



UNIVERSITY OF
CAMBRIDGE

Real Estate
Research Centre

Annual Report 2024

Cambridge Real Estate Research Centre
Department of Land Economy



Introduction

The Cambridge Real Estate Research Centre (CRERC) coordinates and acts as a focus for applied research in real estate within the Department of Land Economy and across the University of Cambridge.

It has two principal aims: (i) to ensure that real estate research in the University is 'world class' and (ii) to raise the profile and impact of real estate research by members of the University in the wider academic, policy, and business communities.

The Centre works with other academic organisations, professional bodies, and industry partners to ensure that research is high quality, impactful, and industry-relevant.

Research on real estate within the Centre is broad-ranging and international in scope, focused on the key issues for industry and our partner organisations. Our current main areas of research activity relate to:

- analysis of real estate as an investment;
- the interaction of real asset and credit/capital markets and the wider economy;
- loan and mortgage finance;
- sustainability and environmental performance;
- digital and machine learning technologies and their use in real estate;
- behavioural influences in finance and decision-making processes.

The Centre is extremely grateful for the support, financial and otherwise, of partners and supporters including the [Cambridge Land Economy Advisory Board \(CLEAB\)](#).

This Annual Report gives an overview of the Centre's activities during 2024 and highlights key initiatives and priorities for the future.

Data and Resources

The Centre continues to act as a hub for the various data sources available on real estate for staff and students, and is actively engaged in discussions for new and improved data sources.

If this is something you are interested in, please email us at crerc@landecon.cam.ac.uk.

Looking Forward

The Centre aims to build on its strengths and successes as outlined in this report to enhance its position as a leading centre of rigorous and relevant research into real estate markets.

We will seek further funding and partnerships to help address important challenges for the industry and policymakers.

We will bring together researchers and practitioners to explore emerging issues in the market, new sources of data, and new analysis techniques.

As a hub for international research, we will bring researchers (both academic and professional) to Cambridge as visitors, as associate members of the Centre, and through conferences, seminars, and meetings.

We will continue to actively seek out high-quality doctoral students interested in undertaking research in our priority areas and are keen to find supporters to help us overcome funding constraints for these research students.

Our People

The Research Centre is led by Nick Mansley and Thies Lindenthal and brings together the wide-ranging interests and world-leading research expertise of a number of Department of Land Economy staff. The Centre is supported by two administrators: Megan Renouf, CRERC Coordinator, and Susie Hill, CRERC Assistant, who joined the team in April 2024.



Nick Mansley is the Executive Director of CRERC and Course Director for the MSt in Real Estate. He draws on extensive experience in investment management including as head of the global multi-manager business at Aviva Investors, responsible for c. \$20 billion of investments across all asset classes, as well as a long track record of applied economics and real estate research.



Prof Helen Bao is a Professor of Land Economy. Her research focuses on government policy and interventions that facilitate market operations and mitigate market failures in urban settings. She specialises in the application of behavioural insights and hedonic price modelling in land and housing markets.



Prof Franz Fuerst is Professor of Real Estate and Urban Economics. His research interests include 'green' real estate economics, financial analysis of sustainable investments, portfolio and risk management, real estate market forecasting, and spatial economics.



Dr Carolin Hoeltken is a Senior Teaching Associate in Real Estate, Economics, and Finance and a CU Land Society Fellow. Her research interests include housing economics, household finance, and economic and urban history, along with preferences, attitudes, and beliefs, such as risk aversion, and their impact on outcomes, particularly for women.



Dr Philip Kalikman is an Assistant Professor of Real Estate, Finance, and Economics. He researches mortgage default and prepayment, housing market dynamics, the effects of climate change, macro policy, financial crises, and structural, heterogeneous, computational, and AI/ML models.



Prof Thies Lindenthal is the Grosvenor Professor of Real Estate Finance, Co-Director of CRERC, and Course Director for the MPhil in Real Estate Finance. He works on real estate performance in the very long term and researches the impact of technology on the analysis and behaviour of property markets.



Prof Colin Lizieri is Emeritus Professor of Real Estate Finance, formerly Grosvenor Professor of Real Estate Finance. For over 40 years, he has advised international bodies, governments, professional bodies, and private organisations on real estate investment. He has published widely on real estate finance, investment risk management, and office market dynamics.



Dr Daniel Ruf is an Assistant Professor of Real Estate Economics and Finance. His primary research interests are in the field of real estate finance, focusing on housing as a financial asset class, commercial real estate, the interconnectedness of real estate markets, and spatial econometrics.



