

REAL946. Advanced Topics in Urban Economics

Syllabus

Wharton, 2019

Classroom: SHDH 217
Time: Tuesdays, 3:00-6:00PM

Instructor: **Diego Puga**
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Office hours: By appointment

In this course in urban economics we will study theory and evidence on how productivity, amenities and congestion determine the size and composition of cities and their evolution. We will examine the determinants and consequences of location choices made by firms and workers. We will also explore the importance of cities for aggregate economic development. The research strategies, modelling tools and problems of measurement and identification discussed, while examined in the context of urban issues, are intended to be useful to students interested in a wide variety of topics.

The 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, empirical techniques, and the link between the two.
- Encourage you to think critically and creatively about existing research.
- Improve your ability to present complex research output in a clear and synthetic way.

1. Accessibility, land use and location in a city

- Duranton, Gilles and Diego Puga. 2015. Urban land use. In Gilles Duranton, J. Vernon Henderson, and William Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: Elsevier, 467–560, sections 8.2, 8.3.2, 8.4, and 8.7.
- Duranton, Gilles and Diego Puga. 2014. The growth of cities. In Philippe Aghion and Steven N. Durlauf (eds.) *Handbook of Economic Growth*, volume 2B. Amsterdam: Elsevier, 781–853, section 5.2.
- Holmes, Thomas J. and Holger Sieg. 2015. Structural estimation in urban economics. In Gilles Duranton, J. Vernon Henderson, and William Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: Elsevier, 69–114, sections 2.2 and 2.4.2.
- Ahlfeldt, Gabriel, Stephen J. Redding, Daniel Sturm, and Nikolaus Wolf. 2015. The economics of density: Evidence from the Berlin wall. *Econometrica* 83(6): 2127–2189.
- Duranton, Gilles and Matthew A. Turner. 2012. Urban growth and transportation. *Review of Economic Studies* 79(4): 1407–1440.
- Ogawa, Hideaki and Masahisa Fujita. 1980. Equilibrium land use patterns in a nonmonocentric city. *Journal of Regional Science* 20(4): 455–475.

2. Quantifying agglomeration economies

- Combes, Pierre-Philippe and Laurent Gobillon. 2015. The empirics of agglomeration economies. In Gilles Duranton, J. Vernon Henderson, and William Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: Elsevier, 247–348.
- Puga, Diego. 2010. The magnitude and causes of agglomeration economies. *Journal of Regional Science* 50(1): 203–219.
- Ciccone, Antonio and Robert E. Hall. 1996. Productivity and the density of economic activity. *American Economic Review* 86(1): 54–70.
- Combes, Pierre-Philippe, Gilles Duranton, Laurent Gobillon, and Sébastien Roux. 2010. Estimating agglomeration effects with history, geology, and worker fixed-effects. In Edward L. Glaeser (ed.) *Agglomeration Economics*. Chicago, IL: Chicago University Press, 15–65.
- 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.
- Duranton, Gilles and Henry G. Overman. 2005. Testing for localization using micro-geographic data. *Review of Economic Studies* 72(4): 1077–1106.
- Greenstone, Michael, Richard Hornbeck, and Enrico Moretti. 2010. Identifying agglomeration spillovers: Evidence from winners and losers of large plant openings. *Journal of Political Economy* 118(3): 536–598.
- Henderson, J. Vernon. 2003. Marshall’s scale economies. *Journal of Urban Economics* 53(1): 1–28.

3. Wages, learning and urban sorting

- Glaeser, Edward L. and David C. Maré. 2001. Cities and skills. *Journal of Labor Economics* 19(2): 316–342.
- Baum-Snow, Nathaniel and Ronni Pavan. 2012. Understanding the city size wage gap. *Review of Economic Studies* 79(1): 88–127.
- Behrens, Kristian, Gilles Duranton, and Frédéric Robert-Nicoud. 2014. Productive cities: Sorting, selection, and agglomeration. *Journal of Political Economy* 122(3): 507–553.
- De la Roca, Jorge and Diego Puga. 2017. Learning by working in big cities. *Review of Economic Studies* 84(1): 106–142.

4. Agglomeration and systems of cities

- Duranton, Gilles and Diego Puga. 2014. The growth of cities. In Philippe Aghion and Steven N. Durlauf (eds.) *Handbook of Economic Growth*, volume 2B. Amsterdam: Elsevier, 781–853, section 5.5.
- Albouy, David, Kristian Behrens, Frédéric Robert-Nicoud, and Nathan Seegert. 2019. The optimal distribution of population across cities. *Journal of Urban Economics* 110: 102–113.

