ECON 380 - Urban And Transport Economics 2003

Professor Peter Abelson

Lectures   Tuesdays 10 –12   W5A 103

Introduction

Cities are much maligned. Cities are responsible for most of the technical advances and art of society and for a high proportion of world economic growth. Moreover, our cities to-day are generally much pleasanter places to live in than they were 100 years ago.

> Of the three million horses in American cities at the beginning of the twentieth century, New York had some 150,000, the healthier ones each producing between twenty and twenty-five pounds of manure a day. These dunplings were numerous on every street, attracting swarms of flies and radiating a powerful stench. The anbience was further debased by the presence on almost every block of stables filled with urine-saturated hay. O.L.Bettman, *The Good Old Days - They Were Terrible*, Random House.

In this course we examine the growth and structure of cities and the management of cities. We also examine land and housing markets which are the basis for city organisation.

Transport is a crucial influence on cities. Cities exist to overcome the costs of distance. The structure of cities depends strongly on transport infrastructure. Transport is a major component of public expenditure and a major determinant of urban environment. In this course we examine transport principally within the context of the city.

Urban and Transport Economics is an applied economics course. It applies microeconomic analysis to land, housing and transport markets as well as to local government and urban planning. The course shows how economic principles can improve the management of cities.

The course provides training in analysing and dealing with practical issues. It will be of special interest to those who plan to work in urban development, the management of cities, and urban transport. This includes land and property developers, quantity surveyors, real estate agents, traffic engineers, urban and transportation planners, officials at all levels of government, as well as urban and transport economists (closely related specialisations).

The course has the following main components.

1. The location, size and growth of cities (weeks 1 - 2).
2. The stucture of cities, land uses and land prices (weeks 3 - 4).
3. Housing markets, prices and policies (weeks 5 -6).
4. Transport economics (weeks 7 - 10)
5. Local government and urban planning in Sydney (weeks 11-12).

Lectures and Tutorials

Lectures and tutorials are shown below. The tutorials are an opportunity for interactive participation between lecturer and students. Students are encouraged to attend.

Week	Date	Lecture topic	Reference (a)	Tutorial
1	4 March	Location and size of cities	OS 2 and 3	
2	11 March	Plant location and urban growth	OS 4 and 6	
3	18 March	Land rent and use	OS 7 and 8	Tute One
4	25 March	Land use (continued)	OS 9	
5	1 April	Housing markets and prices	OS 14	Tute Two
6	8 April	House prices and policies	OS 15	
		Mid-semester break		
7	29 April	Transport demand and supply	Button 1-4	Tute Three
8	6 May	Roads in cities	OS 19	
9	13 May	Mass transit	OS 20	
10	20 May	Evaluation and case studies		Tute Four
11	27 May	Local government	OS 16, 18	
12	3 June	Urban planning	OS 11	Tute Five
13	10 June	Tute Six (in lecture hours)		

(a) OS refers to the recommended course reading.

Course Assessment

Students are required to do:
1. A financial and economic evaluation of a major property development (data are attached). To be handed in by 7.0 p.m., 1 April. Marks 10.
2. An essay to be handed in by 20 May. Marks 30.
3. End of semester two hour exam, which will consist of three essays (20 marks each question).The essays will be based on the discussion topics within the tutorial program (attached).

In order to pass the course, students are required to achieve at lease 30 marks out of 60 total in the final exam. When students are on the borderline between two grades, the determining factor will be the mark in the final exam.

Late assignments (1) or (2) above will be marked down. You should start assignments in good time and not risk late problems. Students are expected to prepare and write their own assignments. Copied material should be fully acknowledged and referenced.

Students who cannot take the final exam for a legitimate reason are entitled to a supplementary exam. However the following points should be noted.
- Students who sit for the regular exam will be deemed to be declaring themselves fit to do so. Only in exceptional circumstances of late unexpected illness will a student who takes the final exam be granted a supplementary exam.
- In order to ensure equity between students, any deferred exam will be harder than the initial one (because students usually have more time for preparation).
- When a student sits a supplementary exam in addition to the standard final exam, his/her assessment in the supplementary exam may improve or worsen a student's grade.