Dr Sofie Waltl is an Assistant Professor in Real Estate Economics and Finance. She is an applied economist interested in housing markets, economic measurement, and inequality research. Her work combines policy-relevant and causal empirical analysis with efforts to improve economic measurement and statistical methods.



Dr Zilong Wang is a Senior Research Associate. His research specialism is Finance and Risk. He also teaches quantitative methods for the MSt in Real Estate. Prior to undertaking his PhD, Zilong worked in investment banking as a financial analyst.

Research Themes and Priorities

1.0 Real Estate as an Investment

1.1 Long Run and Cycles

Real estate plays a major role in global wealth and the economy. Our research explores how real estate has performed as an investment over the long and very long run as well as the drivers and indicators of cycles and shorter term performance. The aim is to inform discussion in the industry about the realistic net returns in the asset class and help inform policymakers, including those responsible for financial stability.

1.2 Real Estate Investment in a Multi-Asset Context

This work explores the drivers of risk and return in real estate and how they differ from other asset classes. It explores some of the trends impacting on the real estate market in different sectors, notably the influence of technology and changes in working and consumption patterns. It also examines a number of approaches to identifying both known risk factors and uncertainties in investment and how to integrate real estate into multi-asset class frameworks.

1.3 Investment into Real Estate: Structures and Vehicles, Ownership Patterns, and Globalisation

It is increasingly recognised that real estate risk and return depend not only on the income and capital appreciation of the underlying assets, but also on the vehicles in which properties are held. This research explores how different characteristics of investment vehicles, their capital structures, and other features influence risk, performance, and the overall efficiency of real estate markets. It also explores changing ownership patterns and the impact of capital flows on market performance and values.

1.4 Non-Traditional Real Estate Investments

As real estate investment changes with greater lease flexibility and increased investment in residential and other non-traditional sectors such as life sciences and data centres, this research explores the risks and performance of these emerging investment sub-sectors and how these influence how real estate fits within wider investment portfolios.

2.0 Technology, Data, and Machine Learning

Sensors, imaging, and other new sources of data provide new sources of information for real estate analysis. This stream of work explores how new techniques and new sources of data can be used to identify characteristics and preferences that might influence attractiveness, demand, and ultimately pricing.

3.0 Sustainability, Resilience, Health, and Performance

The Centre researches sustainability and real estate markets at different scales—energy performance and environmental sustainability at building level and their link to value and return, complemented by broader perspectives on sustainability and urban resilience.

4.0 Locational Choice, Urban Development, and Regeneration

This research theme encompasses a range of issues related to how individual properties and developments perform, as well as the wider context for local economic performance including interaction with local economies, infrastructure, and policy.

5.0 Behavioural Economics, Perceptions, and Decision-Making

Decisions by private and institutional investors are influenced by beliefs, attitudes, and perceptions, many of which result in suboptimal or irrational decisions which are difficult to reconcile with standard finance and economic theory. This research area seeks to quantify the extent to which the aforementioned factors play into the decision-making process of various agents in housing, land, and capital markets and to find ways to improve these decisions.

“The primary aim of the Centre is to build and maintain a stream of applied real estate research that is innovative, interdisciplinary, and industry-relevant.”

6.0 Housing Finance

This research considers a range of issues in housing markets and housing finance including individual choices, factors that influence housing outcomes, and how policy interacts with housing markets.

PhD Research

In line with the Centre's stated goal of fostering excellence in the real estate research community, CRERC members supervise the research projects of number of PhD students. PhDs associated with the Centre in 2024 include:

Floris Blok. Alpine land and climate change: A Ricardian analysis.

Jonathan Breheney. Is heterogeneity relevant? Climate risks and forecasting stock returns across different country types.

Aviv Fonea. Exploring long-term discount rates: Evaluating ultra-long-term discount rates using different assets in different countries.

Xinyan Huang. ESG disclosure and access to finance: Insights from analysis of REITs.

Yu Jin. Climate risks, regional disparities, and residential property markets.

Lesedi Kgaka. (Energy) uncertainty and investment returns.

Yangfanqi Sonny Liu. Nudging people towards better housing decisions: The long-term effect of focalism interventions on households' travel patterns and social capital.

Xiaoqi Liu. Housing mobility: Influencing factors and economic implications.

Mengqi Qiu. Combining spatiotemporal models with machine learning methods for property valuation.

He Tony Tang. Political uncertainty in the real estate industry.

