

**Singapore Management University
School of Economics**

ECON 738 Urban and Regional Economics (Graduate)

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Course Outline

This course presents a topical introduction to urban and regional economics. Students will learn various fundamental models/tools used in urban and regional economics, including monocentric city model, core-periphery new economic geography models, spatial competition models, type-of-cities model, and quantitative spatial economics. We will also study various topics/issues in the recent literature of urban and regional economics, including inner structure of cities, system of cities, city size distribution, the roles of spatial friction and natural amenities, and the roles of transportation, urban policies and developments.

Assessment

Presentation and Referee Report (50%); Final Exam (50%). Please choose a paper from the list below, and you will make a presentation to introduce the paper. This counts 25%. Then, you will write a referee report as if you are the referee of the paper, and this counts another 25%. The final exam will be held at the usual class time on 11 December, 2020. The final exam is open book.

Class Timing and Venue

There are 12 class sessions, each of which is 3-hour duration per week. The classes start from 21 August, 2020 for six consecutive weeks on Friday at 12:00pm - 3:15pm. Following three weeks of break, there will be another six sessions in six consecutive weeks at the same day and time, starting from 23 October. The final exam will be held at 12:00pm - 3:15pm on 11 December. Due to this year's special circumstances due to COVID-19, all classes, including the final exam, will be conducted online. The technical details of online meetings will be disseminated a couple weeks before the first class meeting.

Lecture and Reading Schedule

In the following list, * denotes required reading, and those without * means it is supplementary. Our materials focus on fundamental urban theories regarding causes of cities and agglomerations, the internal spatial structure of cities, the interaction between cities, city size distributions, and how to conduct quantitative analysis. We will also review some important development in the empirical literature. Compared to undergraduate urban economics (ECON 226) that I teach, this course is deeper in some topics, but we could not go very broad due to the limitation of time. An undergraduate urban textbook is sometimes useful for providing a broader picture. The undergraduate text that I have used is Brueckner, Jan (2011), *Lectures on Urban Economics*, MIT Press.

Topic 1: What is a City?

1. *Lecture slides
2. Rozenfeld, Hernan, Diego Rybski, Xavier Gabaix and Hernan Makse. 2011. "The area and population of cities: New insights from a different perspective on cities," *American Economic Review* 101(5): 2205-2225.

Topic 2: The Causes of Cities

1. *Lecture slides (undergraduate)
2. Duranton, Gilles & Puga, Diego, (2004). "Micro-foundations of urban agglomeration economies," in: J. V. Henderson & J. F. Thisse (ed.), *Handbook of Regional and Urban Economics*, edition 1, volume 4, chapter 48, pages 2063-2117.

Topic 3: Increasing Returns and Transport Cost; New Economic Geography

1. *Lecture Slides
2. *Dixit, A. K., & Stiglitz, J. E. (1977). "Monopolistic competition and optimum product diversity," *American Economic Review*, 67(3), 297-308.
3. *Krugman, Paul (1991), "Increasing returns and economic geography," *Journal of Political Economy*, 99, pp. 483-499.
4. *Helpman, E. (1998), "The size of regions," in D. Pines, E. Sadka, Y. Zilcha (Eds.), *Topics in Public Economics*, Cambridge University Press, New York, pp. 33-54.
5. *Ottaviano, G., T. Tabuchi, and J.F. Thisse (2002), "Agglomeration and trade revisited," *International Economic Review*, 43, pp. 409-435.
6. *Murata, Yasusada (2003). "Product diversity, taste heterogeneity, and geographic distribution of economic activities: market vs. non-market interactions," *Journal of Urban Economics* 53.1: 126-144.
7. Fujita, Krugman, and Venables (1999), *The Spatial Economy*, MIT Press.

Topic 4: Internal Structure of a City

1. *Lecture slides (undergraduate)
2. *Lecture slides (a more mathematical version)
3. R.E. Lucas Jr., E. Rossi-Hansberg (2002), "On the internal structure of cities," *Econometrica*, 70(4), pp. 1445-1476.
4. Rossi-Hansberg (2004), "Optimal urban land use and zoning," *Review of Economic Dynamics*.

Topic 5: Henry George Theorem

1. *Lecture Slides
2. *Arnott, Richard J., and Joseph E. Stiglitz. (1979), "Aggregate land rents, expenditure on public goods, and optimal city size." *Quarterly Journal of Economics* 93.4: 471-500.

