Unit Outline*

TRLO8516
Transport Systems and Policy

D3-OFF, 2011
Presented at Shanghai Maritime University

Professor John Taplin

Business School
www.business.uwa.edu.au

* This Unit Outline should be read in conjunction with the Business School Unit Outline Supplement available on the Current Students web site http://www.business.uwa.edu.au/students
UNIT DESCRIPTION

Introduction
Welcome to the study of Transport Systems and Policy. This unit considers the broad transport background to logistics operations, dealing with systems and policies in the various transport modes and the interactions between them. Considerable attention will be given to the roles of the key private and public actors in policy formulation, and the critical features of the methods used to appraise transport policy.

The lecturer is Winthrop Professor John Taplin, a transport specialist with particular interests in goods movement and transport investment. His PhD was done at Cornell University and he has spent 25 years in university research and teaching. Interspersed with this, he has been the Director of the Australian Bureau of Transport Economics, Deputy Secretary of the Australian Department of Transport, and Director-General of Transport in the State of Western Australia. He also built a 37 foot (11.28 metre) yacht and sailed it around Australia and to Indonesia.

Unit content
This unit covers key aspects of transport systems and the associated policies. Particular attention is given to the use of applied economics to understand how transport markets work. Such understanding becomes a tool for handling real world transport business. The latter part of the unit deals with transport project evaluation and the possibilities for developing improved transport policies.

The goal of the unit
The processes of ordering, procuring, moving and delivering goods – topics considered in the study of logistics and supply chain management – all happen within the context of transport institutions and policies. The goal of this unit is to give students an understanding of the peculiar characteristics of the markets for transport and the reasons for government intervention in them. Specific objectives are to achieve an understanding of planning methods and the fundamentals of the design and operation of transport systems.

The unit is not specifically related to any particular unit already studied in the MLEM but it provides context for them all.

Learning outcomes
On completion of this unit, you should be able to:

- Understand the impact of demand responses on transport operations
- Apply the logic behind ‘charging what the traffic will bear’ in quantified form
- Differentiate between peak or directional pricing and discriminatory pricing and make efficient use of both either separately or in combination
- Assess whether a market with few operators is contestable
- Understand occurrences of market failure in transport and the consequent industry structures
- Understand the impacts of deregulation and privatization on various transport sectors
- Use discounting to calculate project net present value, internal rate of return and cost-benefit ratio
- Apply project evaluation techniques taking account of the direct and indirect impacts
- Understand the potential approaches to optimising transport policies.
Educational principles and graduate attributes

In this unit, you will be provided with the opportunity to

- Critically evaluate and solve transport system problems
- Demonstrate self-management and independent learning skills through the completion of the prescribed exercises
- Analyse transport policy issues logically and creatively
- Acquire the skills needed to deal with changing technology and economic relationships.

TEACHING AND LEARNING RESPONSIBILITIES

Teaching and learning strategies

The unit deals with systems and policies in the various transport modes and the interactions between them. The basic tools of economic analysis are presented so that they can be applied to the subsequent policy and analysis topics. Considerable attention will be given to the roles of the key private and public actors in policy formulation, and the critical features of the methods used to appraise transport policy.

The goal is to acquire an understanding of the economic and management issues relevant to transport and the associated infrastructure. These include planning methods and the fundamentals of the design and operation of transport systems.

The thirteen formal lectures in the unit are designed to present the issues and the reading will provide depth. However much of the learning will be in the hands-on work done by students in the computer lab. The level of understanding will then be enhanced by the experience of selecting an assignment project, independently making a quantitative assessment, producing results and presenting them in the major assignment report.

The computational exercises are a most important part of the unit. These involve relatively simple spreadsheet applications but they are the main way to see how policy evaluation is done.

The lecturer will act as guide and adviser for all the computation and project work.

Teaching and learning evaluation

You may be asked to complete two evaluations during this unit. The Student Perception of Teaching (SPOT) and the Students’ Unit Reflective Feedback (SURF). The SPOT is optional and is an evaluation of the lecturer and the unit. The SURF is completed online and is a university wide survey and deals only with the unit. You will receive an email from the SURF office inviting you to complete the SURF when it is activated. We encourage you to complete the forms as your feedback is extremely important and can be used to make changes to the unit or lecturing style when appropriate.

Feedback is needed so that lectures and labs can be made more beneficial for students. A number of improvements and clarifications have been made in response to previous student feedback.

Attendance

Participation in class, whether it be listening to a lecture or getting involved in other activities, is an important part of the learning process, therefore it is important that you attend classes. More formally, the University regulations state that ‘to complete a course or unit students shall attend prescribed classes, lectures, seminars and tutorials’. Where a student, due to exceptional circumstances, is unable to attend a scheduled class, they are required to obtain prior approval of the unit coordinator to be absent from that class. Any student absent from class without having had such absence approved by the unit coordinator may be referred to the faculty for advice and may be required to withdraw from the unit.
CONTACT DETAILS

We strongly advise students to regularly access their student email accounts. Important information regarding the unit is often communicated by email and will not be automatically forwarded to private email addresses.

