

Syllabus
TRANSPORTATION ECONOMICS
Fall 2020

Presented On-line
Tuesday 4.30 pm to 7.10 pm

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Office Hours: I am normally available in my “office” at between 2.30 pm and 4.00 pm on Tuesday before class and between 5.30 pm and 6.30 pm on Monday. Meeting can be by Skype or Zoom, or in person at Arlington. I am always ready to help with anything by telephone, by e-mail or at other times by appointment at Arlington. (I have a large office allowing social distancing and there is space outside of the building – I live 150 yards or so away and thus I am very flexible.)

Please make sure that you read and conform with GMU policies regarding the outbreak of Covid-19.

PLEASE inform me at once of any change in your GMU e-mail address since I will use that extensively for communications.

BACKGROUND

Transport is a major industry in its own right but also supplies important inputs into other sectors. It also influences land-use patterns and the pace of economic development. This course provides a basis for understanding the economics of the transport system and, in particular, how transportation relates to urban, regional, and national development.

The course does not focus on any particular mode of transportation, but rather treats transport generically, although for illustrative purposes a number of case studies will look at specific modal examples. These case studies will, for instance, cover such things as urban traffic congestion (automobiles), subsidies (urban transit), infrastructure appraisal (road networks), social cost pricing (automobiles) and economic regulation (airlines and rail freight). In this sense the course is very much one grounded in applied economics rather than a course in economics theory.

The course is primarily based in microeconomics, and hence looks at both the demand and the supply-side of transportation, but it also considers the interface of transportation economics with other disciplines such as civil engineering, operations research and human geography. But it is an economics course and not one in political economy.

THE COURSE

I have set out an early and basic reading list intended to provide a range of material that will help in individual assignments as well as being core reading.

My introductory book on transport economics – K.J. Button, Transport Economics (3rd Ed.) Edward Elgar will be the backbone of the course– earlier editions have been the standard text for this type of course for many years but will be of no use for the course. I have made the bookshop aware of this. A 4th edition is in preparation but will not be ready for the semester. The main differences involve a major up-dating of the data/studies cited and the inclusion of some specific case studies. The underlying economics is little changed.

The broad themes and issues that will be covered in the course are set out below. Each week a copy of course power points will be set out in advance by email.

There are some articles listed to be read, and these will be added to about a month before the course begins. Most should be available as “e-journals” on the GMU system. I will provide copies of other material electronically. There may be some up-dating of material as the source progresses. Also I often suggest some current Web site for more popular pieces of interest.

There is logic to the sequence of themes to be covered, but I do like to bring in one or two “guest” speakers who are practicing transport economics. They have been fitted in according to their availability; in the past students have found contributions of this type very valuable. I have limited these to economists in the public sector on the basis that the economics involved in logistics will largely be covered in other courses. **The ‘guest lecturers’ will offer presentations at various times; they will include the likes of the former Chief Economist at the DOT and senior staff at the World Bank. Because these people sometimes have to reschedule late, there may be some rearrangement of classes as we progress. This is a cost of having this quality of visiting speaker; you would not get them outside of SPP!**

ASSESSMENT

Assessment will involve a mid-term (25%), a final examination (45%) and the preparation of a short topic review paper (15%). There will also be periodic short “tests” (5%). The course will entail classes that include student participation, and a “debate” is included in the schedule (10%). In addition, I give out a mock mid-term about two weeks before the event so that you know what you are in for, and I am happy to offer comments individually on your answers if you feel that would help you, but there is no compulsion about this. Equally some small tests will be given out periodically, these can be done or not (they are not graded) but I will give out answers about a week later. The aim is that **you** know what **you** are learning, rather than what you think you are learning!

NOTE:

Should for any reason a session be cancelled (weather, illness, breakdown of physical plant, etc) I will send round an email that day, I build in a little slack in terms of the substance for each component. If there are no cancellations then I will add a little more material into the later components – advanced notice will be given. Experience suggests that often one class has to be cancelled for one reason or another – usually weather but burst water-pipes and earthquakes are also sometimes an issue!

CLASSES

THEME #1 Introduction to Transportation Economics (August 25)

The first part of the initial class will be devoted to introducing the course. It will briefly go over the way economists look at transportation problems, the links between transportation economics and other areas of study, the institutions that influence the ways in which economic concepts are applied to transportation issues. It brings in some of the more recent developments at a basic level (such as the New Institutional Economics) to indicate their relevance for analyzing transportation matters. It also considers some of the difficulties in making use of official data sources.

Transportation is not an aspatial activity and it is also not wanted in its own right but is linked to the need for movement by firms and individuals. The demand for transportation services is derived from the demand for final goods, services and personal activities, but transportation also influences where these firms locate their activities and where individuals live. It is important to understand the interconnections between these effects to develop an analysis of transport markets.

