

Fall, 2021, Lecture: TTH, 1:00-2:30, **9-354**, Recitation: Wednesday 5-6:30, **9-354**  
Instructor: Professor William Wheaton, E52-410 (Hours: Thursday 3-5), 253-1723,  
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## 11.433(15.021j): REAL ESTATE ECONOMICS

<https://learning-modules.mit.edu/class/index.html?uuid=/course/11/fa21/11.433#dashboard>

**Course Content.** This course applies the latest economic thinking and research to the task of analyzing real estate market fundamentals. The first 6 weeks are essentially microeconomic in nature: studying the operation of the perfectly product-differentiated urban land market and the location of different uses within cities. The second half of the course is more macroeconomic: examining the aggregate demand for housing as well as industrial, office, retail commercial space and the innate volatility of stock-flow markets with imperfect information and collateral constraints.

**Course Operation.** The course involves 25 live lectures. The lecture PPT's that are posted on Stellar Sunday evenings will be those presented that week in class. The lecture content represents a significant update and expansion of the text DiPasquale and Wheaton, Economics and Real Estate Markets (Prentice Hall, 1996). A full PDF of the text is on the stellar site as is a set of journal articles (listed below). All articles are *required* readings and can also be downloaded.

*ALL participants, including instructors, will be masked at all times while in 9-354.*

**Course Expectations.** Course participants will be expected to attend the live lectures. While in the lecture, all participants must have a name-card that is visible to the instructor – no exceptions. In addition to the 2 weekly lectures, and readings, the course involves 5 largely computer-based exercises (40% of grade). These can be done in groups, but each group member must submit a unique (aside from numbers) answer. There will be a closed-book midterm and final exam each of which will count 30% of the grade. The exams are 1½ hours and cover material in each half of the course.

**Recitation, Open Hours.** A recitation will be given each Wednesday, 5:00-6:30, conducted by Anne Kinsella Thompson. Professor Wheaton will hold *virtual* office hours from 3-5pm on Thursdays after class; URL will be forthcoming.

## COURSE OUTLINE

### I. Introduction (9/9, 9/14)

- A. The Real Estate Sector: Capital and Property markets
  - 1. Review of Economic concepts with 4 quadrant model
- B. Micro and Macro economic analysis
- C. **EXERCISE:** Comparative statics: understanding changes in real estate markets (9/9-9/16)

### II. Residential land markets: prices, transportation, land use (9/16, 9/21)

- A. Location and rents: spatial equilibrium
- B. Submarkets and land use segregation
- C. Urban growth, rents and prices

### III. Residential development (9/23, 9/28)

- A. The highest use for residential development
- B. Location, land use and density
- C. Transition between land uses (gentrification, redevelopment)
- D. **EXERCISE:** determining optimal housing FAR (9/23 – 9/30)

IV. Industrial Location (9/30)

- A. Historical development and changing technology
- B. Transportation and shipping costs
- C. Alternative land uses

V. Office location: Edge Cities, Urban Form (10/5, 10/7)

- A. The office space market and the Labor Market
- B. Theories of Multiple centered cities.
  1. Agglomeration and employment clustering
  2. The commercial Land Market

VI. Retail Location, Shopping Centers, E-commerce (10/12, 10/14,)

- A. Retail Travel patterns and the distribution of stores
- B. Pricing, spatial competition, internet competition
- C. Shopping centers, store clustering, agglomeration
- D. **EXERCISE:** What happened to malls. (10/12-10/17).

**MID-TERM EXAM (10/19, class time, on material in sections I-VI)**

VII. Regulating/managing Development: City Planning (10/21, 10/26)

- A. Public goods and "Neighborhood" effects.
- B. Internalizing external effects through government or private contracts.
- C. Congestion, transportation infrastructure, planning regional development.
- D. **EXERCISE:** evaluating the Washington D.C. Metro (11/2-11/9).

VIII. Local Government and land markets (10/28, 11/2)

- A. Property taxes, public expenditure and local services
- B. Community choice, competition, "capitalization",
- C. The fiscal incentives for land use regulation, income segregation

IX. Macro analysis of housing (11/4, 11/9, 11/16) (*no class on 11/11*)

- A. Housing units, households and tenure choice, demographic, economic influences
- B. Housing appreciation, mortgages and the cost of owning
- C. Moving, Vacancy and Sales: the demand for housing quality.
- D. Alternative sources of housing supply

X. Macro Analysis of non-residential property (11/18, 11/23, 11/30) (*no class 11/24*)

- A. The operation of non-residential Markets.
  1. Vacancy, absorption, market frictions

2. Leasing, term structures.
- B. Long term trends in space usage and demand.
- C. Stock flow theory and real estate cycles.
- D. **EXERCISE:** Developing alternative MSA apartment forecasts (11/30-12/9)

XI. Time Series Analysis of Real Estate Markets (12/2, 12/7)

- A. Asset pricing: expectations, information, "efficient markets". Cap rates
- B. The time-series properties of housing and commercial space markets.
- C. Alternative approaches to forecasting markets.