Course Text and Other Reading

The recommended text is O'Sullivan, A., 2003, *Urban Economics*, 5th ed., Irwin, Chicago.

Other useful texts are:

Balchin, P.N., Isaac, D., and J.Chen, 2000, *Urban Economics, A Global Perspective*, Palgrave, Hampshire, UK.

McCarthy, P.S., 2001, *Transportation Economics, Theory and Practice, A Case Study Approach*, Blackwell Publishers, Oxford.

Mills, E.S. and Hamilton B.W., 1994, *Urban Economics*, 5th ed., Harper Collins, New York.

Weeks 1 and 2   Size and Growth of Urban Areas

Berliant, M. and T.ten Raa, 1995, "Regional Science: The State of the art", *Regional Science and Urban Economics*, Vol.24, 631-49.

Nijkamp, 1994, 1995, "Regional Economics: A State of the Art", *Regional Science and Urban Economics*, Vol.24, 631-49.

Nijkamp, P., Rietvald, P. and F.Snickars, 1987, "Regional and Multiregional Economic Models: A Survey", Chapter 7 in *Handbook of Regional and Urban Economics*, Vol.I, Ed. by P.Nijkamp, Elsevier Science Publishers, Amsterdam.

Hewings, G.J.D. and R.C.Jensen, 1987, "Regional and Multiregional Input-Output Analysis", Chapter 8 in *Handbook of Regional and Urban Economics*, Vol.I, Ed. by P.Nijkamp, Elsevier Science Publishers, Amsterdam.

Abelson, P. and V.Deodhar, 2000, 'The Growth of Urban Areas' , MacQuarie University Research Papers.

Weeks 3 to 4   Urban Land Rent and Use

Clarke, C., 1982, *Regional and Urban Location*, University of Queensland Press, Brisbane.

Mills, E.S., 1992, "The Measurement and Determinants of Suburbanisation", *Journal of Urban Economics*, Vol.32, pp.377-87.

Clark, W.A., and W.F.J.Van Lierop, 1986, 'Residential Mobility and Household Location Modelling', Chapter 3 in *Handbook of Regional and Urban Economics*, Volume I, ed. P.Nijkamp, Elsevier Science Publishers, B.V.

Kain. J., 1987, 'Computer Simulation Models of Urban Location', Chapter 21 in *Handbook of Regional and Urban Economics*, Volume II, ed. E.S. Mill, Elsevier Science Publishers, B.V.

Abelson, P.W., 1997, "House and Land Prices in Sydney from 1931 to 1989", *Urban Studies*, Vol.34, No.9, 1381-1400.

Weeks 5 to 6   Housing Markets

R.Arnott, 1987, 'Economic Theory and Housing', Chapter 24 in *Handbook of Regional and Urban Economics*, Vol.II, Ed. by E.S.Mills, Elsevier Science Publishers, Amsterdam.

Olsen, E.O., 1987, 'The Deamdn and Supplu of housing services: A Critical Survey of the Empirical Literature', Chapter 25 in *Handbook of Regional and Urban Economics*, Vol.II, Ed. by E.S.Mills, Elsevier Science Publishers, Amsterdam.

C.M.E.Whitehead, 1999, Urban housing markets,: Theory and Policy', Chapter 40 in *Handbook of Regional and Urban Economics*, Vol.III, Ed. by P.Cheshire and E.S.Mills, Elsevier Science Publishers, Amsterdam.

Charles, S., 1977, *Housing Economics,* Macmillan, London.

Muth, R.F. and A.C. Goodman, 1989, *The Economics of Housing Markets,* Harwood Academic Publishers.

Abelson, P.W., 1979, 'Property Prices and the Valueof Amenities', *Journal of Environmental Economcis and Management*, 6, pp.11-28.