<table>
<thead>
<tr>
<th>Unit coordinator/lecturer</th>
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<tbody>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Professor John Taplin</td>
</tr>
<tr>
<td>Email:</td>
</tr>
<tr>
<td><a href="mailto:john.taplin@uwa.edu.au">john.taplin@uwa.edu.au</a></td>
</tr>
<tr>
<td>Phone:</td>
</tr>
<tr>
<td>+61 (8) 6488 2081</td>
</tr>
<tr>
<td>Consultation time:</td>
</tr>
<tr>
<td>The lecturer will be available for individual or group consultation on Sunday 6 March from 1000 onwards. Students should make appointments.</td>
</tr>
</tbody>
</table>

BOOKS AND RESOURCES

There is no textbook for this unit. The material for the unit is contained in the handout Notes

Software

The spreadsheet exercises will be done in Excel, in one case with the Evolver (Palisade) add-in.

Reading material

The number in front of each of the following readings indicates the lecture to which it is related.


*Journals are accessible through the UWA Library: [http://www.library.uwa.edu.au/](http://www.library.uwa.edu.au)*

The following journals have other papers relevant to the topics in this unit.

*Journal of Transport Economics and Policy*
*Transport Policy*
*Transportation*
*Maritime Policy and Management*
<table>
<thead>
<tr>
<th>Lect.</th>
<th>Reading</th>
<th>Time</th>
<th>Lecture or Lab Topics</th>
</tr>
</thead>
</table>
| 1     | Notes 1a, 1b, 1c Gwilliam & Mackie | Sat 26 Feb 0900-1015 | • Demand for transport  
• Calculation of derived transport demand |
| 2     | Notes 2a, 2b, 2c, 2d Smith et al. | 1030-1200 | • Symmetry and homogeneity of demand elasticities  
• Pricing at avoidable (marginal) cost  
• Choice and demand |
| 3     | Note 3 | 1330-1430 | • Demand and supply  
• Opportunity cost; joint costs |
| 4     | Note 4 Baumol & Bradford | 1445-1600 | • Charging what the traffic will bear to cover costs  
— Price discrimination and Ramsey pricing |
|       |         | 1610-1730 | **Lab 1:** Calculate quasi-optimal container freight rates  
— Based on own elasticities & capacity to pay |
| 5     | Notes 5a, 5b, 5c Williamson; Laulajainen | Sun 27 Feb 0900-1015 | • Peak, shoulder and off-peak pricing  
• Backloading rates and multilateral rates |
| 6     | Notes 6a, 6b Notteboom | 1030-1200 | **TEST on Lectures 1 to 5 – especially the Notes.**  
• Scale economies in transport  
• Competition and collaboration in shipping |
|       |         | 1330-1430 | **Lab 2:** Calculate forward and backhaul container freight rates to meet an increased LRMC – China-US |
| 7     | Notes 7a, 7b Bailey | 1445-1600 | • Contestability in transport  
• Market failure in transport |
| 8     | Note 8 Wang & Judge; Amos; Geddes | 1600-1730 | • Deregulation and privatization to  
— Stimulate competition  
— Improve efficiency and gain access to capital |
| 9     | Notes 9a, 9b, 9c | Mon 28 Feb 1830-2000 | • Congestion pricing  
• Recovering the cost of public infrastructure |
|       |         | 2010-2200 | **Lab 3:** Calculate optimum congestion charges |
| 10    | Note 10 de Rus; Taplin et al.; Barfod et al. | Wed 2 Mar 1830-2000 | • Cost-benefit and discount rates  
• The rule-of-half for benefits  
• Multi-criteria evaluation |
|       |         | 2010-2200 | **Lab 4:** Calculate NPV, B/C, IRR for a transport investment |
| 11    | Notes 11a, 11b Pearce & Nash | Fri 4 Mar 1830-2000 | • Complexities in cost-benefit evaluation  
• Road investment for interactive traffic |
|       |         | 2010-2200 | **Lab 5:** Evaluate transport investment |
| 12    | Note 12 Yap & Lam | Sat 5 Mar 0900-1015 | • Land-sea interface: ports, terminals, transshipment  
• Competition between ports |
| 13    | Notes 13a, 13b Shepherd et al.; Prud’homme & Bocarejo; Mackie | 1030-1200 | • Transport policy assessment  
• Application of policy targets and instruments |
|       |         | 1330-1445 | **Lab 6:** Evaluate truck access roads |
|       |         | 1500-1730 | Revision questions |
|       |         | Sun 6 Mar 1000-1200 | Discuss assignment projects |
ASSESSMENT MECHANISM

The purpose of assessment

There are a number of reasons for having assessable tasks as part of an academic program. The assessable tasks are designed to encourage you to explore and understand the subject more fully. The fact that we grade your work provides you an indication of how much you have achieved. Providing feedback on your work also serves as part of the learning process.

