CERF Fellow Report

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Name: Thies Lindenthal

Faculty: Land Economy

E-Mail: htl24@cam.ac.uk

Research Title and Abstract:

Unique Assets, Quality Uncertainty and Noisy Prices

This projects estimates real estate asset uniqueness along previously not quantifiable dimensions, including shape, size, architecture, perceived beauty, maintenance or shape similarity. This richer picture of individual buildings and their comparability to other properties will improve any estimates of fundamental value. More interestingly, though, it will reveal distributions of transaction values in relation to fundamental value. Since uniqueness of the assets co-determines the availability of information from comparable sales, I hypothesise that uniqueness is also linked to the absolute deviations of sales prices from fundamental values: If little is know about fundamental value, then sales prices will contain more noise.

Research findings to Date:

The new research programme is ongoing and has produced one working paper:
https://www.lindenthal.eu/wp-content/uploads/2018/04/manuscript.pdf

Links to your research outputs:

- Working Paper https://www.lindenthal.eu/wp-content/uploads/2018/04/manuscript.pdf

Publications generated during the CERF fellowship(s)

- Lindenthal, T. "Beauty in the Eye of the Home-Owner: Aesthetic Zoning and Residential Property Values" (2017). *Real Estate Economics*.

- Lindenthal, T., Eichholtz P. and D. Geltner (2017). "Land Assembly in Amsterdam, 1832-2015". *Regional Science and Urban Economics*.

- Lindenthal, T. (2017). "Estimating Supply Elasticities for Residential Real Estate in the UK", in: Huang, B., Cao K. and E. Silva (Eds.) *Comprehensive Geographic Information Systems: Socio-economic applications*. Elsevier.

Seminars, conference presentations (since Aug. 2016)

- ASSA/American Real Estate and Urban Economics Association (AREUEA) Annual Meeting, Chicago (Jan. 2017). Presented research paper titled "Beauty in the Eye of the Home-Owner: Aesthetic Zoning and Residential Property Values"

Press releases and other academic activities

- I am co-organiser of the *Cambridge/NUS/Florida Real Estate Finance and Investment Symposium* which will be held at NUS Singapore on September 22/23. This symposium is linked to a special issue at the *Journal of Real Estate Finance and Economics*. I am an editor for this special issue.

Comments

Since the last report, I made good progress in several of my research projects. For instance, I successfully applied for and completed a "Centre for Digital Built Britain Mini Project" (£25,000)

- ◦ Project title and scope:

  Machine Learning and AI in the Built Environment

  This project will improve the foundations for applying tried-and-tested machine learning approaches to the built environment. It will reduce the cost of creating and deploying AI systems, facilitating new academic research on e.g. property markets and investments. A future version of the API could be commercialised in areas like mortgage origination, insurance claim processing or property tax (non-UK, though) estimation.