

Economics of Transportation

EE 381/382



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GRADING

The final grade of the course will be based on the following items:

Mid-term exam	30
Paper and presentation	20
Article presentation	5
Final exam	45



Introduction to the economic of transport

- The economic problem and its relevance to transport issues
- The factors of production that make up the production of all transport services
- The production possibility frontier and its illustration of the three concepts of scarcity, choice, and opportunity cost
- The three market systems of the free market, the command economy and the mixed market
- The combination of agents that make-up transport markets
- The relevance of economic systems to the organization and provision of public transport systems through a case study of the Glasgow conurbation



The scope of the subject

- **Transport economics** is a branch of economics that deals with the allocation of resources within the transport sector and has strong linkages with civil engineering

(source: http://en.wikipedia.org/wiki/transport_economics)

- Transport economists are interested in the economic problems of moving goods and people



Transport issues

- Congestion and the role of road pricing
- The impact on traffic on the environment
- The Organization of public transport services
- The rise of low-cost airlines
- The capacity of the rail network



The economic analysis of transport issues is at the micro level

- What determines the demand for a particular journey?
- What may happen to the level of congestion if a road pricing system is introduced?
- How can an airline operator charge passengers different prices for the same flight?
- What influences the level of competition within the bus sector?



The basic tools of the transport economist are drawn from what is known as microeconomic theory

- What determines the demand for a particular journey or the demand for a particular mode of transport?
- What may happen to the level of congestion if a road pricing system is introduced?
- How can an airline operator charge passengers different prices for the same flights?
- What influences the level of competition within the bus sector?



Scarcity, Choice and Opportunity cost

- Individuals cannot have everything that they want because there is a finite limit on the resources that can be used to satisfy their 'wants'
- Any resource is therefore scarce
- If individuals cannot have all that they want, then choices need to be made, and put simply every choice involves a cost
- This will always be the next best alternative that could have had been selected when that choice was made
- This is known as the **opportunity cost** of that decision



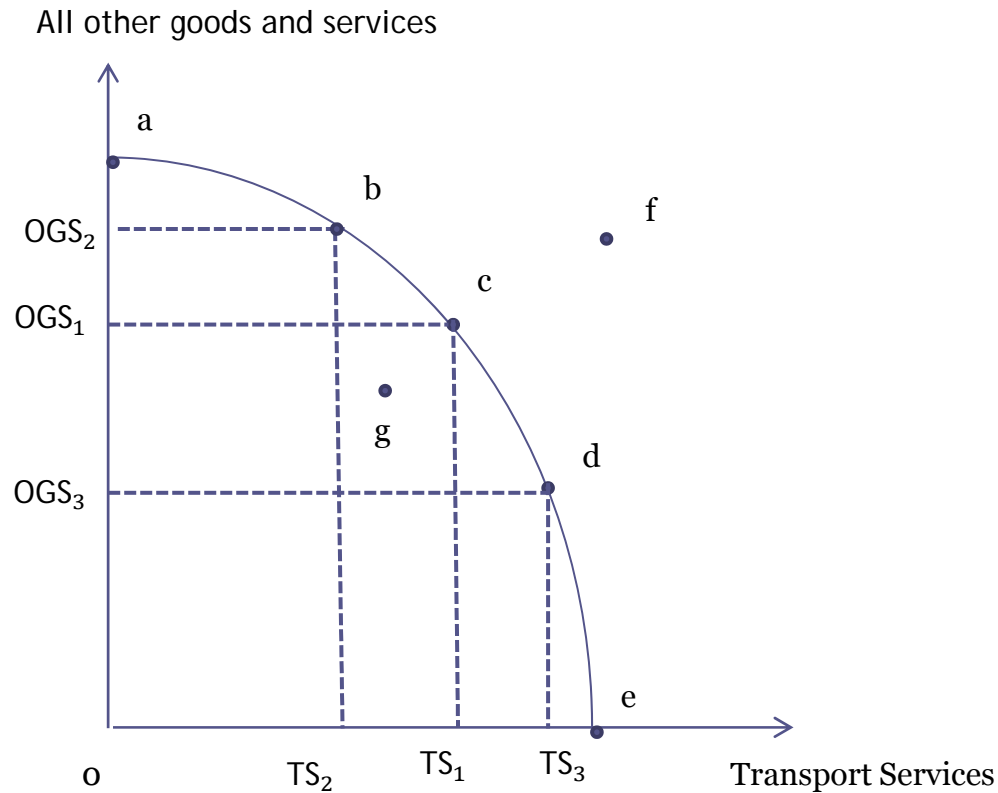
Example

If a particular society does not have sufficient resources to build both a new stretch of motorway and a new airport - a choice between the two

