UNIT 2

Transport and Economic Development

Transport economics [TEC711S]
By: Immanuel Nashivela
Outline

On reading this unit, you will learn about:

• The link between economic development and levels of both freight and passenger transport
• The differences between demand led and supply led effects
• Look at transport’s role in the operation of the local economy
• The link between transport and the wider social development issues
Introduction

- Transport has played a vital role in economic development and in the evolution of society to the point where we are at today.
- Back then people lived in caves, modes of transport simply did not exist.
- All basic wants and needs, required for a basic existence, had to be found within walking distance.
- Whilst shelter was provided by the cave, food had to be hunted.
- In today’s terms, we would describe such a life style as self-sufficient, where there is no division of labour and all basic needs are provided solely by the individual.
- There was no separation of production from consumption.
• In other words, where things were ‘produced’, such as meat for consumption, was the same location where they were consumed, and hence did not require to be transported over any great distance.

• Within such an existence, one important factor missing was – the trade of goods and services.

• Importantly, however, trade could not take place without transport.

• In turn, as transport systems became more efficient and sophisticated, the more trade became a viable possibility and subsequently did take place.
THE LINK BETWEEN TRANSPORT LEVELS AND ECONOMIC WEALTH

• The link between transport levels and economic wealth are highly correlated. This is best illustrated by a figure below:
• The figure clearly shows is the closeness of the relationship between the two.
• What it also shows however is the dramatic increase in tonne kilometres over the period,.
• this raise the question as to why such a dramatic increase has occurred.
• The real driving force behind the increase is that society’s continued evolution and movement away from a subsistence-based economy towards one with an ever increasing demand for more material goods and services.
• These can only be provided through trade, either international or domestic, both of which then generate a demand for transport.
Figure 1, Freight transport and real Gross Domestic Product, Great Britain, 1953 to 2004 Source: Compiled from DfT (2007) and Eurostat Figures
• It is not only simply increased trade however that accounts for this increase, but also the movement towards a consumer society.

• As a consequence, rather than just simply more goods and services being demanded, it is the fact that such goods and services are being demanded at a faster rate. In simple terms, people consume goods and services quicker than they used to, therefore there is a need to produce more.

• This in turn requires more people to be employed, hence incomes rise, hence people spend more, hence increased demand for freight transport services and so on. This ‘virtuous circle’ is a simple form of what is known in economics as the multiplier effect, where a pound, Euro or dollar is spent more than once.
Causality

- Which one causes the other?
- Is it GDP that causes a higher level of freight transport or is it transport freight that causes an increase in GDP?

- Two views:
  1. **Classic notion** of the derived nature of transport demand
     - higher level of GDP causes a higher level of freight transport.
     - Or put another way, as incomes rise (GDP), more goods are demanded and these need to be transported from the point of production to the point of consumption.
Causality cont..

2. Advances in freight transport will result in reduced transport costs and this in turn will lead to more goods being produced (and transported) as the final price in the market will now be lower and more competitive, i.e. profitable.

• In this case, therefore, it is advances in freight transport that lead to increases in GDP.
Policy implication example

• would the economic problems affecting a particular region be overcome by upgrading the transport access infrastructure or would such actions have little impact?

• If it is believed that increases in GDP cause increases in trade (and hence the need for transport), then in simple terms such improvements would be a waste of public resources, as the improved infrastructure would be little used.

• If however one believes that transport causes increases in GDP, then clearly the answer would be yes
The supply led and the demand led models (views) of economic development and transport.

- **Supply led view** - transport leads to economic development
  - improving the transport infrastructure of an area will automatically stimulate economic activity and stimulate economic development.
  - Increasing or improving the quality of the supply of transport services or transport infrastructure will automatically bring about such a change.
Supply led view cont..

• **Widening of markets, increased production and multiplier effects**
  – It is the provision of high quality transport facilities that leads to the widening of markets, hence rather than being restricted to selling in local markets that are easily accessible, the range of potential markets will be expanded.
  – This is important because the potential that these newly accessible markets offer will only be exploited if a profit can be earned
Supply led view cont..

• This will therefore directly increase wealth in the area and almost certainly lead to an increase in the production of that particular good or service.

• In order that more be produced, more resources will be required, in particular labour, and this labour will have to be sought from either other industries or from those not currently employed.
Supply led view cont..

- this leads to a general increase in incomes as employees will only change jobs where it is worth their while to do so, and in most cases such changes of job will be motivated by higher incomes.
- will also lead to multiplier effects, as those increased incomes will in the main be spent on local services, hence the idea of ‘recycling’ increased income back into the local economy.
- The basic argument is that markets that were too costly to service in the past now become more cost effective to serve as the transport gap that did exist between producers and consumers is narrowed.
- The improvement of transport provisions therefore is the spark that sets the whole process off
Indirect effects on employment in construction and operation

• Many such projects will consist of major infrastructure improvements, such as the building of bridges, the construction of new roads and railway lines or the installation of light rapid transit systems.

• These projects will directly create an increase in the demand for local labour both in the construction of such systems as well as their operation once in place.

• This again will lead to an increase in local incomes with all the associated multiplier effects.
Demand led models - economic development drives demand for transport

• Transport provision is invariably a response to a basic demand,

• The casual relationship is that economic development leads to a demand for better transport facilities.

