

Title of Lecture: Transportation Economics

More Specifically, "Fundamental Transportation and Urban Economics for Civil Engineers"

Term: The 4th Quarter

Room: M321

Credit: 1-0-0

Lecturer: Daisuke FUKUDA

Aims & Scope: This course is designed mainly for the graduate students with transportation engineering backgrounds to study:

- The economic framework to analyze the supply and demand for transportation
- How principles of economics can be applied to evaluate the effects of transportation plans and/or policies

Textbooks/Readings:

- Varian, H.R. "*Microeconomic Analysis*," Norton, 1992.
- McCarthy, P. "*Transportation Economics*," Blackwell, 2001.
- Small, K. and Verhoef, E. "*The Economics of Urban Transportation*," Routledge, 2007.
- Brueckner, J. "*Lectures on Urban Economics*," The MIT Press, 2011.
- Some relevant research papers.

Prior Recommendation:

- Some chapters in the above-mentioned books are recommended to be studied prior to each class (announced by email). The lectures will be done based on this preparation.
- Several research papers related to each class topic will be circulated in advance and strongly recommended to be read prior to each class.

Grading: Assignments (90%), Class participation & Discussion (10%)

Course Schedule:

Class	Date	Topics
1	Dec. 5	Introduction of Economic Theory for Transportation Studies
2	Dec. 19	Transportation Demand: Case of Divisible Goods
3	Dec. 26	Transportation Demand: Case of Discrete Goods
4	Jan. 9	Firm Production and Cost in Transportation
5	Jan. 16	Congestion Pricing: Theory and Practice [may be cancelled]
6	Jan. 23	Emergence of Cities and Agglomeration
7	Jan. 30	Land Use Pattern in a City: Urban Spatial Structure
8	Feb. 6	[Optional day]

#### References for Class 2:

- McCarthy, P. (2001) *Transportation Economics*, Blackwell, [Chapter 3].
- Varian, H.R. (1992) *Microeconomic Analysis*, Norton, [Chapters 7-10].

(For further studies...)

- Morisugi H. (2000) Evaluation Methodologies of Transportation Projects in Japan. *Transport Policy*, 7 (1), 35–40.
- Hayashi Y. and Morisugi H. (2000) International Comparison of Background Concept and Methodology of Transportation Project Appraisal. *Transport Policy*, 7 (1), 73–88.
- PIARC (2004) *Economic Evaluation Methods for Road Projects in PIARC Member Countries*.
- Mackie, P. and Worsley, T. (2013) International comparisons of transport appraisal practice – overview, Technical report, Institute for Transport Studies, University of Leeds.

#### References for Class 3:

- McCarthy, P. (2001) *Transportation Economics*, Blackwell, [Chapter 4].
- Blayac, T. and Causse A. (2001) Value of Travel Time: A Theoretical Legitimization of some Nonlinear Representative Utility in Discrete Choice Models. *Transportation Research Part B*, 35 (4), 391–400.
- Anderson, S.P., De Palma, A., and Thisse, J.-F. (1988) “A Representative Consumer Theory of the Logit Model,” *International Economic Review*, 29 (3), 461–466.
- De Borger, B. and Mayeres, I. (2007) Optimal taxation of car ownership, car use and public transport. *European Economic Review*, 51, 1177–1204.

(For further studies...)

- Small K. A. and Rosen H. S. (1981) *Applied Welfare Economics with Discrete Choice Models*. *Econometrica*, 49(1), 105–130.
- González R. M. (1997) The Value of Time: A Theoretical Review. *Transport Reviews*, 17 (3), 245–266.

#### References for Class 4:

- McCarthy, P. (2001) *Transportation Economics*, Blackwell, [Chapter 5].
- Varian, H.R. (1992) *Microeconomic Analysis*, Norton, [Chapters 1-5].
- Braeutigam, R. R. (1999). Learning About Transport Costs: A Handbook in Honor of John R. Meyer. In J. Gómez-Ibáñez, W. B. Tye, & C. Winston (Eds.), *Essays in Transportation Economics and Policy: A Handbook in Honor of John R. Meyer* Washington, D.C.: The Brookings Institution.

#### References for Class 5:

- Small, K. and Verhoef, E. (2007) *The Economics of Urban Transportation*, Routledge, 2007 [Chapter 4].
- McCarthy, P. (2001) *Transportation Economics*, Blackwell, [Chapter 11].

(For further studies...)

- Walters, A., (1961) A. The theory and measurement of private and social cost of highway congestion. *Econometrica*, 29, 676–699.
- Vickrey, W.S. (1969) Congestion theory and transport investment. *American Economic Review*, 59, 251–261.

- Arnott, R.A., A. de Palma, R. Lindsey (1993) A structural model of peak-period congestion: A traffic bottleneck with elastic demand. *American Economic Review*, 83, 161-179.
- Fosgerau, M., Van Dender, K. (2013) Road pricing with complications, *Transportation*, 40, 479-503.

#### References for Class 6:

- Brueckner, J. "Lectures on Urban Economics," The MIT Press, 2011, [Chapter 1].  
(For further studies...)
- 都市経済学の基礎（佐々木公明・文世一），有斐閣アルマ，2000.  
[Sasaki, K. & Mun, S. "Foundations of Urban Economics," Yuhikaku, 2000 (in Japanese).]
- 高速道路開通の経済効果（文世一），高速道路と自動車，2012 年 10 月.  
[Mun, S. "Economic effects of inter-urban expressways," Kosokudoro-to-jidosya, 2012 (in Japanese).]

#### References for Class 7:

- Brueckner, J. "Lectures on Urban Economics," The MIT Press, 2011, [Chapter 2].
- McCarthy, P. (2001) *Transportation Economics*, Blackwell, [Chapter 12].  
(For further studies...)
- 佐々木公明・文世一（2000）都市経済学の基礎，有斐閣アルマ.  
[Sasaki, K. & Mun, S. "Foundations of Urban Economics," Yuhikaku, 2000 (in Japanese).]
- Alonso, W. (1964) *Location and Land Use*, Harvard University Press. [大石泰彦監訳/折下功訳  
『立地と土地利用:地価の一般理論について』，朝倉書店，1966.]
- Ueda, Takayuki and Tsutsumi, Morito and Muto, Shinichi and Yamasaki, Kiyoshi (2013) Unified computable urban economic model, *The Annals of Regional Science*, Vol.50, No.1, pp.341-362.