Topic 6: System of Cities; City Size Distribution

1. *Lecture Slides
2. *Salop, Steven C. (1979), "Monopolistic competition with outside goods," *The Bell Journal of Economics*: 141-156.
3. *Hsu, W.-T. (2012), "Central place theory and city size distribution," *Economic Journal*, 122, pp. 903-932.
4. *Fujita, M., Krugman, P. and Mori, T. (1999), "On the evolution of hierarchical urban systems," *European Economic Review*, vol. 43, pp. 209–51.
5. *Henderson, J. Vernon (1974), "The Sizes and Types of Cities," *American Economic Review*, 64, 640-656.
6. *Au, C. C. and J. V. Henderson (2006), "Are Chinese Cities Too Small," *Review of Economic Studies*, 73, 549-576.
7. * Davis, Donald R., and Jonathan I. Dingel. (2020), "The comparative advantage of cities," *Journal of International Economics*, 123 (2020): 103291.
8. *Mori, Tomoya, Tony E. Smith, and Wen-Tai Hsu. (2020), "Common power laws for cities and spatial fractal structures," *Proceedings of the National Academy of Sciences* 117.12: 6469-6475.
9. Hsu, W.-T., T. J. Holmes and F. Morgan (2014), "Optimal City Hierarchy: A Dynamic Programming Approach to Central Place Theory," *Journal of Economic Theory*, 154, pp. 245-273.
10. Rossi-Hansberg, E. and Wright, M.L.J. (2007), "Urban structure and growth," *Review of Economic Studies*, 74(2), pp. 597–624.
11. Duranton, G. (2007), "Urban evolutions: The fast, the slow, and the still," *American Economic Review*, 97 (1), 197-221.

Topic 7: Quantitative Spatial Economics

1. *Redding, Stephen, and Anthony J. Venables. (2004) "Economic geography and international inequality," *Journal of International Economics* 62(1): 53-82.
2. *Redding, Stephen and Daniel Sturm. 2008. "The costs of remoteness: Evidence from German division and reunification." *American Economic Review* 98(5): 1766-1797.
3. *Tombe, Trevor, and Xiaodong Zhu. (2019) "Trade, migration, and productivity: A quantitative analysis of China," *American Economic Review*, 109(5): 1843-72.
4. *Ahlfedlt, Gabriel, Steven Redding, Daniel Sturm and Nikolaus Wolf (2015), "The Economics of Density: Evidence from the Berlin Wall," *Econometrica*.
5. *Hsieh, Chang-Tai and Enrico Moretti (2019), "Housing Constraints and Spatial Misallocation," *American Economic Journal: Macroeconomics*, 11(2), April 2019.

Topic 8: Urban Empirics: Some Examples

1. Duranton, Gilles, and Matthew A. Turner. (2011). "The fundamental law of road congestion: Evidence from US cities," *American Economic Review* 101(6): 2616-52.
2. Combes, Pierre-Philippe, Gilles Duranton, and Laurent Gobillon. (2019) "The costs of agglomeration: House and land prices in French cities." *Review of Economic Studies* 86.4: 1556-1589.
3. Dingel, Jonathan I., Antonio Miscio, and Donald R. Davis. (2019) "Cities, lights, and skills in developing economies," *Journal of Urban Economics* 2019: 103174.

Tentative Schedule

Week 1:

- What is a City?
- Why are there Cities? (Chapter 1, Brueckner's textbook)
- Dixit-Stiglitz Model

Week 2:

- Krugman (1991)
- Helpman (1998)

Week 3:

- Ottaviano, Tabuchi, and Thisse (2002).
- Murata (2003)

Week 4:

- Monocentric City Model – Chapter 2 of Brueckner's textbook and Holmes' Notes
- Henry George Theorem

Week 5:

- Salop (1979)
- Central Place Theory -- Hsu (2012) and Fujita, Krugman, and Mori (1999)

Week 6:

- Type-of-Cities Model -- Henderson (1974) and Au and Henderson (2006)
- Davis and Dingel (2020)

Week 7:

- Random Growth and City Size Distribution – lecture slides
- Mori, Smith, and Hsu (2020)
- Redding and Venables (2004)

Week 8:

- Redding and Sturm (2008)
- Tombe and Zhu (2019)

Week 9:

- Ahlfedlt, Redding, Sturm and Wolf (2015)

Week 10:

- Hsieh and Moretti (2019)
- Duranton and Turner (2011)

Week 11: Some Data and Empirics

- Combes, Duranton, and Gobillon (2019)
- Dingel, Miscio, and Davis (2019)

Papers for Selection for Presentations

System of Cities and Internal Structure

1. Duranton, G. and D. Puga (2001), "Nursery Cities: Urban Diversity, Process Innovation, and the Life Cycle of Products," *American Economic Review*, 91(5), 1454-1477.
2. Behrens, Kristian, Gilles Duranton and Frédéric Robert-Nicoud (2014), Productive cities: Sorting, selection, and agglomeration," *Journal of Political Economy*, 122(3), 507-553.
3. Fajgelbaum, Pablo D., and Edouard Schaal. Optimal transport networks in spatial equilibrium. No. w23200. National Bureau of Economic Research, 2017.
4. Arkolakis, C. and T. Allen (2014), "Trade and the Topography of the Spatial Economy," *Quarterly Journal of Economics*, 129(3), pp. 1085-1140.
5. Arkolakis, C. and T. Allen (2015), "[Optimal City Structure](#)," working paper, Yale University.
6. Turner, Matthew A., Andrew Haughwout, and Wilbert van der Klaauw (2014), "Land Use Regulation and Welfare," *Econometrica*, 82(4): 1341-1403.
7. Redding, S. J., & Rossi-Hansberg, E. A. (2017), "Quantitative spatial economics," *Annual Review of Economics*, 9(1).
8. Allen, Treb and Dave Donaldson (2018), "The Geography of Path Dependence," working paper, MIT.

