

# Transportation Infrastructure and Economic Growth

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# Transportation Infrastructure in a Modern Economy

- OUTLINE

- Objectives

- Transportation and Economic Growth for BC

- Transformation of Modern Economies and Implications for Transportation

- Some Characteristics of Infrastructure, Pricing and Financing

- Conclusions

# Objectives

- Provide overview of the role of transport infrastructure in our economy
  - Including caveats and dispelling myths
- Identify some challenges facing the BC economy
- Draw attention to some important characteristics of transport infrastructure
- Implications for investment, pricing and financing

# Transportation and Economic Growth

- Transportation has played a major role in growth and development throughout history
  - Overcomes the “friction of distance”
  - Facilitates the movement of people, resources and trade
  - New products, markets, technologies, resources, opportunities for trade
  - Transportation, trade and economic growth are closely linked

# Transportation and Economic Growth (cont'd)

- Transportation has often been a catalyst, a strategic and key ingredient in economic growth
- Question: what is the role of transportation in a modern economy?

# Transportation and Economic Growth (cont'd)

- CAVEATS

- Transportation is not infallible or a cure-all
  - The link between transportation and economic activity turns out to be more elusive than many think.
    - We have dramatic but anecdotal examples
    - Economists have studied statistical relationships between investment and economic growth
      - » Cause and effect are more elusive than popularly believed

# Transportation and Economic Growth (cont'd)

- A catalyst plays a dramatic and strategic role in a chemical reaction
  - But all the ingredients must be in place, in the right proportions or the catalyst is barren
  - Same for transportation: the resources, conditions and opportunities have to be right

# Transportation and Economic Growth (cont'd)

- Easy to waste millions on the wrong infrastructure
  - Difficult to evaluate infrastructure benefits
  - Local popularity is not a valid test of real economic benefit
- Popular view is pouring money into infrastructure will solve our economic ills
- What is needed is the right investment in the right place, and at the right time



# Transportation in the Transforming BC Economy

BC shares in the economic transformation throughout the world, and an additional characteristic shared only by some regions

# Transportation in the Transforming BC Economy (cont'd)

- Transformation of economies
  - The changing source of wealth
    - Resources and manufacturing now less important
    - Increased reliance on trade
    - Information management
    - Associated with increasing importance of urban centres (more shortly)

# Transportation in the Transforming BC Economy (cont'd)

- Transformation of economies (cont'd)
  - Value added is highest farther down the value chain, nearer the consumer
    - Growing importance of supply chain management is part of this:
      - Shrinking time between production and consumption and streamlining the process of transport and inventory is the major opportunity for productivity gains

# Transportation in the Transforming BC Economy (cont'd)

- Gateway and logistics chain
  - Provide transportation and related services to the growing trade volumes
  - We compete with other logistics chains
    - Infrastructure is a part of our performance and future prospects
    - The right infrastructure investment is not only important for BC; it is important for the rest of Canada

# Transportation in the Transforming BC Economy (cont'd)

- Urbanisation
  - We share this characteristic with almost all other countries
  - Reasons are many, “economies of agglomeration” or advantages of consolidating living and working in confined area
  - Greater diversity and gains from specialization and scale

# Transportation in the Transforming BC Economy (cont'd)

- Our major cities are our engines of growth
  - Their health and “competitiveness” help drive our economy
  - Transport and communications infrastructure are not just for the ‘hubs,’ the ‘spokes’ and regions must be linked too
  - Efficient transport and communication link urban centres with regional centres, and spillover to smaller centres
  - Modern economy is networked

# Transportation in the Transforming BC Economy (cont'd)

- Rural-urban migration is taking place in hinterlands as well
  - Not planned, but a consequence of economic and social forces throughout the world
  - Implications for infrastructure:
    - Infrastructure needed for regional economic activity
    - But shifting patterns of activity, concentration
      - Need upgrade where expanding
      - Pressures to maintain accessibility in other areas
    - Similar pressures on health facilities, education and transport

# Some Characteristics of Transport Infrastructure

- Economic and social criteria
  - Investment to support economic growth
    - “Investment” is not only capacity expansion
    - Importance of maintenance
    - Maintenance deficit?