William Wells. Markers of behavioural biases in commercial real estate private equity.

Maige Zhao. Unravelling the dynamics: Return migration and its impact on housing prices in China.

The Centre offers its warm congratulations to the following students, all of whom completed their PhDs on real estate research topics during 2024:

Kahshin Leow. Spatial dependencies and their effects on real estate funds.

Qiumeng Li. The impact of the pandemic on the urban spatial structure and people's travel behaviour.

Katharina Minkow. How does technological infrastructure impact on rents, sales prices, and occupancy rates of office buildings in the UK?

Yiwen Qiu. Firm locations, industrial structures, and regional development paths from a dynamic perspective: A case study in China.



Our Research

A full list of our members' publications is contained in **Appendix 1**, with [working papers](#) available on our website. A few examples of our research on topics within our main research themes are set out below.

The strength and quality of the research produced by the Centre is consistent with our goal of being rated 'world class' in real estate research. The results of the 2021 Research Excellence Framework are a testament to this fact: 67% of the work in the Department of Land Economy's joint submission with the Department of Architecture was rated as 'world leading', the best in the UK in its field and ahead of the Cambridge average of 62%.

Real Estate as an Investment

The size and structure of the UK property market: End-2023

Nick Mansley and Zilong Wang

Investment Property Forum Research Programme

<https://www.ipf.org.uk/resourceLibrary/the-size---structure-of-the-uk-property-market-year-end-2023--march-2025--report.html>

Three years on from the last iteration, this publication provides an overview of the size and structure of the UK property market to the end of 2023, focussing on scale of the industry, what different types of investors own within it, and how this has changed over time. The report summarises the changes in value of commercial real estate stock by sector between 2000 and 2023, including capital and rental values, floorspace and reversionary yield. In addition, the size of UK residential stock is assessed. This edition of the report also includes a more in-depth look at the real estate ownership of the UK pensions market.

Sustainability, Resilience, Health, and Performance

Are green and healthy building labels counterproductive in emerging markets? An examination of office rental contracts in India

Anirban Banerjee, Prashant Das, and Franz Fuerst

Journal of Cleaner Production

<https://doi.org/10.1016/j.jclepro.2024.141838>

Financial prudence compels businesses to improve their Environmental, Social, and Governance (ESG) performance when the marginal benefits, pecuniary or non-pecuniary, exceed the marginal costs. For many firms, renting green offices is a feasible ESG activity which may increase their willingness to pay higher rents. Analyzing over 17,000 green rental contracts in India between 2010 and 2022, we find that rents in green-labeled assets and those with health certification command significant premiums between 4 and 21%. However, green rents increased much faster compared to their non-green counterparts, and the propensity to rent green varies significantly across industry segments. We further examine how the market for green offices evolved after a mandatory ESG Disclosure Requirement was enacted in India in 2021. We find that suppliers (landlords) benefited from the regulation by disproportionately increasing rental rates. Existing tenants and foreign firms ended up paying higher rental prices while most other firms, including the assumed target groups of the new policy, redirected their green commitment away from green buildings. Although the policy may yield more positive results in the longer run, a reduced propensity to rent green offices is the opposite of what the ESG Disclosure Requirement tried to achieve.


Multiple hazards and residential rents in Switzerland: Who pays the price of extreme natural events?

Floris J. Blok and Franz Fuerst

Ecological Economics

<https://doi.org/10.1016/j.ecolecon.2024.108485>

Natural hazard risk is captured in property prices through two principal channels: the risk to the building and the risk to its occupiers. These two effects are typically bundled up in transaction prices, thereby becoming individually unobservable. This study analyses residential rents as those should solely represent the risk to occupiers, who pay for their own losses in the case of a natural hazard event, but not for the owner's potential damage to the asset. Applying a hedonic framework to a sample of 18,339 dwellings across Switzerland, we examine the



relationship between residential rents and exposure to five different climate-related natural hazards, some of which have been hitherto understudied. Strong evidence of a small rental discount of 1.4% is found for dwellings that are subject to moderate flood hazard. Similar, albeit weaker, estimates are found for surface runoff hazard. Gravitational hazards including landslide, debris flow, and hillslope debris flow are not associated with significantly lower rents, possibly due to the small sample size. Our findings imply that not all natural hazard risk is reflected in the cost-side of the profit-equation in commercial residential real estate, but partly manifests itself in the form of reduced income, which is often less apparent.