Abelson, P.W., 1994, "House Prices, Costs and Policies: An Overview", *Economic Papers*, Vol.13 No.1, 76-96.

Weeks 7 to 10   Transport Economics and Cities

Button, K.J., 1993, *Transport Economics*, 2nd.ed., Edward Elgar, Aldershot, UK,.

K.A.Small, and J.A.Gomez-Ibanez, 1999, Urban Transportation, Chapter 46 in *Handbook of Regional and Urban Economics*, Vol.III, Ed. by P.Cheshire and E.S.Mills, Elsevier Science Publishers, Amsterdam.

Gomez-Ibanez, J., Tye, and C.Winston, eds: 1999, *Essays in Transportation Economics and Policy*, Parts I and III, Brookings Institution Press, Washington, D.C.

Oum, T.H., Dodgson, J.S., Hensher, D.A., Morrison, S.A., Nash, C.A., Small, K.A., and W.G.Waters II, (eds)., 1995, *Transport Economics: Selected Readings*, Korea Research Foundation for the 21st Century, Seoul.

M.E.Beesley and M.A.Kemp, 1987, "Urban Transportation", Chapter 26 in *Handbook of Regional and Urban Economics*, Vol.II, Ed. by E.S.Mills, Elsevier Science Publishers, Amsterdam.

Abelson, P.W., 1986, *The Economic Evaluation of Roads in Australia*, Australian Professional Publications, Sydney.

Industry Commission, 1994, *Urban Transport*, Vols.I and 2, Report No.37, Canberra.

Abelson, P.W., 1998, 'Pricing transport: economics and politics', 22nd Australasian Transport Research Forum, pp. 1965-1080, Sydney.

Weeks 11 to 12   Local Government and Urban Planning

A.Evans, 1999, 'The Land Market and Government Intervention', Chapter 42 in *Handbook of Regional and Urban Economics*, Vol.III, Ed. by P.Cheshire and E.S.Mills, Elsevier Science Publishers, Amsterdam.

Wildasin, D.E., 1987, 'Theoretical Analysis of Local Public Economics', Chapter 29 in *Handbook of Regional and Urban Economics*, Vol.II, Ed. by E.S.Mills, Elsevier Science Publishers, Amsterdam.

Prud'homme, R., "Financing Urban Public Services", Chapter 30 in *Handbook of Regional and Urban Economics*, Vol.II, Ed. by E.S.Mills, Elsevier Science Publishers, Amsterdam.

P.W. Abelson, 1981, *The Role and Size of Local Government Authorities in New South Wales*, Centre for Research on Federal Financial Relations, ANU, Occasional Paper No. 19.

NSW Department of Planning, 1995, *Cities for the 21st Century,* Department of Urban Affairs and Planning, Sydney.

Industry Commission, 1992, *Taxation and Financial Policy Impacts on Urban Settlement* Vol.1 Report, Canberra.

Abelson, P.W., 1996, 'Sydney's Future, An Economic Approach', *Australian Planner,* Vol. 33, No.2, *70-80.*

Banister, D., Button, K., and Nijkamp, (eds:), 1999, *Environment, Land use and Uban Policy*, Chapters 22 to 29. Edwad Elgar, Cheltenham, UK.

Tutorial 1: Urban Size and Growth - Discussion Questions

What is the difference between absolute and comparative advantage? Why is comparative advantage important?

What are economies of scale and economies of scope?

What is the difference between internal scale economies and agglomeration economies?

What factors create internal scale economies?

How do internal scale economies affect the size of cities in Australia?

What are the two main kinds of agglomeration economies?

Is it possible to prove that agglomeration economies exist?

Will telecommunications make cities obsolete?

Are weight losing and weight gaining processes an important explanation of plant locations in Australia?

What is the principle of median location?

How does the availability of local inputs affect plant locations?

What kind of turnover elasticities with respect to taxes have been found in America?