Assessment mechanism summary

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight</th>
<th>Due date</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST on handout material for Lectures 1 to 5</td>
<td>10%</td>
<td>27 Feb</td>
<td>The test will be on the material in Notes 1a, 1b, 1c, 2a, 2b, 2c, 2d, 3, 4, 5a, 5b, 5c</td>
</tr>
<tr>
<td>Proposal for the Major Assignment (Max: 1 page)</td>
<td>5%</td>
<td>2 March</td>
<td>It is essential for each student to identify a suitable topic at this early stage. (See Assessment Components)</td>
</tr>
<tr>
<td>Report on Lab 1 results (quasi-optimal freight rates)</td>
<td>10%</td>
<td>4 March</td>
<td>Maximum length: two pages</td>
</tr>
<tr>
<td>Final exam</td>
<td>45%</td>
<td>26 March</td>
<td>In addition to the lecture notes, there will be particular emphasis on the work done in the six Labs</td>
</tr>
<tr>
<td>Major Assignment (See Assessment Components)</td>
<td>30%</td>
<td>9 April</td>
<td>Assignments submitted after the due date will lose marks</td>
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Note 1: Results may be subject to scaling and standardisation under faculty policy and are not necessarily the sum of the component parts.

Note 2: Your assessed work may also be used for quality assurance purposes, such as to assess the level of achievement of learning outcomes as required for accreditation and audit purposes. The findings may be used to inform changes aimed at improving the quality of Business School programs. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the unit.

Assessment components

TEST The purpose of the test is to ensure that students understand the basic economics needed for the subsequent topics

- The test covers Notes 1a, 1b, 1c, 2a, 2b, 2c, 2d, 3, 4, 5a, 5b, 5c

Proposal for the Major Assignment – to be submitted to the lecturer in class Wed 2 March (1-page limit)

- Choose a transport system or transport policy with which you are familiar or in which you are interested
  - Choose something that you can analyse
  - Although there is no restriction on your choice (so long as it is in the field) you are advised to choose something for which you can obtain information
  - Say what you are going to do and what methods you intend to use
  - Maximum length of the proposal: one page
Report on the meaning and significance of Lab 1 results

- Results and comments on them (two-page limit): submit in class Friday 4 March

Major Assignment – to be submitted to the lecturer by email by Saturday 9 April

- The purpose of the assignment is to describe and analyse the selected system or policy, to propose improvements and to assess the probable effects and benefits from these improvements
  - In the course of doing your assignment, you will need to identify clearly the elements and issues in the system or policy
  - Where there are gaps in your knowledge, it is permissible to make reasonable assumptions

Steps

- Make a flow or network chart of the way the system or policy works
- Summarise the elements of the system or policy and the way they work
- Determine your proposed improvements
- Make hypothetical tests of the proposed improvements
  - This will require some quantification in a spreadsheet, such as:
    + Hypothetical demand modelling
    + Some kind of financial assessment
    + Assessment of impacts (including benefits) on various groups
- Do enough (hypothetical) testing under varying assumptions to be confident that the improved system is robust

Your report should outline the essentials and context of the system or policy and any background knowledge needed to understand the rest of the report

- Describe how you approached the problem and why you took this approach
- State what you have found and how this relates to the existing system or policy
- Describe the tests you have done and the results obtained
  - Graphical material or diagrams always improve a report

Allocation of Assignment marks is based on the relative importance of each part. The following outline indicates the relative importance to give to each stage of the project and how to structure your report. The grading will allocate marks for each of the following five elements:

20% Formulation
- Context of the modelling work and any necessary background
- Specify questions to which you sought quantitative answers

10% Investigations
- Collect information on the structure of the system and also numerical data.

40% Description, Flowchart, Model
- Include relevant explanation, the flow chart and an annotated printout of the model.

20% Validation and Trials
- Say how you satisfied yourself that your model is an adequate representation of the real system.
- Outline the trials or tests carried out and the results obtained.

10% Conclusions and Recommendations
- A clear statement of what you have found and how this relates to the real system you were modelling.
Assignments will be **checked electronically with Turnitin** to detect any unacknowledged inclusion of published material. Reasonable quotation of source material is acceptable if the source is acknowledged.

**Submission of assignments**

Please remember to attach an Assignment Cover Sheet to the front of your assignment. You can download and print your Assignment Cover Sheet from the Current Students web page [http://www.business.uwa.edu.au/students/assessments](http://www.business.uwa.edu.au/students/assessments).

**Student Guild**

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**Charter of Student Rights and Responsibilities**

The Charter of Student Rights and Responsibilities outlines the fundamental rights and responsibilities of students who undertake their education at UWA (refer [http://handbooks.uwa.edu.au/undergraduate/poliproc/policies/StudentRights](http://handbooks.uwa.edu.au/undergraduate/poliproc/policies/StudentRights)).

**Appeals against academic assessment**

The University provides the opportunity for students to lodge an appeal against assessment results and/or progress status (refer [http://www.secretariat.uwa.edu.au/home/policies/appeals](http://www.secretariat.uwa.edu.au/home/policies/appeals)).