Locational Choice, Urban Development, and Regeneration

Land-use efficiency and local government revenue: Evidence from 272 Chinese cities using a novel structural equation modelling approach

Tianyuan Wang, Li Wan, and Helen X. H. Bao
Environment and Planning B: Urban Analytics and City Science

<https://doi.org/10.1177/23998083241272092>

The unprecedented urbanisation observed in leading developing countries has placed immense pressure on effective and efficient land management. The significance of land-use efficiency in the Chinese context has been addressed in the literature, particularly on the measurements of land-use efficiency and key influencing factors. However, quantifying the interdependence between land-use efficiency, local government revenue, employment and infrastructure development whilst controlling for significant cross-city differences remains a gap in the literature. Based on data for 272 prefecture-level Chinese cities between 2012 and 2017, this study employs a novel modelling approach, combining latent class analysis (LCA) in a generalised structural equation model. The incorporation of LCA helps to control for the significant, non-linear heterogeneity across city samples. The empirical model identifies both the direct (one-off land conveyance fee and transaction-related tax revenue from land transactions) and indirect (corporate and personal taxes generated from employment and business

growth) channels, through which land development contributes to local government revenue. It also provides one of the first quantified evidence, confirming that employment growth provides higher long-term return than a one-off, land conveyance fee to government revenue in China, controlling for significant cross-city heterogeneity in land-use efficiency and wage.

Unpacking the effects of rural homestead development rights reform on rural revitalization in China

Qianyu Zhao, Helen X. H. Bao, and Shurong Yao
Journal of Rural Studies

<https://doi.org/10.1016/j.jrurstud.2024.103265>

Rural homestead development rights (RHDR) reform is considered a pivotal tool for promoting rural revitalization in China. Thus, identifying the impact of RHDR reform on rural revitalization is crucial for comprehensively understanding the ongoing rural homestead system reform in China. We propose a unified theoretical framework to unpack the effectiveness of RHDR reform by contracting the effects of two approaches, i.e., the collective-oriented and the household-oriented strategies. Our theoretical analysis suggests that the two approaches affect rural revitalization differently through five channels, and the overall effects are stronger for the collective-oriented approach. Based on an unbalanced multi-period panel dataset from 2006 to 2018, we develop a comprehensive index system to measure rural revitalization. We then use propensity score matching combined with a difference-in-differences model and a two-way fixed effects model to identify the net effect of RHDR reform on rural revitalization. The baseline empirical results show that the rural revitalization performance of the treatment group with the RHDR reform is significantly higher, on average, than that of the control group. Further impact heterogeneity analysis shows that collective-oriented RHDR reform has a stronger impact than household-oriented RHDR reform on promoting rural revitalization. The findings not only underpin the significance of further conducting rural homestead system reform to comprehensively promote revitalization in China, but also provide a reference for the validity of the rural community as an effective organizational subject to reuse land resources intensively in a developing economy with an imperfect rural land market.

Behavioural Economics, Perceptions, and Decision-Making

Is hiding my first name enough? Using behavioural interventions to mitigate racial and gender discrimination in the rental housing market

Helen X. H. Bao

Urban Studies

<https://doi.org/10.1177/00420980241231712>

This study investigates whether behavioural interventions can reduce racial and gender discrimination in the rental housing market. In our correspondence tests, we incorporated two specific behavioural interventions: providing employment details to assist letting agents in overcoming statistical discrimination and incorporating anti-discrimination messages to encourage adherence to the 'Equality, Diversity and Inclusion' social norm. Although these strategies notably influenced the likelihood of prospective renters receiving responses to their housing inquiries, the outcomes were not consistent across genders or ethnic groups and were not always positive. Racial and gender discrimination in housing markets is a complex issue. There are no 'one-size-fits-all' solutions when using behavioural tools to address complex social problems such as racial and gender discrimination. Behavioural interventions demand rigorous field testing prior to widespread adoption.

Social capital and the effectiveness of land use policies: Evidence from rural China

Helen X. H. Bao, Yan Jiang, Ziyu Wang, and Lei Feng

Land Use Policy

<https://doi.org/10.1016/j.landusepol.2024.107069>

This paper investigates how three forms of social capital, namely, social norms, social network and trust, influences the effectiveness of land use policies. Both long- and short-term policy outcomes are considered in the proposed analytical framework. Benefiting from a comprehensive household survey dataset covering 17 provinces in China, we adopt multiple measurements for each social capital form and policy outcome in our empirical investigation. We use a specific rural land use policy (i.e. reform to confirm, register and certify rural land rights) as a natural experiment to estimate the effect of

social capital. By revealing the complex relationships amongst various forms of social capital and a wide range of policy outcome measurements, our empirical findings confirm the validity, reliability and tractability of the proposed analytical framework. Policy implications are also derived regarding how to utilise social capital to improve the effectiveness of land use policies.

