Spatial Economics (ECON-UB 237)

Fall 2014

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Class meets: Tue & Thu, 9:30–10:45, in Tisch TBA

Teaching Assistant
TBA (TBA)

Office Hours
Gian Luca Clementi: By appointment
TBA: Mon & Wed TBA in KMC

Course Description

About 3.5 billion people – 50% of the world population – currently live in urban areas. This is a lot more than the roughly 1 billion that chose to dwell in cities in 1950 (30% of the population), but considerably less than the 6 billion (68%) the United Nations project will inhabit cities by mid-century. Why is that? What is so special about cities?

Out of the 26 automotive assembly plants opened by foreign producers in the United States between 1978 and 2011, only one, with a capacity for about 170,000 cars, is located in Michigan, for the longest time the major industry’s hub. However, Alabama - known as an eminently rural state – is home to four of those plants, for a total capacity well in excess of 1 million cars. Why?

A median-quality single-family house in San Francisco is worth about twice as much as in Boston and seven times as much as in Detroit, yet construction costs are very similar across the three areas. What explains such differences in real estate prices?

In this class, we will use the tools of Spatial Economics – the subfield of economics that tries to account for the location decisions of individuals and firms in the geographical space – to answer the above questions, and entertain many more. Here are some...
• About 21% of US cities dwellers live below the poverty line, against 11.5

• Is a family of four better off receiving 4,000 dollars a month in public assistance or paying 1,000 dollars a month for a West Village rent-stabilized apartment that would rent for 5,000 on the market? How about the taxpayer? Better-off or worse-off? How about everyone else?

• In Manhattan’s East Village, where the price of residential real estate exceeds $1,000 per square foot, you can find vegetable gardens that produce a few hundred dollars’ worth of vegetables per year. Is horticulture the socially efficient use of that land?

• Data shows that both firms and workers are much more productive in large and dense cities. Is this because of selection? That is, because only the best firms and workers survive the tougher competition they face in cities? Or is it because of agglomeration economies, i.e. because being close to their peers allow both firms and workers to learn better and faster?

• According to estimates by economists Ed Glaeser and Matthew Kahn, every year the average household residing in the Houston area produces more than 10 extra tons of carbon dioxide with respect to its counterpart residing in San Francisco. Why? Can we change that? Should we? Population in Houston is growing a lot faster than in the Bay Area. Why? Is it because the latter has extensive zoning regulation in place, while the former has none?

How Demanding?

This is a high-level course for students that love math and coding. It is particularly indicated for those that are considering graduate school.

Prerequisites

Official prerequisites are ECON-UB 1, STAT-UB 103, and Sophomore Standing. Knowledge of basic programming techniques.

Help

There may be times when you will need a little help. If this happens, I strongly encourage you to come to see me. If you email me, I’ll try my best to get back to you by the end of the day.
Course Materials

- Supplementary readings. I will assign readings drawn from blogs, general-interest publications, business press, and academic journals.
- Lecture notes. I will distribute them as the term progresses.

Coursework and Evaluation

- Class attendance and participation. Attendance is required. Your participation enhances both your and your classmates’ learning experience. You can participate both by asking some questions, and answering others.
- Homework. There will be 8 homework assignments, distributed uniformly during the semester. Each of them will consist of a problem set, whose solution will involve both math and programming. You are strongly encouraged to work in group. Solutions must be typed. Hand-written solutions will not be graded.
- Exams. Both exams will consist of in-class written tests. The midterm will be 75-minute long (1 hour and 15 minutes), while the final will be 3-hour long.
- Term project. The term project consists of a carrying out a short but self-contained research project. Most likely, it will consist of an extension to a problem tackled in class.

Your grade for the course will depend on your performance on the various deliverables, according to the following weighing scheme:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework (Top 6 out of 8)</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>35%</td>
</tr>
<tr>
<td>Term Project</td>
<td>30%</td>
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</tbody>
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If you are dissatisfied with your midterm, you can discard it ahead of the final. If you take this decision, which is irrevocable, your mark in the final will count for 60% of the total grade.
Honor Code

At Stern we believe that honesty and integrity are necessary for a rewarding educational experience. These qualities form the basis for the strong trust among members of the community (students, faculty, and administrators) that is essential for educational excellence. The Honor Code requires each student to act with integrity in all academic activities and to hold his or her peers to the same standard.

We also hold ourselves to a high standard of professional behavior. Accordingly, lateness, using pdas, holding private conversations, using your laptop for anything but note-taking, and indeed any behavior that disrupts me or your colleagues will be considered inappropriate. Repeated violations of this standard will affect your grade.

NYU Classes

By now you are probably familiar with NYU’s course management software. During the term, you will be able to use it to view all classes (I will post links to the streaming videos), download slides and readings, and send me anonymous feedback.

Disability

If you have a qualified disability and will require academic accommodation during this course, please contact the Moses Center for Students with Disabilities (CSD, 998–4980) and provide me with a letter from them verifying your registration and outlining the accommodations they recommend.

Feedback

Your feedback is very important to me. Your comments, suggestions, and critiques, on every aspect of the class, are welcome at any time during the term. You can address them to me in the form you prefer: in person, by email, or by snail mail. Finally, by clicking on the website’s button “Feedback,” you will be directed to a feedback form that allows you to send me your comments and suggestions in an anonymous fashion.
Outline

1. The spatial equilibrium within the city
   (a) The key idea of spatial equilibrium: People and firms must be happy where they are
   (b) The Alonso-Muth-Mills’ model: Implications for housing prices, density, and the location of rich and poor
   (c) The effects of transportation technology on location within the city

2. The spatial equilibrium across cities
   (a) The location of labor demand: The role of productivity
   (b) The production decisions of real estate developers: If a city is growing, in absence of regulation house prices must equal the value of delivering new homes. If a city is in decline, house prices may be lower than the cost of new houses.

3. Agglomeration economies
   (a) Agglomeration economies exist whenever an individual’s productivity rises when she is near to other individuals
   (b) Agglomeration economies may be pure externalities (e.g. learning from your neighbor) or work through the market (e.g. decline in transportation costs)

4. Urban distress
   (a) The causes of urban poverty
   (b) The causes and consequences of segregation
   (c) Crime, riots, and social interactions

5. Cities and public policies
   (a) Urban political economy: Local Vs. national redistribution
   (b) Local tax policy
   (c) Land use controls