• Without a basic demand for an area’s goods and services, then irrespective of the quality of the transport infrastructure this will never stimulate that demand and hence the subsequent economic development that would follow.
The basic demand required arises from one of two sources, revealed and latent demand

1. Revealed demand
   • expressed in the number of journeys that are actually made or the goods that are transported using the existing infrastructure.
   • If this increases, it may be found that the existing infrastructure requires upgrading in order to cope with the current level of demand
2. Latent demand

- segment of the demand curve to the right of the equilibrium point.
- latent demand exists where there is a demand but one that cannot be satisfied due to inadequacies in the existing infrastructure.
- In other words, individuals may wish to travel to a particular location, hence the basic demand, but the cost in terms of the time that it would take to actually get there more than offsets any benefit gained from undertaking the journey. As a consequence, the journey is not made.
- If however the current provision is improved, then the cost of the travelling would fall and hence some of those who had not previously travelled will now make the journey.
- Under this view of the relationship between transport and economic development, transport’s role in the process is seen as one of a facilitator
The role of passenger transport in economic development

Figure 2, Gross Domestic Product and passenger kilometres travelled, Great Britain, 1953 to 2004
The role of passenger transport in economic development

- Figure 2 clearly shows the very close association that exists between passenger transport and the level of GDP.
- Looking at Figure 2.2, does this mean therefore that by simply travelling around people become better off?
- In some ways the answer to that question is actually yes, but due to the derived nature of demand it is obviously dependent upon what they do once they get to where they are going.
- The question thus again arises as regards the direction of causation, does increased GDP lead to increased passenger travel or is it the other way around? As before, this can be best characterised as demand led and supply led effects.
Supply-led effects

• Under a supply-led effect the simple act of upgrading existing transport links will increase passenger travel and thereby increase GDP.

• It could be argued therefore that with regard to passenger travel there will be no supply-led impacts, all effects will be demand led.

• In simple terms, if people don’t have a motivation (i.e. a need) to travel to a particular location, then building a new road won’t make any difference
Demand-led effects

- Divided into revealed, latent demand, and derived demand effect.
- **Revealed demand** - will be shown where the existing transport infrastructure is under pressure, hence clearly displaying a high demand for the movement of people between two given locations.
- This most often arises in heavily used commuter routes where roads become severely congested and public transport services overcrowded.
- Economic development therefore may be suppressed due to the lack of sufficient capacity in the transport system.
- This would be a clear case of the old business adage that ‘time is money’, and hence time stuck in a traffic jam is time not spent earning an economic return.
- Improving the transport links therefore removes such constraints and economic development can flourish.
Latent demand of passenger transport

• Latent demand in this case relates to where individuals may travel to a particular area but do not do so due to limitations in the transport services.

• If these limitations are removed, then individuals may then make the journey but will only do so if it increases their net benefit, which then indirectly leads to economic progress.
Derived Demand of Passenger Transport

- increased wealth generally creates a demand for more leisure activities, or ever more sophisticated leisure activities.
- Thus as incomes rise, individual’s may take two foreign holidays rather than one, and/or have more weekends away from home, thus higher incomes lead directly to increased passenger traffic.
- A second derived demand factor exists where higher incomes tend to produce a modal switch away from public transport towards private transport, hence increasing the number of multiple-car households. As travel is now ‘easier’, this will directly increase the level of passenger transport.
TRANSPORT AND THE LOCAL ECONOMY

• Figure 2.3 is the traditional representation of the circular flow of income which shows the basic economic relationships that exist in the economy. Households provide factors of production in the form of labour, capital and raw materials to firms, who then use these resources to produce goods and services that they then sell back to households.
Figure 3, Simplified version of the local economy
• Note therefore that in this rather simplified world all firms are owned by households (a not unrealistic assumption).

• Households receive payment for providing these factors of production in the form of wages for labour, dividends for capital, interest for finance, rent for property and so on.

• In simple terms, as more money circulates around the system, this represents a higher level of economic activity and thus a greater level of economic prosperity; in effect the whole system is becoming larger.
• Gross Domestic Product, or national income, can be calculated - either by adding up all household income, all household expenditure or finally by the total value of output of firms.

• The transport system, or more precisely an efficient transport system, allows these flows to take place far more easily and leads to more of the actual ‘value’, or wealth creation, to be transferred from one part of the economy to another.

• As a consequence the benefits of trade can be maximised and the local economy enhanced.
• More specifically, at the level of the local economy an efficient transport system allows:

– The easier movement of labour from households to firms
– The easier movement of goods and services from firms to firms
– The easier movement of goods and services from firms to households
– The easier switch of labour from one firm to another and the easier switch of goods and services from firms to households.
TRANSPORT AND SOCIETY

Figure 4, Maslow’s Hierarchy of Needs
• the higher up the hierarchy then on the whole the higher the demand for transport, as generally these needs will require to be sought from further afield.

• Furthermore, increased and more sophisticated transport systems make meeting the needs of the lower levels of the hierarchy far easier.

• Hence for example transport allows specialisation and therefore individuals can concentrate and develop skills in a particular area (for the greater good), and all within the society need not be concerned with providing the basics of life.

• Transport therefore not only has a vital role to play in economic development but also in the more general progress and development of society and to a certain extent will help to shape the degree to which it can reach its full potential.