Real Estate Insight: Individuals, beliefs and decision-making in commercial real estate markets: Some reflections from the past

Colin Lizieri

Journal of Property Investment & Finance

<https://doi.org/10.1108/JPIF-12-2023-0108>

The aim of this Real Estate Insight is to comment upon commercial real estate research. Much of the current research on commercial real estate sits in academic silos, constrained by disciplinary boundaries and rejecting insights from other areas. This can lead to an impoverished understanding of the processes and practices that drive market behaviour. This Real Estate Insight, through the lens of history, draws on insights from a century earlier and, in particular, from the work of Frank Ramsey; the paper argues that market behaviour is shaped by the role of key actors and persistent beliefs which need to be accounted for in our models of market practice. The paper argues that current research paradigms need to accommodate agency explicitly into existing models and that real estate research will benefit immensely if researchers were more open in seeking ideas from outside the real estate field and to be more open to external ideas and concepts.

Housing Finance

Objective housing sales and rent prices in representative household surveys: Implications for wealth, inequality, housing market, and affordability statistics

M. Denisa Naidin, Sofie R. Waltl, and Michael H. Ziegelmeyer

Review of Income and Wealth

<https://doi.org/10.1111/roiw.12692>

Many economic analyses require hypothetical but realistic sales and rent prices for properties representative of the housing stock and reflecting current market conditions. To achieve this, we replace subjectively reported prices in a representative household survey in Luxembourg with objectified



“Our goal is to publish research that responds to the expanding national and international research agenda in real estate and bridges the gap between academic theory and commercial practice in the sector.”

hedonic imputations informed by observable market data. Thus, we propose a powerful tool for assessing the health and affordability of housing markets, compiling housing-related statistics and simulating hypothetical scenarios. This approach also enables us to test for the reliability of survey responses. When switching to objectified values, we detect shifts in the wealth distribution, large regional variation in market indicators, and striking affordability concerns: only 18 percent of Luxembourg’s renters could theoretically afford to purchase their inhabited dwellings given current market conditions. Further, participants’ tendency to mis-estimate market values strongly correlates with tenure length and type, dwelling type, income, and wealth.

House purchase restriction and stock market participation: Unveiling the role of nonpecuniary consideration

Yezhou Sha, Zilong Wang, and Zichao Yin

Journal of Economic Behavior & Organization

<https://doi.org/10.1016/j.jebo.2024.06.012>

This study investigates how house purchase restriction (HPR) affects stock market participation among households in China. Using a staggered difference-in-differences (DID), we observe a decrease in household stock market participation following the adoption of the HPR policy in a city. HPR decreases stock market participation by 1.72 percentage points and households’ net equity purchase and equity to total wealth ratio by 17% and 0.2 percentage points, respectively. These findings suggest that house and stock investments cannot substitute each other. Furthermore, our analysis reveals that the negative effect of HPR is not driven by pecuniary consideration (house price and income risks) but rather by nonpecuniary consideration (risk aversion). Although the HPR policy is designed to curb the surge in local house prices, it reduces households’ demand for equity investing, which creates a negative externality on the financial market.

Research Projects

New and Ongoing Collaborations

Micro-foundation of China's Rural Land Institutional Changes: Construction and Tests of Dynamic Models

Duration: January 2022–December 2025

Funding Body: National Natural Science Foundation of China

Principal Investigator: Prof Lei Feng (Renmin University of China)

Co-Investigator: Prof Helen X. H. Bao (CRERC)

Budget: RMB 480,000 (approx. £55,600)

This study constructs a dynamic institutional change model from the perspective of micro-motivation and endogenous changes. It examines the path characteristics, determining conditions, and influencing factors of China's rural land institutional change by using a combination of theoretical modelling, measurement testing, questionnaire survey, simulation, and case analysis methods.