- Au, Chun-Chung and J. Vernon Henderson. 2006. Are Chinese cities too small? *The Review of Economic Studies* 73(3): 549–576.
- Duranton, Gilles and Diego Puga. 2000. Diversity and specialisation in cities: Why, where and when does it matter? *Urban Studies* 37(3): 533–555.
- Duranton, Gilles and Diego Puga. 2005. From sectoral to functional urban specialisation. *Journal of Urban Economics* 57(2): 343–370.

5. Urban amenities and mobility

- Duranton, Gilles and Diego Puga. 2014. The growth of cities. In Philippe Aghion and Steven N. Durlauf (eds.) *Handbook of Economic Growth*, volume 2B. Amsterdam: Elsevier, 781–853, section 5.4.
- Albouy, David. 2008. Are big cities really bad places to live? Improving quality-of-life estimates across cities. Working Paper 14472, National Bureau of Economic Research.
- Moretti, Enrico. 2011. Local labor markets. In Orley Ashenfelter and David Card (eds.) *Handbook of Labor Economics*, volume 4. Amsterdam: Elsevier, 1237–1313.
- Ottaviano, Gianmarco I. P. and Giovanni Peri. 2006. The economic value of cultural diversity: evidence from US cities. *Journal of Economic Geography* 6(1): 9–44.
- Roback, Jennifer. 1982. Wages, rents, and the quality of life. *Journal of Political Economy* 90(6): 1257–1278.

6. The motives for agglomeration

- Duranton, Gilles and Diego Puga. 2004. Micro-foundations of urban agglomeration economies. In J. Vernon Henderson and Jacques-François Thisse (eds.) *Handbook of Regional and Urban Economics*, volume 4. Amsterdam: Elsevier, 2063–2117.
- Arzaghi, Mohammad and J. Vernon Henderson. 2008. Networking off Madison Avenue. *Review of Economic Studies* 75(4): 1011–1038.
- Ellison, Glenn, Edward L. Glaeser, and William Kerr. 2010. What causes industry agglomeration? Evidence from coagglomeration patterns. *American Economic Review* 100(3): 1195–1213.
- Jaffe, Adam B., Manuel Trajtenberg, and Rebecca Henderson. 1993. Geographic localization of knowledge spillovers as evidenced by patent citations. *Quarterly Journal of Economics* 108(3): 577–598.
- Rosenthal, Stuart S. and William C. Strange. 2001. The determinants of agglomeration. *Journal of Urban Economics* 50(2): 191–229.

7. Sprawl and suburbanization: causes and consequences

- 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.
- Glaeser, Edward L. and Matthew E. Kahn. 2004. Sprawl and urban growth. In J. Vernon Henderson and Jacques-François Thisse (eds.) *Handbook of Regional and Urban Economics*, volume 4. Amsterdam: Elsevier, 2481–2527.

8. Urban growth and city sizes

- Duranton, Gilles and Diego Puga. 2014. The growth of cities. In Philippe Aghion and Steven N. Durlauf (eds.) *Handbook of Economic Growth*, volume 2B. Amsterdam: Elsevier, 781–853, sections 5.6 and 5.7.
- Black, Duncan and J. Vernon Henderson. 1999. A theory of urban growth. *Journal of Political Economy* 107(2): 252–284.
- Duranton, Gilles. 2007. Urban evolutions: The fast, the slow, and the still. *American Economic Review* 97(1): 197–221.
- Duranton, Gilles and Diego Puga. 2016. Urban growth and its aggregate implications. Processed, CEMFI.
- Eeckhout, Jan. 2004. Gibrat's law for (All) cities. *American Economic Review* 94(5): 1429–1451.
- Gabaix, Xavier. 1999. Zipf's law for cities: An explanation. *Quarterly Journal of Economics* 114(3): 739–767.
- Rossi-Hansberg, Esteban and Mark L. J. Wright. 2007. Urban structure and growth. *Review of Economic Studies* 74(2): 597–624.

9. Housing and land use regulation

- Duranton, Gilles and Diego Puga. 2015. Urban land use. In Gilles Duranton, J. Vernon Henderson, and William Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: Elsevier, 467–560, section 8.3.3, 8.5.
- Duranton, Gilles and Diego Puga. 2014. The growth of cities. In Philippe Aghion and Steven N. Durlauf (eds.) *Handbook of Economic Growth*, volume 2B. Amsterdam: Elsevier, 781–853, section 5.3.
- Glaeser, Edward L. and Joseph Gyourko. 2005. Urban decline and durable housing. *Journal of Political Economy* 113(2): 345–375.