XII. Regional Growth and Real Estate Markets (12/9)

- A. The determinants of metropolitan growth
  1. Export demand and Industrial development
  2. Innovation, entrepreneurship
- B. A model analyzing impact of demand and supply shocks on real estate
- C. Mobility, economic equilibrium between cities: specialization, labor sorting.

**FINAL EXAM: (Week of 12/13, on material is sections VII-XII)**

### 11.433(15.021j) Reading List

#### I. Introduction, Real Estate micro, macroeconomics: DiPasquale and Wheaton, Chapters 1,2.

Wheaton, W. et. al., "100 years of Commercial Real Estate Prices in Manhattan", *Real Estate Economics* 37, 1 (2009), 69-84.

Fetter, D.K. "The 20<sup>th</sup> Century Increase in US Homeownership...", in *Housing and Mortgage Markets in Historical Perspectives*, U. Chicago Press (2014)

#### II. Residential Land Markets: DiPasquale and Wheaton, Chapter 3.

Saiz, Albert, "The geographic determinants of Housing Supply", *Quarterly Journal of Economics*, 125(3), (August 2010), 1253-1296.

Lee, N., Seslen, T, Wheaton, W, "Do house Price Levels Anticipate Subsequent Price Changes within MSA?", *Real Estate Economics*, 43, 3, (2015), 782-806.

Bernstein, M. Gustafson, R. Lewis "Disaster on the Horizon: The Price Effect of Sea Level Rise", *Journal of Financial Economics*, 134 (2019) 253-272.

Gupta, Nieuwerburgh, KontoKosta, "Take the Q Train: Value Capture in Public Infrastructure Projects", NBER, Columbia University WP, (July. 2020)

#### III. Residential Development: DiPasquale and Wheaton, Chapter 4.

Song, Y, and G-J Knapp, "New Urbanism and Housing Values...", *Journal of Urban Economics*, 54, 2, (2003), 218-238.

Rosenthal, Stuart and R. Helsley, "Redevelopment and the Urban Land Price Gradient", *Journal of Urban Economics*, 35,2 (1994) pp182-200.

Baum-Snow, N. "Did Highways cause Suburbanization?", *Quarterly Journal of Economics*, (2007), 122, 2, 775-805.

Danton, j. and A. Himbert, "Residential Vertical Rent Curves", *Journal of Urban Economics*, 107, (2018), 89-100.

#### IV. Industrial Location: DiPasquale and Wheaton, Chapter 5.

R. Wang "The Structure of Chinese Urban Land Prices," *Journal of Real Estate Finance and Economics*, 39, (2009), 24-38.

Buttimer, R., R. Rutherford, "Industrial Warehouse Rent Determinants in the Dallas/Ft. Worth Area", *Journal of Real Estate Research*, 13, 1, (1997), 47-56.

#### V. Office Location and Edge Cities: DiPasquale and Wheaton, Chapter 5.

Archer, Wayne, Marc Smith, "Explaining Location Patterns of Suburban Offices", *Real Estate Economics*, 31, 2, (2003)

Jennsen, M., D. Brouen, "The Effects of Clusters on Office Rents: Evidence from Amsterdam", *Real Estate Economics*, 37, 2, (2009), 185-208.

M. Garcia-Lopez, E., Viladecans-Marsal, "Next Train to the Polycentric City: The Effect of Railroads on Subcenter Formation", *Institute d'Economia*, xreap2016-06 , Barcelona (2016).

McMillen, D. and S. Smith, "The Number of Subcenters in Large Urban Areas", *Journal of Urban Economics*, 53, 3, (May, 2003), pp. 321-339.

Fallick, Fleischman, Rebitzer, "Job Hopping in Silicon Valley: Some Evidence Concerning the Micro foundations of a High Technology Cluster", *Review of Economics and Statistics*, 88, 3(2006), pp 472-481.

#### VI. Retail Development: DiPasquale and Wheaton, Chapter 6.

Wheaton, W, "Percentage Rent in Retail Leases: The Alignment of Landlord Tenant Interests", *Real Estate Economics*, 28,2 (2000), 185-204.

Einav, Knoepfle, Levin and Sundaresan, "Sales Taxes and Internet Commerce", *American Economic Review*, 104, 1 (January, 2014) 1-24.

Hausman, J. and E. Leibtag, "Consumer Benefits from Increased Competition in Shopping Outlets: Effects of Wal-Mart", *NBER Working Paper 11809*, (2005)

Bell, D., S. Gallino, A. Moreno, "Offline Showrooms in Omni-Channel Retail..." *Management Science*, 64,4 (2016)

#### VII. Regulating Development, Planning, Transportation: DiPasquale and Wheaton, Chapter 14.

Hans Koster, Jan Rouwendal, "The Impact of Mixed Land Use on Residential Property Values", *Journal of Regional Science* (2012). Vol. 52(5), pages 733-761.

Chetty, R. and N. Hendren, "The Impact of Neighborhoods on Intergenerational Mobility..." (2015), Harvard University and *NBER*.