1. Based on endogenous institutional change theory, behavioural economics, learning theory, and game theory, we construct individual utility function that include endogenous preferences in order to investigate the micro-mechanism of dynamic modelling and consolidate the micro-foundation of institutional change theory.
2. We build a mathematical model of dynamic change based on the individual's utility function and integrate short-term change and long-term evolution into a unified analysis framework, moving beyond the dichotomy of imposed-induced/rational construction-spontaneous evolution. This framework is expected to explain both individual institutional changes and the continuous process of multiple institutional changes, both the success and the failure of reform.
3. To conduct a large number of extensive empirical tests and systematically summarise and analyse the experience and lessons of the rural land institutional reforms since the founding of the China, we plan to combine traditional questionnaire survey-quantitative methods with behavioural economics field experiments, computer simulations, and dynamic tracking survey methods. These works help to explore the commonalities and laws and provide theoretical guidance and empirical support for deepening the

implementation of a number of central reforms and promoting the integration of urban and rural development.

Local Effects of a Pandemic: A Holistic Assessment of the Austrian Residential Housing Market

Duration: March 2022–February 2025

Funding Body: OeNB Anniversary Fund (Grant 18767)

Principal Investigator: Dr Sofie R. Walzl (CRERC)

Co-Investigators: Dr Sanela Omerovic and Anja M. Hahn (Vienna University of Economics and Business)

Budget: EUR 248,000

The LocHouse project proposes a comprehensive framework for monitoring and causally identifying disruptions in the Austrian housing market in the context of the COVID-19 pandemic. Therefore, we exploit a comprehensive micro-data source on real estate transactions and rent adverts. These data supplemented by a variety of COVID-19-related measures inform pan-Austrian hierarchical regression models fit for identifying direct and indirect effect over various phases of the COVID-19 pandemic. These models are further made use of to identify segment-specific disruptions and predict effects under future counterfactual housing market scenarios.



An Early Warning System for the Commercial Real Estate Market

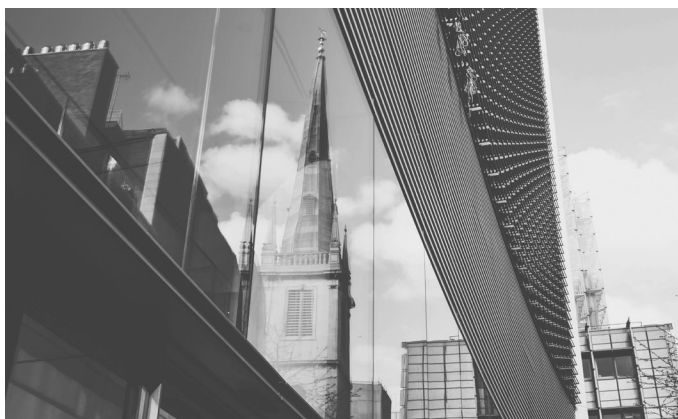
Duration: June 2023–June 2024

Funding Body: Investment Property Forum Research Programme Grant Scheme 2023

Principal Investigators: Prof Colin Lizieri, Nick Mansley, and Dr Zilong Wang (CRERC)

Budget: £18,000

This research takes earlier work on fundamentals and real estate values and incorporates measures of sentiment to give a better indication of whether real estate is potentially substantially over- or under-valued. The research should be of interest across the industry and to policymakers as well as to academics as it develops a more robust indicator of when real estate is over-valued and prices may fall substantially.



Characteristic Analysis, Effect Measurement, and Governance Optimization of the Operation-Oriented Transfer of Rural Homesteads in Typical Reform Pilot Areas

Duration: January 2024–December 2027

Funding Body: National Natural Science Foundation of China, Sichuan University

Principal Investigator: Dr Qianyu Zhao (Sichuan University, China)

Co-Investigator: Prof Helen X. H. Bao (CRERC)

Budget: CNY 632,000 (approx. £71,200)

The project examines the unresolved challenges of rural homestead land transfer in China's reform pilot programs. It shifts the research focus from whether transfer is possible to the new issues arising from innovative transfer practices. Using qualitative and quantitative data from pilot areas—such as interviews, surveys, and web-scraped information—the study applies Empirical Mode Decomposition, Kernel Density Analysis, and Social Network Analysis to analyse the temporal, spatial, functional, and network characteristics of land transfers. Additionally, it employs Propensity Score Matching and Difference-in-Differences models to assess their effects on farmers' welfare and village revitalization. The findings will inform policy recommendations to improve governance by formalizing rules in response to emerging challenges.

Reconciling the Predictability of Returns from Commercial Real Estate Yields

Duration: November 2024–September 2025

Funding Body: Investment Property Forum

Principal Investigators: Prof Colin Lizieri, Nick Mansley, and Dr Zilong Wang (CRERC)

Conventional financial wisdom suggests that yields (cap rates) should predict ex-post returns. However, empirical evidence reveals inconsistencies in this predictability. Thus, this study focuses on answering the following questions: Why is it so difficult to forecast returns using yields? What is the source of forecast instability? What is driving the difference between in-sample and out-of-sample performance?