K.J. Button, Transport Economics (3rd Ed.) Chap 1, 2, & 3

K.J. Button, Journal of the Transportation Research Forum 45 (3), 2006, pp. 7-30

THEME #2 Movement, Transport and Location (September 1)

The initial part of the course will briefly go over the way economists look at transportation problems, the links between transportation economics and other areas of study, the institutions that influence the ways in which economic concepts are applied to transportation issues. It brings in some of the more recent developments at a basic level (such as the New Institutional Economics) to indicate their relevance for analyzing transportation matters. It also considers some of the difficulties in making use of official data sources.

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K.J. Button, Transport Economics (3rd Ed.) Chap 3

F.J. Martinez in Handbook of Transport Modelling (2nd Ed) 2007

C. Jensen-Butler and B. Madsen, Handbook of Transport Strategy, Policy and Institutions, 2005

W.R. Black, Handbook of Transport Geography, Spatial Systems, 2004

THEME #3 The Demand for Transport (September 8)

The demand for transport is a derived one and varies over time (peaks). Understanding the nature of the factors influencing transport demand is important both for the private actors supplying transport services and for government bodies that have responsibility for regulation and control. Key concepts here are both the direct and cross price elasticities of demand and factors that cause shifts in the demand function. The importance of quality considerations is of importance and the concept of generalized costs has a central role to place in demand analysis. In many instances for social aspects of transport have resulted in the notion of demand giving way to that of 'need'.

K.J. Button, Transport Economics (3rd Ed.) Chap 4

D.J. Graham and S. Glaister, Applied Economics, 37(1) 2005, pp.19-28.

THEME #4 The Direct Costs of Transportation and Cost Recovery (September 15)

Transport supply involves considerable financial costs. The supply function for transportation services is often complex involving economies of scale, scope and density. There are also often significant indivisibilities in the provision of transport infrastructure that make the allocation of costs to users difficult. In particular, the notion of fixed costs poses problems when examining scheduled services, and the idea of marginal cost is challenging when there are physical indivisibilities in the supply function. The complexities of the demand and cost functions for transport services make pricing complex. The importance of peak-load pricing and differential-pricing (including two-part tariffs) have long been theoretically recognized as important and the introduction of new information systems and charging technologies has seen important moves at implementation. Most forms of public transportation involve elements of fixed costs that are difficult to recover in competitive markets.

K.J. Button, Transport Economics (3rd Ed.) Chap 5

K.J. Button, Journal of Air Transport Management, 9(1), 2003, pp.5-14

K.J. Button, Journal of Transport Economics and Policy 39 (3), 2005, pp.241-257

THEME#5 Containing the External Costs of Transport I – Congestion (September 22)

Transport has always been regulated to contain some of the worst implications of external effects such as congestion and environmental intrusion. Many of these regulations have been of the command-and-control type (e.g. vehicle bans) but more recently there has been a move at deploying fiscal measures such as road pricing (to optimize congestion) and environmental taxes. Subsidies to less environmental damaging modes of transport (e.g. Metro) are also widely used in many countries.

K.J. Button, Transport Economics (3rd Ed.) Chap 4, 6, 8, 9

J.O. Jansson, Research in Transportation Economics 29, 2010, pp. 346-353.

B. Schaller, Transport Policy 17, 2010, pp.266-273.

K.J. Button, Transport Reviews, 40 (1), 2020, 76-94.

THEME#6 Containing the External Costs of Transport II – Pollution (September 29)

As for THEME #6 plus

B Desaignes, et al. Ecological Indicators 11, 2011, 902-910.

THEME#7 The Economic approach of the US DOT (Guest speaker – Jack Wells, former US DoT) (October 6)

Reading to be provided later.

NO CLASS – University Break (October 13)

THEME#8 Investment Criteria – Private and Public Sector Analysis (October 20)

Transport infrastructure is generally expensive, long-lived, environmentally intrusive and inflexible. Private sector infrastructure is appraised using conventional financial criteria, but public sector infrastructure involves the use of techniques that fall under the generic title of ‘cost-

benefit analysis'. The latter is wider and takes a longer view of the implications of investments

K.J. Button, Transport Economics (3rd Ed.) Chap 11

MID-TERM TAKE-HOME EXAMINATION. (October 27)

THEME#9 Transport Planning and Forecasting (November 3)

Although much of transportation is provided through the market, its implications may also extend beyond those that are included in narrow economic notions of efficiency. As a consequence, transport is the subject of considerable planning of various kinds. To carry out this effectively, reliable transport forecasts are required and there are a variety of ways in which this may be undertaken, each has its limitations and attributes.

