

## REAL 946 – **Topics in Urban Economics**

Monday 3.00-6.00. Room: SHDH 116

**NOTE:** The first meeting will be on January 14<sup>th</sup> (it's a Wednesday in the Gregorian calendar but somehow a Monday for Penn).

**Instructor:** Gilles Duranton

Room: SHDH 1470.

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Office hours: By appointment.

**Objectives:** This course will explore a range of topics related to current research in urban and regional economics: the modelling and estimation of agglomeration economies; the costs of cities and their internal structure with emphasis on land use regulations and transportation; amenities and the local supply of labour; the sizes and functions of cities. Both theory and empirics will be covered. Special attention will be devoted to building bridges with other fields including labour, international, public, IO, and development.

## **General issues:**

1. This course hopes to achieve several objectives:

- Provide you with substantive knowledge about the economics of cities and regions.
- Foster your technical knowledge about a number of modelling aspects, econometrics techniques, and the link between the two.
- Make you think critically (and hopefully creatively) about existing research.
- Improve your ability to present complex research output in a clear and synthetic way.

2. The course builds on standard microeconomic theory (adapted to the complications introduced by space) and econometrics. Familiarity with standard first year microeconomics and empirical methods will be assumed. Given the range of problems that urban and regional economists face, no single empirical approach is expected to fully dominate.

3. The assessment will be made of:

- One mid-term report for a research proposal (15%) due February 16 (week 5).

[[Maximum 5 double-spaced pages -- See below]]

- One "data" assignment (15%) due March 2 (week 7).

[[Objective: to replicate the main results of a published paper]]

- One critical evaluation of a paper (20%) due March 30 (week 10).

[[Maximum 5 double spaced pages. I will propose a list but proposals from you are welcome.]]

- One final report for a research proposal (35%) due at the end of term

[[Establish a research question, briefly survey the relevant literature, discuss possible existing data to analyse the question, provide a research design and critically comment it. Preliminary data analysis may also be provided. Alternatively, research proposals for an applied theory paper are also possible. Research proposals need to be discussed with me beforehand.]]

- Class participation (15%)

[[In the second part of the course, many sessions will be organised around one or two papers. For each paper, the discussion should be led by one of us. The others are expected to have looked at the paper as well.]]

4. The data assignment and the research proposal will require the use of Stata.

5. Announcements and other related items will be posted on Canvas. Please check frequently and stay up to date with the course. Most course materials (readings and data) will be posted there.

6. Class attendance is fundamental. A lot of what you will learn will be during the class and the class will strongly complement everything else.

## **Syllabus:**

### **1. Agglomeration: Theory**

+ Duranton, Gilles and Diego Puga. 2004. Micro-foundations of urban agglomeration economies. In Vernon Henderson and Jacques-François Thisse (eds.) *Handbook of Regional and Urban Economics*, volume 4. Amsterdam: North-Holland, 2063–2117.

- Melitz, Marc J. 2003. The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica* 71(6), 1695–1725.

### **2. Agglomeration: Empirics**

+ Combes, Pierre- Philippe and Laurent Gobillon. 2014. The empirics of agglomeration economics. In Gilles Duranton, J. Vernon Henderson, and William C. Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: North-Holland, forthcoming. (available at <http://real.wharton.upenn.edu/~duranton/handbook.html>)

## **IV:**

- Arzaghi Mohammad, and J. Vernon Henderson. 2008. Networking off Madison Avenue. *Review of Economic Studies* 75(4), 1011-1038.

- Combes, Pierre- Philippe, Gilles Duranton, Laurent Gobillon, and Sébastien Roux. 2010. Estimating agglomeration economies with history, geology, and worker effects. In Edward L. Glaeser (ed.) *The Economics of Agglomeration*. Cambridge (mass.): National Bureau of Economic Research, 15–65.

- Moretti, Enrico. 2004. Workers' education, spillovers, and productivity: Evidence from plant-level production functions. *American Economic Review* 94(3), 656-690

- Rosenthal, Stuart S. and William C. Strange. 2008. The attenuation of human capital spillovers. *Journal of Urban Economics* 64(2):373–389.

### **Quasi-Experiments:**

- Andersson, Roland, John M. Quigley, and Mats Wilhelmsson. 2009. Urbanization, productivity, and innovation: Evidence from investment in higher education. *Journal of Urban Economics* 66(1):2–15.