- If it chooses to build the motorway then the opportunity cost of the motorway is the airport that was not built


Opportunity cost - the next best alternative forgone

Production Possibility Frontier



The choice is between either transport services or all other goods and services

As resources are finite there is a maximum level or combination that can be produced

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- As any economy cannot provide its citizens with all that they want, there is scarcity, a choice has to be made with regard to three basic questions
 - What to produce?
 - How to produce?
 - And for whom to produce it?
 - This has led to the development of different economic systems or types of economies to answer these questions



The three market systems

- The command economy
- The free market
- The mixed market



A command economy

- the government decides what to produce, how it will be produced and who will receive the output
- The government also decides how the factors of production are employed
 - Land and raw materials, labor, and capital
- The state organizes the factor of production to resolve
 - What and how to produce and distributes the resultant production on the basis of equity



A Free market economy

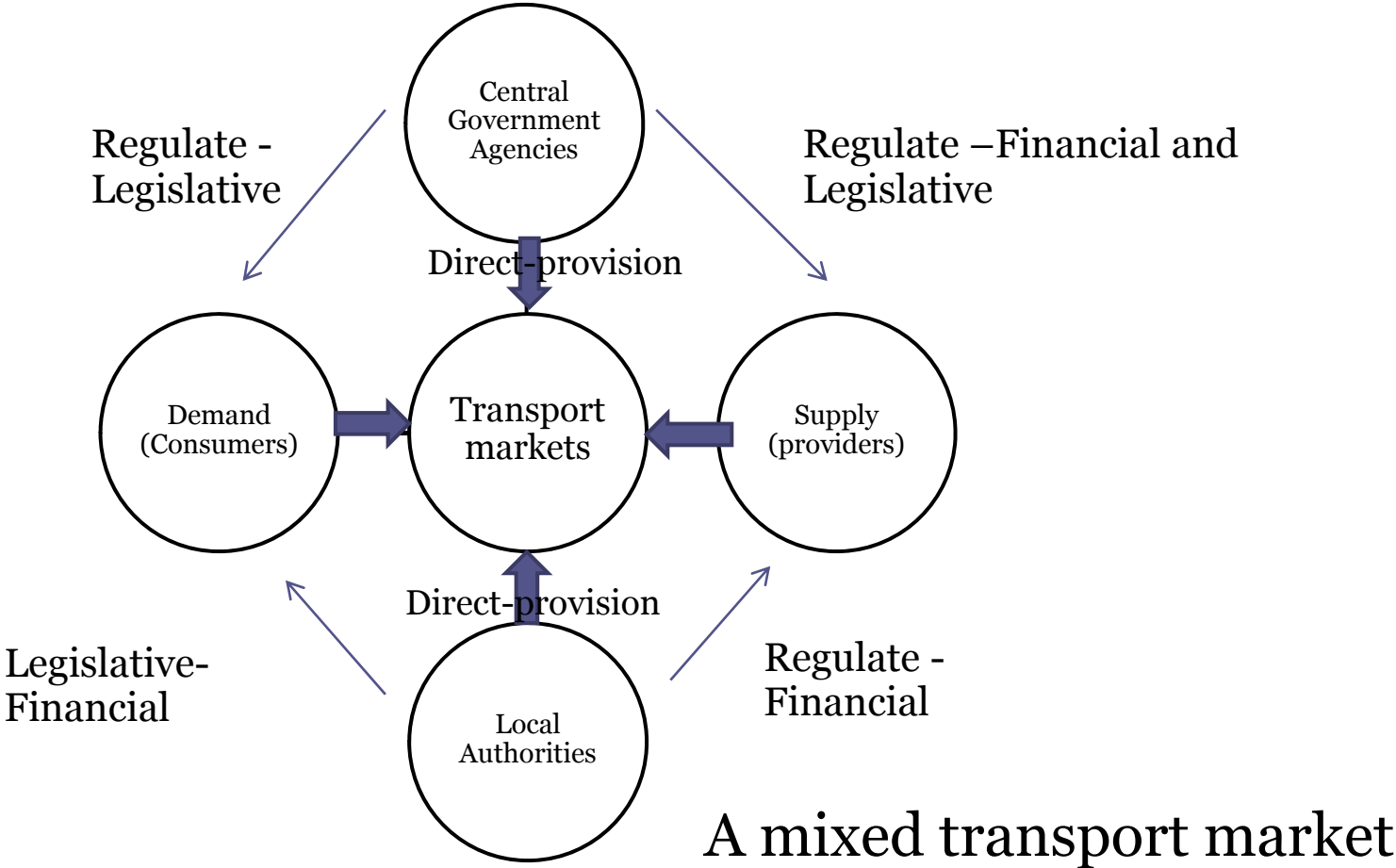
- In its most extreme form, a completely free market economy has no government input into the decision of what, how and for whom to produce
- Government's only function is to provide law and order
- Economic decisions are left purely to the market in the form of private buyers and sellers, with the **price mechanism** and the profit motive playing central roles in the operation of the whole economic system