Subjective Expectations in Commercial Real Estate

Duration: November 2024–March 2026

Funding Body: Keynes Fund for Applied Economics, Faculty of Economics, University of Cambridge

Principal Investigator: Dr Zilong Wang (CRERC)

Co-Investigators: Prof Colin Lizieri and Nick Mansley (CRERC)

This study investigates the drivers of commercial real estate (CRE) price variation. Observed fluctuations in CRE prices should reflect changes in future rents, discount rates, or both. In other words, the willingness to pay for the property depends on investors' expectations about future rents and discount rates. A central question in asset pricing is determining the relative contribution of each pricing component to the observed variations in property prices. The traditional approach to this problem assumes rational expectations. However, rational expectation is a strong assumption. In this study, we contribute to the literature by examining the role of subjective expectations in explaining CRE price fluctuations.



Industry and Public Bodies

Members of the Centre continue to play leading roles supporting industry and other public and academic bodies. Key responsibilities are outlined below.

Helen Bao is an Associate Editor of *Cities*.

Franz Fuerst advises businesses and government authorities on matters relating to real estate and co-edits *Spatial Economic Analysis*.

Carolyn Hoeltken chaired the organising committee of AREUEA International 2023 in Cambridge and is AREUEA's Social Media Chair. She has also served on the scientific committee for several academic conferences.

Philip Kalikman has served as an adviser to fintech startups, venture capital firms, and a hedge fund, and as an expert witness in real estate matters.

Thies Lindenthal is a J M Keynes Fellow and has served as a board member for AREUEA and as an expert witness for US courts on matters relating to internet domain names.

Colin Lizieri is a Fellow of the Society of Property Researchers, the Royal Institution of Chartered Surveyors, and the Royal Geographical Society, and a Member of the Investment Property Forum. He serves on the committee of the A to B1102 local travel advocacy group. In July 2024, he and Nick Mansley delivered a sector strategy seminar for the Department of Business & Trade in London.

Nick Mansley recently concluded his eight-year tenure as Chair of the Lord Chancellor's Strategic Investment Board at the Ministry of Justice and continues as Industry Adviser to the Official Solicitor and Public Trustee. He serves as investment adviser to a major UK pension scheme, is a member of the investment committee of the Forestry Carbon Sequestration Fund, and sits on the investment committee of a fund investing in high street retail. He is also the independent investment committee member of a fund investing in private market rented housing for local authority pension funds and the independent investment committee member of the Principal Eurozone Durable Income Fund, which invests in longer-lease real estate in Europe.

Daniel Ruf is a reviewer for journals such as *Real Estate Economics* and *The Journal of Banking & Finance*.

Zilong Wang is an Associate Editor of *Economic Analysis & Policy*.



Conferences and Events

Throughout 2024, Centre members played an active role in chairing, presenting, and discussing research at a wide range of conferences and events attended by academics and industry professionals in Cambridge and around the world. Three highlights are set out below.

Cambridge Real Estate Research Club 2024

13 March 2024

We hosted our usual annual event bringing together practitioners and academics to present real estate research and discuss key topical issues in the sector. This included sessions on:

- Interest rates and their impact on property markets;
- Office markets, the best and the rest: exploring performance disparities across office assets and identifying the characteristics that make buildings attractive to both occupiers and investors;
- New data and measures in property research;
- Biases and decision-making.

The event provided a valuable platform for exchanging ideas, sharing evidence-based insights, and fostering collaboration across academia and industry.

Third Workshop on Residential Housing Markets: A Market in Distress and Potential Solutions

26–27 June 2024

Hosted by the Vienna University of Economics and Business in collaboration with the Department of Land Economy, this workshop explored how different housing policy regimes have shaped the resilience of housing markets during recent crises.

From a macro perspective, participants examined whether and why certain policy frameworks contribute to greater market stability, and discussed the lessons that can be drawn to better prepare for future crises while, on a micro level, the discussions focused on how societal divides have evolved—whether traditional distinctions such as tenure status, socioeconomic background, and access to urban centers still hold, or whether new factors have emerged as more influential.