+ Greenstone, Michael, Richard Hornbeck, and Enrico Moretti. 2010. Identifying agglomeration spillovers: Evidence from winners and losers of large plants openings. *Journal of Political Economy* 118(3):536–598.

- Redding, Stephen J. and Daniel M. Sturm. 2008. The costs of remoteness: Evidence from German division and reunification. *American Economic Review* 98(5):1766–1797.

### **Structural:**

+ Ahlfeldt Gabriel M, Stephen J. Redding, Daniel M. Sturm and Nikolaus Wolf. 2014. The economics of density: Evidence from the Berlin Wall. Processed, London School of Economics.

- Baum-Snow, Nathaniel and Ronni Pavan. 2010. Understanding the city size wage gap. *Review of Economic Studies* 79(1): 88-127.

- Holmes, Thomas J. 2011. The diffusion of Wal-Mart and economies of density. *Econometrica* 79(1): 253-302.

### **Identifying the sources of agglomeration:**

- 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): 2543-2594.

- De la Roca, Jorge and Diego Puga. 2014. Learning by working in big cities. Processed, CEMFI.

- Ellison, Glenn, Edward L. Glaeser, and William R. Kerr. 2010. What causes industry agglomeration? Evidence from coagglomeration patterns. *American Economic Review* 100(3):1195–1213.

### **Background papers:**

- Baum-Snow, Nathaniel, and Fernando Ferreira. 2014. Causal inference in urban economics. In Gilles Duranton, J. Vernon Henderson, and William C. Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: North-Holland, forthcoming. (available at <http://real.wharton.upenn.edu/~duranton/handbook.html>)

- Holmes, Thomas J. 2010. Structural, experimentalist, and descriptive approaches to empirical work in regional economics. *Journal of Regional Science* 50(1):5–22.

- Puga, Diego. 2010. The magnitude and causes of agglomeration economies. *Journal of Regional Science* 50(1):203–219.

## **3. Dispersion: Theory**

+ Duranton, Gilles, and Diego Puga. 2014. Urban land use (section 2-5). In Gilles Duranton, J. Vernon Henderson, and William C. Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: North-Holland, forthcoming. (available at <http://real.wharton.upenn.edu/~duranton/handbook.html>)

- Zenou, Yves. 2006a and b. Urban Economics. Mimeographed.

#### **4. Dispersion: Empirics**

- + Duranton, Gilles, and Diego Puga. 2014. Urban land use (section 6-9). In Gilles Duranton, J. Vernon Henderson, and William C. Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: North-Holland, forthcoming. (available at <http://real.wharton.upenn.edu/~duranton/handbook.html>)
- Albouy, David and Gabriel Ehrlich. 2014. The distribution of urban land values: evidence from market transactions. Processed, University of Illinois at Urbana Champaign
- Burchfield, Marcy, Henry G. Overman, Diego Puga, and Matthew A. Turner. 2006. Causes of sprawl: A portrait from space. *Quarterly Journal of Economics* 121(2): 587–633.
- Combes, Pierre-Philippe, Gilles Duranton, and Laurent Gobillon. 2013. The costs of agglomeration: Land prices in French cities. Processed, University of Pennsylvania.
- Glaeser, Edward L., and Matthew E. Kahn. 2001. Decentralized Employment and the Transformation of the American City. *Brookings/Wharton Papers on Urban Affairs* 2(0): 1-63.
- Handbury, Jessie and David E. Weinstein. 2014. Goods Prices and Availability in Cities. *Review of Economic Studies*, forthcoming.
- Harrari, Mariaflavia. 2014. Cities in bad shape: urban geometry in India. Processed, MIT.

#### **5. Local labour supply and amenities: Theory**

- + Duranton, Gilles and Diego Puga. 2014. The growth of cities (sections 2-4, and 6). In Philippe Aghion and Steven N. Durlauf (eds.) *Handbook of Economic Growth*, volume 2B. Amsterdam: North-Holland, 781–853.
- Glaeser, Edward L. and Joshua D. Gottlieb. 2009. The wealth of cities: Agglomeration economies and spatial equilibrium in the United States. *Journal of Economic Literature* 47(4):983–1028.
- + Moretti, Enrico. 2011. Local labor markets. In Orley Ashenfelter and David Card (eds.) *Handbook of Labor Economics*, volume 4. Amsterdam: North-Holland. 1237-1313.
- Kline, Patrick and Enrico Moretti. 2014. People, places and public policy: some simple welfare economics of local economic development programs. *Annual Review of Economics* 6(0), 629-662.