K.J. Button, Transport Economics (3rd Ed.) Chap 12

THEME #10 The Regulation of Transport (Guest speaker – Frank Mulvey, Former Acting Chair Surface Transportation Board) (November 10)

Transport has long been one of the most regulated of sectors because of its strategic importance, the potential for market failures and the potential for using transport to meet wider social and political objectives. More recently there have been moves in many countries to liberalize the economic regulation of transport (e.g. regarding prices, ownership and market entry) while, at the same time tightened, social regulation (e.g. over safety). There have been considerable developments in the economic theories of regulation in recent years.

K.J. Button and T.E. Keeler, *Economic Journal*, 103(419), 1993, pp. 117-127

K.J. Button, *Journal of Air Transport Management*, 9(1), 2003, pp.5-14

A. Kahn, *American Economic Review, Papers and Proceedings*, 78 (2), 198 pp. 316-22

F. Giovanni, and P. Sharp, *The Economic History Review*, 2013.

J.M. MacDonald and M. James, *Review of Industrial Organization*, 2013, 1-17.

THEME #11 Transportation Economics, Logistics and Security (November 17)

The analysis of optimal supply-chains is very much a matter of maximizing the efficiency of resource allocations and considering the best way of using scarce resources. It is about opportunity costs and thus it about economics and the links are discussed in this class.

K.J. Button, *Transportation Economics (3rd Ed.) Chap 10*

K.J. Button, *The Economics and Political Economy of Transportation Security*, 2016.

THEME #12 Transportation Policy and International Economics (November 24)

Transport economics makes use of a range of economic ideas and concepts to examine the nature of markets in which transport services are provided. It also implicitly forms the basis for most transportation policy, although economic concepts are often misused or abused in this context. It is important to understand the general way in which economists view transport. There are various

macro-views on transportation strategies (e.g. the Continental versus the Anglo-Saxon). As these views on strategy have changed so have transportation policies in the US. There have also been important macro changes in the application of economics to international transportation (e.g., regarding NAFTA, ASEAN and the European Union).

K.J. Button, Transport Economics (3rd Ed.) Chap 13

K.J. Button, Journal of International Commerce, Economics and Policy, 1(1), 2010, pp. 105-120

THEME#13 The Economics of Transportation in Developing Countries (December 1)

Low income countries are characterized by limited transportation infrastructure and poor logistic systems. The more economically developed nations have expended considerable resources to change the situation, in part to benefit the countries involved but also because more global economic prosperity is to their own advantage. Such efforts have involved direct foreign investment and participation in multinational institutions such as the World Bank. This class looks at the specific challenges these countries face and the success or otherwise in overcoming them.

FINAL EXAMINATION (December 8)

Academic Accommodation for a Disability

If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Center (DRC) at 703-993-2474. All academic accommodations must be arranged through the DRC.

SPP Policy on Plagiarism

The profession of scholarship and the intellectual life of a university as well as the field of public policy inquiry depend fundamentally on a foundation of trust. Thus any act of plagiarism strikes at the heart of the meaning of the university and the purpose of the School of Public Policy. It constitutes a serious breach of professional ethics and it is unacceptable.

Plagiarism is the use of another's words or ideas presented as one's own. It includes, among other things, the use of specific words, ideas, or frameworks that are the product of another's work. Honesty and thoroughness in citing sources is essential to professional accountability and personal responsibility. Appropriate citation is necessary so that arguments, evidence, and claims can be critically examined.

Plagiarism is wrong because of the injustice it does to the person whose ideas are stolen. But it is also wrong because it constitutes lying to one's professional colleagues. From a prudential perspective, it is shortsighted and self-defeating, and it can ruin a professional career.

The faculty of the School of Public Policy takes plagiarism seriously and has adopted a zero tolerance policy. Any plagiarized assignment will receive an automatic grade of "F." This may lead to failure for the course, resulting in dismissal from the University. This dismissal will be noted on the student's transcript. For foreign students who are on a university-sponsored visa (e.g. F-1, J-1 or J-2), dismissal also results in the revocation of their visa.

To help enforce the SPP policy on plagiarism, all written work submitted in partial fulfillment of course or degree requirements must be available in electronic form so that it can be compared with electronic databases, as well as submitted to commercial services to which the School subscribes. Faculty may at any

time submit student's work without prior permission from the student. Individual instructors may require that written work be submitted in electronic as well as printed form. The SPP policy on plagiarism is supplementary to the George Mason University Honor Code; it is not intended to replace it or substitute for it. (<<http://www.gmu.edu/facstaff/handbook/aD.html>><http://www.gmu.edu/facstaff/handbook/aD.html>)

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