10. Trade and transport costs and the location of activity across regions

- Krugman, Paul R. 1991. Increasing returns and economic geography. *Journal of Political Economy* 99(3): 484–499.
- Krugman, Paul R. and Anthony J. Venables. 1995. Globalization and the inequality of nations. *Quarterly Journal of Economics* 110(4): 857–880.
- Puga, Diego. 1999. The rise and fall of regional inequalities. *European Economic Review* 43(2): 303–334.
- Puga, Diego. 2002. European regional policy in light of recent location theories. *Journal of Economic Geography* 2(4): 372–406.
- Head, Keith and Thierry Mayer. 2004. The empirics of agglomeration and trade. In J. Vernon Henderson and Jacques-François Thisse (eds.) *Handbook of Regional and Urban Economics*, volume 4. Amsterdam: Elsevier, 2609–2669.

- Holmes, Thomas J. and Holger Sieg. 2015. Structural estimation in urban economics. In Gilles Duranton, J. Vernon Henderson, and William Strange (eds.) *Handbook of Regional and Urban Economics*, volume 5. Amsterdam: Elsevier, 69–114, section 2.4.1.
- Donaldson, Dave. 2018. Railroads of the Raj: Estimating the impact of transportation infrastructure. *American Economic Review* 108(4–5): 899–934.

Assessment

The assessment for this course will be based on the following:

- Critical evaluation of a paper (20%), due September 24 (week 5).
- A research proposal (50%), mid-term report due October 8 (week 7), final proposal due by the end of term.
- A replication exercise (15%), due October 22 (week 9).
- Class participation (15%).

Critical evaluation of a paper

This consists of a critical evaluation of one paper, similar in style to a report a referee would write evaluating the paper for possible publication in a journal. Possible papers are those published over the last 10 years in the *Journal of Urban Economics* or in a top-5 journal (*American Economic Review*, *Econometrica*, *Journal of Political Economy*, *Quarterly Journal of Economics*, and *Review of Economic Studies*) on an urban topic—except for those listed for the replication exercise below. It is also possible to evaluate a paper on an urban topic that has not yet been published. Please confirm the paper with me first. I will provide slides with guidelines and we will go over them in class. You should submit your evaluation to me as a PDF file.

Research proposal

Establish a research question, briefly survey the relevant literature, discuss possible existing data to analyse the question, provide a research design and critically comment on it. Preliminary data analysis may also be provided, but this is not a requirement. Alternatively, research proposals for an applied theory paper are also possible. Research proposals need to be discussed with me beforehand. The length should be no longer than 5 pages. You should submit your proposal to me as a PDF file.

Replication exercise

In the replication exercise, each student is expected to replicate the results of one a recent paper on an urban topic. The papers listed below are possible examples:

- 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 (<http://diegopuga.org/data/sprawl/>).
- 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 (<http://diegopuga.org/data/selectagg/>; if replicating this paper, you should apply the methodology to other distributions).

- De la Roca, Jorge and Diego Puga. 2017. Learning by working in big cities. *Review of Economic Studies* 84(1): 106–142 (<http://diegopuga.org/data/mcv1/>).
- Desmet, Klaus and Esteban Rossi-Hansberg. 2013. Urban accounting and welfare. *American Economic Review* 103(6): 2296–2327 (<http://www.princeton.edu/~erossi/UAWReplicationFiles.zip>).
- Duranton, Gilles and Matthew A. Turner. 2011. The fundamental law of road congestion: Evidence from US cities. *American Economic Review* 101(6): 2616–2652 (http://www.aeaweb.org/aer/data/oct2011/20081274_data.zip).
- Holmes, Thomas J. 2011. The diffusion of Wal-Mart and economies of density. *Econometrica* 79(1): 253–302 (<http://www.econ.umn.edu/~holmes/data/WalMart/>).
- Rossi-Hansberg, Esteban, Pierre-Daniel Sarte, and Raymond Owens, III. 2010. Housing externalities. *Journal of Political Economy* 118(3): 409–432 (<http://www.princeton.edu/~erossi/NIB/ReplicationFilesNib.zip>).

Replicating other papers is also possible, provided that they are within the topics of the course and that you check with me first. You should write a short report not longer than 5 pages. The first page of your report should give a brief summary of the paper (two paragraphs at most), explain what the released data files and programs were, and summarize of what you have managed to do. The remainder of the report should replicate those results of the original paper that can be reproduced with the files provided by the authors. Try to provide additional robustness checks or extensions. If there are additional related exercises that you think would be valuable but you cannot do due to lack of data or time, it is nevertheless useful if you also discuss these briefly. You should submit your report to me as a PDF file.

Class participation

Some sessions will cover one or two papers in particular detail. For each paper, the discussion should be led by one of us. The others are expected to have looked at the paper as well