What are the basic factors that determine city growth generally and in Australia?

How does the urban multiplier work?

What determines the demand for labour?

What determines the supply of labour?

Are industry subsidy programs likely to increase urban economic growth?

Is a pollution tax likely to decrease or increase urban growth?

What are the main methods for predicting urban growth?

Tutorial 2: Urban Land Rents and Uses - Discussion Questions

Describe two different meanings of land rent? What is the relationship between the market value of land and land rent? Is the price of land a periodic value or a capital value?

What is meant by the leftover principle?

What is the bid-rent function?

What is the shape of the bid rent function with fixed factors of production?

What is meant by factor substitution? How do changes in the use of factors affect the bid rent function for agricultural land?

What happens to the agricultural land rent bid function when transport costs fall?

Does a high land price cause house prices to be high or is the price of land high because house prices are high?

What is a pure land tax? What are the problems with a 100 per cent (Henry George) tax on land? Would a partial land tax have the same problems?

How do changes in the factors of production for offices affect the bid-rent function?

Why is the location analysis of housing different from the location analysis of firms?

What is the housing price function like without consumer substitution? What is the meaning of locational equilibrium? What causes the housing price function to be convex to the origin?

What is the residential bid-rent function? How is the residential bid-rent function derived? What is the shape of the residential bid-rent function with and without factor substituion?

What is the relationship between the land rent gradient and the housing price gradient?

How does residential population density vary across a monocentric city?

What determines the allocation of land to business uses around a city?

Where do high-income households tend to locate in the city?

What are the implications for land rents or residential location of
(a)   non-commuting travel?   (b)   variations in houshold size?
(c)   two-earner households?   (d)   varations in household size?
(e)   environmental variations

What happens to land rents and land uses if
(a)   transport costs fall across a city?
(b)   the environment of a city improves generally?
(c)   there is increased demand for a city's goods and services?

Tutorial 3: Housing Prices and Policies - Discussion Questions

What determines the number of housing units in a city?

What determines the demand for housing?

What is the income elasticity of demand for housing?

What is the price elasticity of demand for housing?

What determines the supply of housing?

What is the user cost of housing and the relationship between user cost and price of housing?

What determines the average price of housing in a city?

Why are house prices higher in some cities than in others?

What is the likely impact of the GST on the prices of new and established housing?

What are the long-run determinants of the price of housing?

What determines the price of individual housing?

What is meant by the hedonic approach to the price of housing?

What determines whether houses are converted into units?

What is the filtering model of the housing market?

What determines rents for rental housing?

Do renters pay more for housing than home owners do?

What are the objectives of housing policy?

What are the principal methods for achieving these objectives?

Why is rent control usually unsuccessful?

What are advantages and disadvantages of

(a)   subsidising private builders?
(b)   providing low-cost public housing?
(c)   subsidising low-income households?

Tutorial 4: Transport economics - Discussion Questions

What factors determine the amount of travel in a city?

What is the standard method for estimating transport demand in a city?

What factors influence the cost of road travel? How are the costs of travel time estimated?

What are the key issues in estimating transport costs for public transport?

Why are peak travel hours important?

What are the main externalities arising from urban travel?

What is the efficient level of travel in cities with congestion?

What is the relationship between a road price and a congestion tax?

What is the efficient road price?

Are road tolls for freeways efficient road prices?

Why is the efficient road price difficult to achieve?

What are the management alternatives to road taxes?

What are the three main problems of auto transport?

What principles should guide investment in roads in cities?

What are the advantages and disadvantages of economic evaluation (cost-benefit analysis) compared with other methods of evaluating investment in roads?

What are the best ways to reduce traffic accidents?

What is public transport?

Can public transport be provided by private firms?

What are the main problems associated with public transport (rail and buses)?

What is the price elasticity of demand for rail travel?

What is the difference between line haul costs and door-to-door costs?

What are the relative advantages of heavy rail, light rail and bus transport?

Should public transport be subsidised?