#### **Background**

- Roback, Jennifer. 1982. Wages, rents and the quality of life. *Journal of Political Economy* 90(6):1257–1278.

## **6. Local labour supply and amenities: Empirics**

- Albouy, David. 2012. Are big cities really bad places to live? Improving quality-of-life estimates across cities. Mimeographed, University of Michigan.

- Beaudry, Paul, Green, David A., and Sand, Ben. 2014. Spatial equilibrium with unemployment and wage bargaining: Theory and estimation. *Journal of Urban Economics* 79(0), 2–19.

- Diamond, Rebecca. 2014. The determinants and welfare implications of US workers' diverging location choices by skill: 1980-2000. Processed, Stanford University.

- Ganong, Peter and Daniel Shoag. 2012. Why has regional income convergence in the U.S. stopped? Processed, Harvard University.

- Lee, Sanghoon and Jeffrey Lin. 2014. Natural amenities, neighborhood dynamics, and persistence in the spatial distribution of income. Processed, Federal Reserve Bank of Philadelphia.

- Rappaport, Jordan. 2004. Moving to nice weather. *Regional Science and Urban Economics* 37(3): 375–398.

## **Background**

- Blanchard, Olivier Jean and Lawrence F. Katz. 1992. Regional Evolutions. *Brookings Papers on Economic Activity* 0(1): 1–61.

## **7. Systems of cities**

+ Behrens, Kristian, and Frédéric Robert-Nicoud, 2014. Agglomeration theory with heterogeneous agents. In Gilles Duranton, J. Vernon Henderson, and William C. Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: North-Holland, forthcoming. (available at <http://real.wharton.upenn.edu/~duranton/handbook.html>)

+ Duranton, Gilles and Diego Puga. 2014. The growth of cities (sections 5 and 7). In Philippe Aghion and Steven N. Durlauf (eds.) *Handbook of Economic Growth*, volume 2B. Amsterdam: North-Holland, 781–853.

- Au, Chun-Chung and J. Vernon Henderson. 2006. Are Chinese cities too small? *Review of Economic Studies* 73(3):549–576.

- Behrens, Kristian, Giordano Mion, Yasusada Murata and Jens Suedekum. 2013. Spatial Frictions. Process, UQAM.

- Desmet, Klaus, and Esteban Rossi-Hansberg. 2013. Urban accounting and welfare. *American Economic Review* 103(6), 2296-2327.

## **Background**

- Henderson, Vernon, and Randy Becker. 2000. Political economy of city sizes and formation. *Journal of Urban Economics* 48(3): 453–484.

- Duranton, Gilles and Diego Puga. 2000. Diversity and specialisation in cities: Why, where and when does it matter? *Urban Studies* 37(3): 533–555.

Beyond that, we will have more freedom. Here is a list of themes that can be extended and amended.

## **8. Policy**

- Busso, Matias, Jesse Gregory, and Patrick Kline. 2013. Assessing the incidence and efficiency of a prominent place based policy. *American Economic Review* 103(2), 897-947.

- Criscuolo, Chiara, Ralf Martin, Henry Overman, and John Van Reenen. 2012. The causal effect of an industrial policy. Processed, London School of Economics.

Kline, Patrick and Enrico Moretti. 2014. Local economic development, agglomeration economies and the big push: 100 years of evidence from the Tennessee Valley Authority. *Quarterly Journal of Economics* 129(1), 275-331.

- Rossi-Hansberg, Esteban, Pierre-Daniel Sarte, and Raymond Owens III. 2010. Housing externalities. *Journal of Political Economy* 118(3):485–535.

## **Background**

- Glaeser, Edward L. and Joshua D. Gottlieb. 2008. The economics of place-making policies. *Brookings Papers on Economic Activity* 0(1):155–253.

- Holmes, Thomas J. 1998. The effect of state policies on the location of manufacturing: Evidence from state borders. *Journal of Political Economy* 106(4):667–705.