Fesselmeyer, Seah, and Kwok, "The Effects of Localized Density on House Prices in Singapore" (2018), *Regional Science and Urban Economics*, 71,

Clark, W., Freedman, M. "The rise and effect of Homeowner Associations", *Journal of Urban Economics*, 112 (2019), 1-12.

Yang, Purevjav, Li (2020) "The Marginal Cost of Traffic Congestion and Road Pricing: Evidence from a Natural Experiment in Beijing", *American Economic Journal, Policy*, 12-1, 418-451.

VIII. Local Governments and Land Markets: DiPasquale and Wheaton, Chapter 13.

Davidoff, Thomas, "Income Sorting, Measurement and decomposition", *Journal of Urban Economics*, 58, 2, (September, 2005), pp 289-303.

Oates, Wallace, "Property Taxation and Local Public Spending: The Renter Effect", *Journal of Urban Economics*, 57, 3 (May,2005) 419-431.

Rolheiser, L. "Commercial Property Tax Incidence: Evidence from the Rental Market", *MIT Center for Real Estate*, (Cambridge), (June, 2017)

Fuest, Peichl, Siegloch, "Do Higher Corporate Taxes Reduce Wages? Micro Evidence from Germany", *American Economic Review*, 108 (2) (2018) 393-418

IX. Macro housing analysis: DiPasquale and Wheaton, Chapters 8,9,10.

Todd Sinai and N. Souleles "Owner Occupied Housing as a Hedge Against Rent Risk", *Quarterly Journal of Economics*, (May, 2005), 763-789.

S. Bourassa, M. Hoesli, "Why do the Swiss Rent?", *Journal of Real Estate Finance and Economics*, 40, (2010), 286-309.

Cosman, J., Quintero, L., "Market Concentration in Home Building", John' Hopkins Carey School Paper 18-18 (2018).

Z. Gao, M. Sockin, W. Xiong, "Economic Consequences of Housing Speculation", NBER Paper 26457 (November, 2019), 1-54, *Review of Financial Studies* (forthcoming).

Rappaport, J. "Millennials, Baby-Boomers, and rebounding Multifamily Home Construction", *Kansas City Federal Reserve*, (2015).

Rosenthal, S. "Are Private Markets and Filtering a Viable Source of Low Income Housing", *American Economic Review*, 104(2), (2014), 687-706.

X. Macro Analysis of Non-residential property: DiPasquale and Wheaton, Chapters 11,12.

J.Hakfoort and R. Lie, "Office Space per Worker: Evidence from Four European Cities", *Journal of Real Estate Research*, 11,2, (1996), pp183-197.

D. Zhao, T.F. Sing, "Corporate Real Estate Ownership and Productivity Uncertainty", *Real Estate Economics*, 44,2 (2016), pp521-547.

Bart J. Bronnenberg and Paul B. Ellickson, "Adolescence and the Path to Maturity in Global Retail", *Journal of Economic Perspectives*, 29, 4, Fall (2015)

Schwartz, E., W. Torous, "Commercial Office Space: Testing the Implications of Real Options Models with Competitive Interactions", *Real Estate Economics*, 36, 1, (Spring 2007), 1-20.

Wheaton, William "Real Estate Cycles: Some Fundamentals", *Real Estate Economics*, 27,2, (Summer 1999), 209-231.

Arscott, R. "Property Specific Factors and the Term Structure of Office Rents in Central London", *SSRN (3074862)* May 2019.

Adams-Prassl, Boneva, Golin, Rauh, "Work that can be done from Home: Evidence on Variation within and across Occupations and Industries", *IZA paper 13374* (June, 2020)

#### XI. Time Series Analysis of Real Estate Markets.

Wheaton, W., Evans, P, R.Torto, "The Cyclic Behavior of the London Office Market", *Journal of Real Estate Finance and Economics*, 15,1, (July 1997), 77-93.

Hendershott, P. B. MacGregor, M. White, "Explaining Commercial Rents Using an Error Correction Model", *Journal of Real Estate Finance and Economics*, 25, 1/2 (2002) 59-87.

Grenadier, S. "Local and National Determinants of Office Vacancies", *Journal of Urban Economics*, 37,1, (1995) 57-72

Harter-Drieman, M. "Drawing Inferences about Housing Supply Elasticity from House Price Responses to Income Shocks", *Journal of Urban Economics*, 55,2 (2004), 316-337.

#### XII. Regional Growth and Real Estate Markets: DiPasquale and Wheaton, Chapter 7.

Roback, J. "Wages, Rents and the Quality of Life." *Journal of Political Economy* (December 1982)

Glaeser, E. and J. Gyourko, "Urban Decline and Durable Housing", *Journal of Political Economy*, 113, 2, (2005) pp 345-375.

Figlio, David, and Bruce Blonigen, "The Effects of Foreign Direct Investment on Local Communities", *Journal of Urban Economics*, 48, 2 (2000) pp 338-363.

Ganong, P., D. Shoag, "Why has Regional Income Convergence in the US Declined?", *Journal of Urban Economics*, 102 (2017), 76-90