text{Man}} \cdot Q_{\text{Man}} \cdot u) - (R_{\text{Man}}(u) \cdot \text{Land}(u)) \]

\( \left[(P_{\text{Man}} \cdot Q_{\text{Man}}) - \text{Nonland Cost}_{\text{Man}} - (t_{\text{Man}} \cdot Q_{\text{Man}} \cdot u)\right] / \text{Land}(u) = R_{\text{Man}}(u) \)

See Figure 8.1 (non-linear line)
- Flexible firms outbid nonflexible firms close in

Bid-rent of office firms
- Now employees must travel to city center to consult clients
Transportation costs is opportunity costs of firm’s workers

With flexible inputs

Figure 8.3: non-linear bid-rent function
Steeper bid-rent function
So where do offices go relative to manufacturing?

Residential land use

Assumptions
One member of household commutes to CBD
Non-commuting travel insignificant
No public finance and neighborhood differences
All households have same income and tastes
Monetary cost of commuting, but no time costs
All consume same size house

Bid-rent for residential land = total revenue of housing producers - total cost

Figure 8.5: Housing price (per-square foot for identical house)
Function of u
Makes consumers indifferent on locations
(Farther: lower per square foot, higher commuting cost)

Figure 8.6: Housing price (per-square foot for non-identical houses)
Pay more per-square foot because live in smaller size house
Even with same income

Residential bid-rent function

Leftover principle again
Land earns difference between what people are willing to pay for structure at a given location less what it costs to build structure

Figure 8.7: Total housing price determined by? (u,u,u,)

Population density
Price per square feet falls as move away from center
Lower pop den due to consuming more housing and land

Figure 8.8 pits it all together

5. O’Sullivan, Question 3, Chapter 8

Wage $120 per hour (8 minutes per-round trip block walk)
Price of output per unit $150
50 consultations produced
4 blocks from city center (32 minutes to walk in and out)
Occupies one-acre site
$1000 on non-land inputs

a. Travel cost per block = (8/60) * $120 = $16
b. Leftover principle for four blocks from city central =
   \[([(150 * 50) - $1,000 - (16 * 4 * 50)] = $7,500 - $1,000 - $3,200 = $3,300
   \]
c. Not possible because amount spent on non-land inputs would change if factor substitution
5. Wassmer Chapter 14: Jobs, Productivity, and Local Economic Development

Downs Brookings Review article
10 specific traits of suburban sprawl
Both land use patterns and outcomes
Benefits?
Costs
Negative regional externalities
  Congestion, air pollution, open-space loss, infrastructure duplication
  Spatial mismatch
Big cities and inner-ring suburbs
  Concentrated poverty
  Fiscal blight
Due to specific policies
  High housing standards, exclusionary zoning, racial segregation
  In suburbs
Self aggravating
Growth strategies
  Tightly bound high density development
  Loosely bound moderate density development
  New outlying communities and green spaces
Specific strategies
  UGB around metro area with strong enforcement
  Regional coordination of local land use planning
  Regional tax base sharing
  Region wide housing for low income
  Regional mass transit
  Regional enforcement of housing discrimination
Need for a “focusing event” crisis

5. Homework Due the Start of Meeting 6

1) Read all of the material under meeting 6 in the syllabus schedule; come prepared to discuss.
2) One sentence, typed question regarding material that you read for next meeting but do not understand.
3) Typed and double-spaced answers to discussion questions listed on syllabus for next meeting. These should be no longer than 2 pages long.