# Some Characteristics of Transport Infrastructure (cont'd)

- Infrastructure and services are also a social service
  - Provide access and mobility not supplied by the market
  - Applies to urban regions as well as rural
  - Sometimes social investments are consistent with overall economic growth
  - But often in conflict
  - Social investments are legitimate, desired, welcomed
    - But we are poorer on average if scarce infrastructure does not go where the return is highest
- CTAR noted that challenge of deciding on infrastructure for low-density regions will become a larger issue for Canada

# Some Characteristics of Transport Infrastructure (cont'd)

- Economics of infrastructure, and its implications for pricing and finance
  - Much infrastructure traditionally supplied/financed by government; why?
  - Similar goals in market and government:
    - Market: seek revenues greater than costs
    - Government: seek benefits greater than social costs
      - Wider concept of benefits and costs
      - More difficult to assess performance

# Some Characteristics of Transport Infrastructure (cont'd)

- Widespread beneficiaries
  - Infrastructure often benefits large cross-section of population
    - Including non-users benefit
  - Market place does not necessarily supply services with diverse consumers and difficulty in getting them to pay
    - Historically, difficult to charge people for some infrastructure, such as roads

# Some Characteristics of Transport Infrastructure (cont'd)

- Further reason:
- High initial fixed cost
  - Most infrastructure has large “front-end” costs
  - Implication: once built, marginal costs of use are low
    - We maximize collective benefit by encouraging utilisation, e.g. by charging a low or no price
    - Historically, this is why we rarely used toll facilities:
    - This principle is still relevant for much infrastructure where utilisation rates are not high
    - May still be financed regionally

# Some Characteristics of Transport Infrastructure (cont'd)

- Infrastructure supply in high-density, congested areas
  - Economics are different in these areas
    - Congestion costs high: users impose costs on one-another which they do not take into consideration
    - Environmental costs are high as well
    - The perceived price of using congested facilities is below the true costs
      - Under-priced facilities encourages excessive use and aggravates congestion
    - The incremental costs of expanding capacity are very high

# Some Characteristics of Transport Infrastructure (cont'd)

- Economics principles call for pricing to:
  - » ration scarce capacity,
  - » provide signal to users of the costs they impose on society to supply capacity, and
  - » to provide a strong signal to planners of the value users place on expanded capacity
  
- Economists have called for higher prices under congested conditions
  - » But resisted because most of us enjoy subsidized use of congested roads
  - » No clear reason why users of congested corridors cannot pay prices that reflect the costs involved

# Some Characteristics of Transport Infrastructure (cont'd)

- Private funding of infrastructure?
  - Real costs of any infrastructure are the opportunity costs of the resources that went into the project
    - In a sense, it does not matter how it is financed, public or private
    - But pricing affects utilisation hence the finance method can affect net benefits

# Some Characteristics of Transport Infrastructure (cont'd)

- Private funding of infrastructure? (cont'd)
  - Various institutional and cultural issues can arise
    - Ex: Pricing policies: private sector requires financial return, governments can consider wider costs and benefits
    - Ex: Private sector generally better at cost control and project risk management
    - Government department may be unwilling to commit large proportion of budget to a single project, therefore implementing it piecemeal
    - For a return, private sector might be willing to finance and recoup investment



# Some Characteristics of Transport Infrastructure (cont'd)

Countries and governments around the world have been experimenting with changing the mix of public and private involvement in provision of infrastructure

# Conclusions

- Transport infrastructure can be a catalyst for traditional and modern economies
  - The right investment in the right place, at the right time
- Infrastructure is carried out for both economic and social reasons
- It is easy to make mistakes, and they are very costly

## Conclusions (cont'd)

- Hence the importance of solid evidence on both the costs and benefits of projects
- There are significant economic and political choices that must be made
- We need to be open to experiment and innovation in the organisation, administration and finance of infrastructure
  - This includes non-infrastructure solutions
- Pricing and user-finance will be important for certain types of projects