A mixed market economy

- A market based system - one primarily (but not entirely) based upon the price mechanism, and one that uses a mix of public decisions of the state and the private decisions of the market to determine the outcome to the questions of what, how and for whom to produce
- Examples- health, education and many social services


Transport markets





Case study 1

Private and public sector roles in the provision of public transport in and around the Glasgow conurbation

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- In Glasgow there are three main forms of public transport: the bus, the train, and the Glasgow underground
 - All three operate through the price mechanism - a fare is charged for their use, the provision of each mode operates along very different economic principles



Bus Services

- Free market system - privately owned and operated companies decide which bus services they will operate
- Usually based upon providing a network of services that they believe will make them a profitable return




Rail services

- Glasgow has the largest suburban rail network in the UK outside of London
- Services provide based not on the profit motive, but rather on the basis of the public interest
- Transport Scotland determines the pattern of rail services to be provided and sets the fares to be charged
- Transport Scotland contracts a private sector operator- First Scotrail- to provide the services to the specified pattern and fare structure



Glasgow underground

- The public body, the Strathclyde Passenger Transport (SPT), act as both operator and principal funder of the system
- Provided on the basis of the public interest, hence passenger revenues fail to cover the cost of operation
- The economics of the whole venture however still need to add up, they the difference between costs and revenues are made up by subsidy

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- Buses are planned and operated by private sector companies in pursuit for profits
 - Rail services are provided along mixed market principles through the combination of a private sector operating economy principles, with the services planned, owned and operated by the public sector planned body
 - Underground planned or command economy principles with the services planned, owned and operated by the public sector





Class exercises

Transport economic problems?

Listed below are nine major transport related issues facing society today. Your task is to identify which ones are related to '**the economics of transport**', in other words those you believe to be economic issues, as opposed to being related to other dimensions such as political or social factor.

Although you should always try to come to a clear answer to each issue, what you may find is that for some the division is not always entirely clear or in other cases there may be several different factors present. Where you find this to be the case you should consider those other factors and thus where the economics of the issue 'fit' in the wider picture.

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1. Politicians and business managers in general in Britain are often said to suffer from a disease known as 'short-termism'. This is where only the short term is considered with no or little thought given to the longer term. There are numerous examples of this disease in Britain transport policy, the prime example probably being the privatization of the railways
 2. The negative impact on the natural environment of all transport related activities
 3. Increasing levels of traffic congestion in towns and cities

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4. The high level of subsidy required to sustain public transport industries
 5. The increasing amounts of land that are being given over to support transport activities
 6. The role of transport in 'unifying' the European Union
 7. The subsidization of public transport services in rural and socially deprived areas
 8. The role of education in changing travel behavior to reduce local and unnecessary journeys
 9. The impact of an ageing population and the changing transport needs that this presents



References

- Cowie, J. (2010). *The Economics of Transport*. Routledge.