## **9. Transportation**

- Redding, Stephen J. and Matthew A. Turner, 2014. Transportation costs and the spatial organization of economic activity. In Gilles Duranton, J. Vernon Henderson, and William C. Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: North-Holland, forthcoming. (available at <http://real.wharton.upenn.edu/~duranton/handbook.html>)

- Arnott, Richard, André de Palma, and Robin Lindsey. 1993. A structural model of peak-period congestion: A traffic bottleneck with elastic demand. *American Economic Review* (1):161–179.
  - Baum-Snow, Nathaniel. 2007. Did highways cause suburbanization? *Quarterly Journal of Economics* 122(2):775–805.
  - Bento, Antonio, Maureen L. Cropper, Ahmed Mushfiq Mobarak, and Katja Vinha. 2005. The effects of urban spatial structure on travel demand in the United States. *Review of Economics and Statistics* 87(3):466–478.
  - Couture, Victor, Gilles Duranton, and Matthew A. Turner. 2012. Speed. Processed, University of Pennsylvania.
- Donaldson, David. 2013. Railroads of the Raj: Estimating the impact of transportation infrastructure. *American Economic Review*, forthcoming.
- Gibbons, Stephen, Teemu Lyytikäinen, Henry Overman, and Rosa Sachis-Guarner. 2012. New road infrastructure: The effects on firms. Processed, London School of Economics.
  - Parry, Ian W. H. and Kenneth A. Small. 2009. Should urban transit subsidies be reduced? *American Economic Review* 99(3):700–724.

## Background

- de Palma, André, Robin Lindsey, and Nathalie Picard. Urban passenger travel demand. In Richard J. Arnott and Daniel P. McMillen (eds.) *A Companion to Urban Economics*. Oxford: Blackwell, 261-280.

## 10. Land use regulation

- Glaeser, Edward L., Joseph Gyourko, and Raven Saks. 2005. Why is Manhattan so expensive? Regulation and the rise in housing prices. *Journal of Law and Economics* 48(2):331–369.
- Glaeser, Edward L. and Bryce A. Ward. 2009. The causes and consequences of land use regulation: Evidence from Greater Boston. *Journal of Urban Economics* 65(3):265–278.
- Haughwout, Andrew, Matthew A. Turner, and Wilbert van der Klaauw. 2014. Land use regulation and welfare. *Econometrica* 82(4), 1341-1403.
- Ortalo- Magné, François and Andrea Prat. 2014. On the political economy of urban growth: Homeownership versus affordability. *American Economic Journal: Microeconomics*, 6(1): 154-81.
- Saiz, Albert. 2010. The geographic determinants of housing supply. *Quarterly Journal of Economics* 125(3):1253–1296.



## 11. Measurement

- Briant, Anthony, Pierre-Philippe Combes, and Miren Lafourcade. 2010. Does the size and shape of geographical units jeopardize economic geography estimations? *Journal of Urban Economics* 67(3):287–302.
- Burchfield, Marcy, Henry G. Overman, Diego Puga, and Matthew A. Turner. 2006. Causes of sprawl: A portrait from space. *Quarterly Journal of Economics* 121(2): 587–633.
- Duranton, Gilles and Henry G. Overman. 2005. Testing for localisation using microgeographic data. *Review of Economic Studies* 72(4):1077–1106.
- Henderson, Vernon, Adam Storeygard, and David N. Weil. 2012. Measuring economic growth from outer space. *American Economic Review* 102(2), 994-1028.
- Rozenfeld, Hernán D., Diego Rybski, Xavier Gabaix, and Hernán A. Maske. 2011. The area and population of cities: New insights from a different perspective on cities. *American Economic Review* 111(5), 2205-2225.

Other possible topics:

- Development (Michaels et al wp 2010, Nunn and Puga REStat 2011, Henderson Handbook chapter 2005, Donaldson wp 2010, Galiani and Schargrodsky JPubEc 2010, Brueckner and Lall Handbook chapter 2015, Henderson and Desmet Handbook chapter 2015, etc)
- Neighbourhood change (Rosenthal and Ross, Handbook chapter 2015, Rosenthal JUE 2008, DiPasquale and Glaeser JUE 1999, Benabou QJE 1993, Guerrieri et al wp 2010)
- Structural modelling of housing supply (Murphy wp 2010, Brett Epple and Sieg, AER 2010).
- Land assembly and institutions (Libecap and Lueck JPE 2011, Brooks and Lutz unp 2013).
- Microstructure of housing markets
- Innovation and cities