

PROVISIONAL

**PUBP 721**

**Syllabus  
TRANSPORT ECONOMICS  
Fall 2009**

**Arlington Room 336  
Tuesday 4.30-7.10pm**

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**Office Hours:** I am normally available at Arlington between 3.30 and 4.30 on Tuesday. I am always ready to help with anything by telephone, by e-mail or by appointment at Fairfax or Arlington.

**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**

The course will entail classes that include student participation. A number of 'guest lecturers' will offer presentations at various times; these will include the Chief Economist at the DOT, and senior staff at the World Bank and the Bureau of Transportation Statistics. 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. Since the new edition will NOT be in print in time I will be sending out draft chapters as part of the reading material two weeks before it is needed in class. This is, of course, additional to the other material.

Each week a copy of course slides will be set out in advance by email. The sources cited in the text are available as indicated by

† GMU Library takes in electronic form

¥ PDF download at a web site.

# To be emailed.

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.

The broad themes and issues that will be covered in the course are set out below. 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.

### **ASSESSMENT**

Assessment will involve a mid-term (30%), a final examination (45%) and the preparation of a short topic review paper (25%)

### **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 normally one class has to be cancelled for one reason or another – usually weather but burst waterpipes are also sometimes an issue!*

### **CLASSES**

#### **THEME #1 Introduction to Transportation Economics (September 1, 2009)**

The first class will be devoted to introducing the course and to some very basic microeconomics. I use this as a basis for determining just how fast to cover the core material and the style to adopt. It will involve me posing questions as much as giving a ‘talk’. The class is not initially intended to be transportation specific but it does extend the material on basic economic concepts useful where economists have got involved in transportation issues; the way economists look problems, and the links between transportation economics and other areas of study.

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

#### **THEME #2 Movement, Transport and Location (September 8, 2009)**

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.

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. 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.

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#

K.J. Button, Handbook of Transport Geography, Spatial Systems, 2004#

### **THEME #3 The Demand for Transport (September 15, 2009)**

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'.

A. Matas and J-L. Raymond: Journal of Transportation and Statistics, 6(2/3), 2003¥.

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

T.H. Oum, W.G. Waters and X. Fu, in Handbook of Transport Modelling (2nd Ed) 2007#

### **THEME#4 The Direct Costs of Transportation and Cost Recovery (September 22, 2009)**

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.

M.G. Karlaftis and P. McCarthy, Transportation Research E, 38(1), 2002, pp. 1-18†

S.R. Tolofari, K.J. Button, and D.E. Pitfield, Journal of Industrial Economics, 34(4), 1986, 409-427†.

K.J. Button and A. Costa, Annals of Regional Science, 33(4), 1999, 425-438†.

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 29, 2009)** 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 in G. Santos (ed) Road Pricing: Theory and Practice, Elsevier, Oxford, 2004.#  
C.C. Coughlin, J.P. Cohen and S.R. Khan, Federal Bank of St Louis Review, 84(5), 2002, pp.9-24. <http://uhaweb.hartford.edu/jcohen/airport001/FRBSt.LWorkingPaper2002-009.pdf> ¥

**MID-TERM EXAMINATION (October 6, 2009)**  
**29**

**Columbus Day Break (October 13, 2009)**

**THEME#6 The Problems of Applying Economics to Transportation Problems in Developing Countries** (Guest speaker – Andreas Kopp, Lead Economist, World Bank) **(October 20, 2009)**

Material supplied in class

**THEME#7 Containing the External Costs of Transport II – Pollution (October 27, 2009)**  
As for THEME #5

**THEME#8 The Regulation of Transport** (Guest speaker – Francis Mulvey, Commission, STB) **(November 3, 2009)**

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), pp. 316-22†.  
K.J. Button, Journal of Transport Economics and Policy, 39(3) 2005#

**THEME#9 The Role of the Transportation Economist in Government**  
(Jack Wells – Chief eEconomist USDOT) **(November 10, 2009)**

E. Weiner, Handbook of Transport Strategy, Policy and Institutions, 2005#

**THEME#10 Investment Criteria – Private and Public Sector Analysis (November 17, 2009)**

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.G. Willis, Handbook of Transport Strategy, Policy and Institutions, 2005#

**THEME#11 Transport Planning and Forecasting (November 24, 2009)**

Transportation is a complicated, network activity that may not be adequately co-ordinated 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.

D. Banister in Handbook of Transport Systems and Traffic Control, 2001#

M.G. McNally, Handbook of Transport Modelling (2nd Ed) 2007#

**THEME #12 Transport Policy and International Economics (November 24, 2009)**

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 in Handbook of Public Policy, 2006#

P.van Reeve in Handbook of Transport Strategy, Policy and Institutions, 2005#

**THEME #13 Economics of Supply-chain logistics (December 1, 2009)**

Recent years have seen considerable emphasis on enhancing the efficiency of the supply-chain – transport logistics being an important part of this. This embraces a rather more integrated look at the way freight transportation services in particular are delivered within the context of maximizing the value chain. It overlaps management science with conventional microeconomics. The class looks at the way aspects of the chain are optimized and some of the challenges that can arise. The notion of externalities in the supply chain has now become more important in terms of security and this will be covered.

D. A Quarmby, Journal of Transport Economics and Policy, 23 (1) 1989

G. De Jong, Handbook of Transport Modeling (2<sup>nd</sup> Ed), 2008

M.R. Brooks and K.J., Button, *Maritime Economics and Logistics*, 8(2), 2006..

**REVISION SESSION AND ALLOWANCE FOR CANCELLED CLASSES DUE TO BAD WEATHER, ETC (December 8, 2009)**

**FINAL EXAMINATION (December 15, 2009)**

**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 (eg. 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> )