Spatial Aspect of Taxation

9. Albouy, David. (2009). "The Unequal Geographic Burden of Federal Taxation," *Journal of Political Economy* 117(4), August 2009, pp. 635-667.
10. Fajgelbaum, P. D., Morales, E., Suárez Serrato, J. C., & Zidar, O. (2019). State taxes and spatial misallocation. *Review of Economic Studies*, 86(1), 333-376.

Urbanization and Urban Growth

11. Duranton, Gilles & Puga, Diego (2014), "The growth of cities," *Handbook of Economic Growth*, volume II, Philippe Aghion and Steven Durlauf (eds), Elsevier, 2014, 781-853, Amsterdam.
12. Desmet, Klaus and Esteban Rossi-Hansberg (2014), "Spatial Development," *American Economic Review*, 104:4, 1211-1243.

On Housing

13. Ortalo-Magné, F., & Rady, S. (2006). "Housing Market Dynamics: On the Contribution of Income Shock and Credit Constraints." *Review of Economic Studies* (73), 459-485.
14. Rognlie, Matthew (2015), "Deciphering the Fall and Rise in the Net Capital Share: Accumulation, or Scarcity?," forthcoming, Brookings Papers on Economic Activity.
15. Esteban Rossi-Hansberg (2004), Optimal Urban Land Use and Zoning, January 2004, *Review of Economic Dynamics*, 7, 69-106.

16. Diamond, R., McQuade, T., & Qian, F. (2019). The effects of rent control expansion on tenants, landlords, and inequality: Evidence from San Francisco. *American Economic Review*, 109(9), 3365-94.
17. Diamond, R., & McQuade, T. (2019). Who wants affordable housing in their backyard? An equilibrium analysis of low-income property development. *Journal of Political Economy*, 127(3), 1063-1117.

Transportation, Cities, and Development

18. Donaldson, D. (2018). Railroads of the Raj: Estimating the impact of transportation infrastructure. *American Economic Review*, 108(4-5), 899-934.
19. Donaldson, D., and Hornbeck, R. (2016). Railroads and American economic growth: A “market access” approach. *Quarterly Journal of Economics*, 131(2), 799-858.
20. Faber, Benjamin. (2014). “Trade integration, market size, and industrialization: evidence from China’s National Trunk Highway System,” *Review of Economic Studies* 81(3), 1046-1070.
21. Duranton, Gilles, Victor Couture and Matt Turner (2018) “Speed,” *Review of Economics and Statistics*, 100(4), 725-739.
22. Baum-Snow, N., Henderson, J. V., Turner, M. A., Zhang, Q., & Brandt, L. (2020). Does investment in national highways help or hurt hinterland city growth?. *Journal of Urban Economics*, 115, 103124.

Empirics of Agglomeration (and Co-agglomeration)

23. Greenstone, M., Hornbeck, R., & Moretti, E. (2010). Identifying agglomeration spillovers: Evidence from winners and losers of large plant openings. *Journal of Political Economy*, 118(3), 536-598.
24. Holmes, Thomas J. (1998), “The Effect of State Policies on the Location of Manufacturing: Evidence from State Borders,” *Journal of Political Economy*, 106(4), pages 667-705, August.
25. Holmes, T. J., & Singer, E. (2018). Indivisibilities in distribution (No. w24525). National Bureau of Economic Research.
26. Combes, Pierre-Philippe, Gilles Duranton, Laurent Gobillon, Diego Puga, and Sébastien Roux (2012), “The Productivity Advantages of Large Cities: Distinguishing Agglomeration from Firm Selection,” *Econometrica*, 80(6), pp. 2543-2594.
27. Albouy, David, Kristian Behrens, Frédéric Robert-Nicoud, and Nathan Seegert (2017), “The Optimal Distribution of Population across Cities,” *Journal of Urban Economics*, forthcoming. See the NBER working-paper version.
28. “Measuring Spatial Concentration,” Chapter 10 in *Economic Geography* by Pierre-Philippe Combes, Thierry Mayer, and Jacques-Francois Thisse.
29. “Determinants of Spatial Concentration and Local Productivity,” Chapter 11 in Chapter 10 in *Economic Geography* by Pierre-Philippe Combes, Thierry Mayer, and Jacques-Francois Thisse.
30. “The Empirics of Economic Geography,” Chapter 12 in *Economic Geography* by Pierre-Philippe Combes, Thierry Mayer, and Jacques-Francois Thisse.