What principles should govern investment in public transport?

Tutorial 5: Local Government and Land use Planning - Discussion Questions

What is land use planning?

What is the relationship between land use and transport planning?

What is the relationship between land use planning and economic planning?

Can government control or influence the location of employment?

What is the role of local and state governments in land use planning in New South Wales?

What other functions do local government have in Australia?

How do local governments pay for these functions?

What effects do local rates have on residential property prices?

What is urban consolidation?

What are the costs and benefits of urban consolidation?

How can the benefits and costs of land use developments be measured?

What is the difference between a regulatory approach and a market-based approach to planning?

What are the main ways in which land uses can be regulated?

What are the main effects of land use regulations?

What are the main economic instruments that can be used for planning purposes?

What are the advantages or disadvantages of economic instruments compared with regulations?

Spreadsheet Exercise:

Economic and Financial Evaluation of Proposed Land Development

To be handed in by 7.0 p.m., 1 April 2003.

Students are required to provide an economic and financial evaluation of a proposed major land development in Sydney.

An economic evaluation takes all costs and benefits into account. Students should (i) develop the appropriate spreadsheets working in constant prices, (ii) provide estimates of net present values and benefit-cost ratios, with a discount rate of 4, 7 and 10 per cent, and of the internal rate of return and (iii) briefly discuss the results.

For the financial evaluation, students should exclude off-site road, bridge and public transport expenditures (capital and subsidies), allow for a 10 per cent discount rate and a 2 per cent rate of inflation.

Students should comment on any difference between the economic and financial results and why.

The proposed development consists of 1500 housing lots, to be sold over nine (years 2-10 of the project) at prices varying from $60,000 to $150,000 (in 2001 dollars). You should allow the following: year 2 and 3, 150 small lots sold in each year for $70,000 per lot, years 4, 5, 7, 8, 9 and 10, 180 standard lots sold in each year for $100,000; year 6, 120 large lots sold for $170,000.

Headworks contributions
        Water supply $3.00mn in year 1 + $2.40mn in year 5.
        Sewerage $1.50mn in year 1 + $2.50 mn in each year 3, 4 and 5.
        On site roads and drainage $3.00mn in year 1.
        Off-site roads $4.00mn in year 1 and year 7
        Off-site bridge $2.00mn in year 3
        Public transport costs $3.0mn in year 1
        Golf course preparation $3.00mn in each year 3 and 4.
        S.94 charges $1500 per completed lot (for community facilities).
        [Note mn = million]

Site servicing charges
        Water supply $3500 per lot one year before lot completion
        Sewerage $5550 per lot one year before lot completion
        Roads/drainage $10,000 per lot one year before lot completion
        Electricity $1000 per lot one year before lot completion
        Telephones $150 per lot one year before lot completion
        Recreation/open space $3333 per lot one year before lot completion

Other costs
        Value of the land (as rural residential land) $10mn
        Public transport subsidies $0.3 million per annum
        Project management   3 per cent of costs in each year.
        Legal fees $25,000 each year
        Marketing and sales   5 per cent of sale revenues.

Major Assignment

Students must do one of the following three assignments. Maximum length is 2500 words plus figures or tables as required.

Residential Property Prices

Develop a model of residential property prices for houses and units in Sydney. What factors explain quarterly moverments in house and unit prices. If possible develop an econometric model, thoutg tis is not an absolute requierement of the assignment. Forecast with reasons what you think will happen to hosue and uit prices over the next three years.

Readings: Start from the course outline and add as required. Data on house and unit prices will be provided.

Railway pricing

Describe rail fares in Sydney and compare these far with those in some other cities. How would you assess whether rail fares in Sydney are too high or too low? Now apply you method of assessment to Sydney and determine whether rail prices are too high or too low. Give a full explanation of your findings.

Sustainable Cities

Does the concept of a sustainable city have any meaining or operational or policy significance?

The essay must be submitted by 11.0 a.m. 28 May, 2001.