Public Goods and the Urban Economy

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Brief Contents

- The Theory of Public Goods
- The Free Rider Problem
- The City as a Public Good
- Externalities and Public Goods in the Urban Economy

Definition and Examples

- Two properties:
- 1. Non rival
- 2. Non exclusive

 Examples: national defense, monuments, street lighting, lighthouses, parks (or 'cities' and 'governments')

Market Failures

- Underconsumption: charging a price for a non-rival good prevents some people from enjoying the good, even though their consumption of the good would have no marginal cost.
- Undersupply: if there is no charge for a nonrival good, there will be no incentives for supplying the good.

User Fees

- If exclusion is possible, even when consumption is non-rival, governments can charge fees to those who use the good/service publicly provided.
- Examples: toll roads, entrance fees to parks or museums
- When consumption is non-rival, user fees introduce inefficiency



Comparing Distortions

- A private monopolist would choose a fee to maximise his/her revenue.
- The government could choose a fee required to break even
- Or charge less (or nothing) and raise the money for construction (or maintenance) elsewhere (e.g by general taxation)
- The distortions arising from underutilisation must be compared with the ones generated by other alternatives of raising the funds

The Free Rider Problem

- If a good is non-excludable in consumption
- If individuals believe that a good/service will be provided regardless individual contributions
- Then, there will be no 'incentives' to pay for the good/service voluntarily and some individuals might free ride and consume it without paying

The Free Rider Problem II

- The reluctance of individuals to contribute voluntarily to the provision of public goods is referred to as the free rider problem
- An usual way of funding goods/services vulnerable to free riding is through general taxation

Pure Public Goods?

- A pure public good is a public good where the marginal costs of providing it to an additional person is strictly zero and where it is impossible to exclude people from receiving the good/service
- They are hard to find in reality. Most of the socalled public goods are impure in the sense that marginal costs are very low or excludability is very costly or difficult

Impure Public Goods?



Publicly Provided Private Goods

- In many cases governments provide goods/services that have considerable marginal costs
- Examples: education, health service
- Rationale: distribution, justice, collective well-being

Public Goods as Extreme Externalities

- When one individual 'purchases' more of a public good, all individuals consumption of that good increase by the same amount.
- When one individual 'purchases' more of a private good other individuals consumption of that good remain unaffected.
- When one individual 'purchases' more of a good with externalities in consumption, other individuals consumption are affected but not necessarily by the same amount.
- Therefore public goods can be seen as a extreme case of externality

• Efficiency conditions

- For a private good, each individual' MRS must be equal to the MRT.
- For a public good, the sum of of MRS must be equal to the MRT.
- In the case of a private good each person can consume a different amount, but they all must value it the same at the margin-otherwise there is room to trade
- In the case of public good each person must consume the same amount, but they can value it differently at the margin

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Efficient Government as a Public Good

- An important public good is the management of the government: we all benefit from a better, more efficient gov.
- 'Good' government possesses, at a certain degree the properties of non-rivalry and non-excludability
- If a gov is able to become more efficient everyone benefits
- Those who haven't voted for the 'good' gov gain as much as those who worked for its election
- What about a bad government?

Public Goods, Externalities and the Urban Economy

History

- When seeking a reason for the existence of cities, the one that comes most naturally to mind is the supply of public services
- Medieval European cities: the wall and the law
- Walling a city exhibits increasing returns to scale (the public good supply is governed by size effects)

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$$\theta = \frac{2\pi r}{\pi r^2} = \frac{2}{r}$$

The Modern City

- Urban activities have gradually extended beyond physical boundaries
- Modern cities are more dispersed and have fuzzy boundaries
- Local public goods remains a major ingredient of modern cities
- Congregation of a large number of people facilitates the mutual provision of collective services that could not be obtained in isolation

The City as a Public Good

- A city is not a 'pure' public good because if a public good is located in space there is competition for the limited land close to the public good
- Social cost increases with the number of users because higher transport costs are required to use the public good
- Congestion arises when the number of users crosses a threshold

Efficient Provision of Local Public Goods

- A city offers a package of local public goods (police, fire protection, schools, hospitals, transport systems, stadiums, parks, environmental amenities)
- By migrating to the jurisdictions that respect their tastes in terms of goods and tax schemes, consumers reveal their preferences
- Assuming population mobility, competition among cities and consumers 'voting with their feet' might lead to the efficient provision of local public goods (Tiebout, 1956)

The Housing Market

- The choice of a particular community implies a choice of residence (land consumption)
- The price of land embodies the costs and benefits of public goods incurred by residents
- Land capitalization provides a measure of the social surplus (or willingness to pay) for an increase in local public goods
- Because consumers can move from unattractive to attractive locations, land prices will adjust to compensate for differences in attractiveness

Optimal City Size

- It is generally not desirable to increase the size of a city population indefinitely even if the per capita cost of the public good is decreasing with the number of users
- There is a trade-off between transport costs and the cost of supplying the public good
- In general a city will have a finite optimal size, which is determined by maximizing the utility level of residents

A City is not only a Public Good

- The provision of local public goods in a city creates incentives for a large number of market and non-market interactions
- Producers, workers and consumers might benefit from larger markets created by larger population densities
- Dwellers might benefit from more opportunities for faceto-face interactions
- Knowledge transmission is easier when agents are spatially proximate to each other.
- These positive effects might be compensated by negative congestion effects or by though competition

Knowledge Spillovers

- Technological externalities often appear as benefits due to transfers of information or knowledge.
- Knowledge generated by one agent for its own benefit is not exhausted by use but persists and spreads, affecting other economic agents.
- Knowledge travels better in short distances

Knowledge Flows within a Industry: Marshall Externalities

- knowledge spills over between firms within a industry.
- The idea is that we see a boost to production due to technological externalities that involve firms picking up or somehow acquiring, at less than market cost to themselves innovations and ideas generated by other firms within their industry.

Knowledge Flows between Industries: Jacobs Externalities

- The essence of Jacobs externalities is the existence of spillovers between sectors
- Jacobs externalities are external to the sector but internal to the city
- There are benefits to economic growth of a sector from the activities of other sectors within a city due to the ease of transmission of knowledge of any kind
- 'The diversity of urban activities quite naturally encourages attempts to apply or adopt in one sector (or in one specific problem area) technological solutions adopted in another sector

Externalities and Growth

- Large cities will be the source of more external economies than small towns, due to Jacobs externalities
- Regions with concentrations of firms in the same sector will benefit from greater external economies than regions where the concentration is lower, due to Marshall externalities.

Congestion in Production

- On the production side congestion involves interaction between firms, who 'get in each others' way' or 'step on each others' toes' and this affects their costs.
- Congestion arises when firms use common, but unpriced inputs in short supply, for instance there may be inadequate physical space, or infrastructural inadequacies relating to power supplies, water (for cleaning, cooling etc), road and other communications etc.

Congestion in Consumption

- With regard to traffic, it is well known that the congestion externality arises because the vehicle user does not pay for its marginal contribution to congestion. Therefore the **private** cost of travel falls short of the **social** cost. Travel is misallocated across mode, route and time and may be excessive.
- Other sources of congestion in consumption might appear in large cities (queues, rationing, waiting lists)

In Theory

• City size, sectoral composition and the supply of local public goods reflect the equilibrium solution of multiple trade-offs



Next Week

- Normative and Positive Theories of Economic Policy
- Social Choice
- Economic Policy: Objectives and Instruments
- Agency Problems and 'Non-Market' Failures
- The new Political Economy