Organised by Dr Sofie Walzl, the workshop featured contributions from a number of CRERC members, including Dr Daniel Ruf and Professor Thies Lindenthal. Professor Helen Bao delivered the keynote, 'Using Behavioural Interventions to Mitigate Discrimination in the Rental Housing Market'.

Real Estate Finance and Investment Symposium 2024

5–7 September 2024

In September, the Centre was delighted to take its turn hosting the annual Real Estate Finance and Investment Symposium, delivered in partnership with the University of Hong Kong and the University of Florida's Bergstrom Real Estate Centre.

The event brought together global experts to discuss cutting-edge research on real estate finance and investment. The programme featured a diverse array of ten research papers, each exploring critical themes in real estate markets, policy, and investment:

- REIT Equity Financing and Capital Investment in the Presence of the Central Bank Put – Takahiro Hattori and Jiro Yoshida
- Persistently Poor Performance in Private Equity Real Estate – Da Li and Timothy Riddiough
- Measuring and Mitigating Racial Bias in Large Language Model Mortgage Underwriting – Donald Bowen, S. McKay Price, Luke Stein, and Ke Yang
- Individual Landlords in the Mortgage Market – Joao Cocco, S. Lakshmi Naaraayanan, and Jagdish Tripathy
- Investors in Housing Markets: Comparing Two Booms – Carlos Garriga, Pedro Gete, and Athena Tsouderou
- Housing-Consumption Channel of Mortgage Demand – Gabriel Ahlfeldt, Nikodem Szumilo, and Jagdish Tripathy
- Sentiment Adjusted Equilibrium Valuation and Predictability of Prices of Commercial Real Estate – Colin Lizieri, Nick Mansley, and Zilong Wang
- Picking Up the PACE: Loans for Residential Climate-Proofing – Aymeric Bellon, Cameron LaPoint, Francesco Mazzola, and Guosong Xu
- Discrimination During Eviction Moratoria – Alina Arefeva, Kay Jowers, Qihui Hu, and Christopher Timmins
- Do Supply Constraints Differentiate How Much Housing Price Drops in Crises? – Ren Ren and Kelvin Wong

With its emphasis on longer, more in-depth paper presentations, the symposium encouraged rich discussion between presenters, assigned discussants, and other participants. As organiser Professor Thies Lindenthal remarked, the event paid testament to the fact that 'research thrives in a collaborative spirit'.

Postgraduate Courses

MSt in Real Estate

Since 2016, the Centre has played a leading role in the development and delivery of part-time Master's programmes at the University of Cambridge through its Master of Studies (MSt) in Real Estate.

The programme draws on the Department of Land Economy's interdisciplinary strengths and the diverse expertise of CRERC members. Tailored for experienced professionals and future leaders in the real estate sector, the part-time structure of the MSt enables participants to continue pursuing their careers while undertaking rigorous academic study.

The course combines strong academic foundations with significant industry engagement, equipping students with a broad understanding of the real estate landscape, insight into long-term market trends and strategic challenges, and a comprehensive set of analytical, technical, and research skills, preparing them to lead and innovate within the sector.

In April 2024, the 2022–24 MSt cohort attended their fifth and final residential, a field trip to New York City. The five-day programme included talks, presentations, and site tours delivered by industry leaders with experience and expertise in global real estate, real estate leadership, the New York real estate market, affordable housing, the future of offices, retail, and residential investing in the US, proptech, and private debt. Next for this cohort was the final dissertation deadline in July and their graduation ceremony in November. We're proud of everything they achieved during their two years as MSt students and wish them all the best for the future.

The 2023–25 MSt cohort attended three residential sessions in Cambridge during 2024. In March, they studied private real estate, investment funds, and global capital flows as part of their REM3 module. July's sessions focused on real estate securities (REM5) and development (REM6), with field trips to explore urban development sites in Birmingham and London. During the December residential, students presented and received feedback on their dissertation projects, conducted further site visits, and heard from a range of industry experts. Now the focus turns to their final dissertation submission in July 2025.

In September, we welcomed our new 2024–26 cohort to the programme. They successfully completed their





first two modules, REM1 (Real Estate as an Asset Class) and REM2 (Research Methods), and are set to return in 2025 for the next series of residential sessions. We look forward to supporting them as they continue their journey through the programme.

MPhil in Real Estate Finance

The MPhil in Real Estate Finance is an intensive, one-year full-time programme designed to deliver a comprehensive blend of theoretical and practical instruction across finance, investment, economics, and law as they pertain to global commercial property markets.

The course equips students with the analytical tools and methodologies required for commercial property finance, investment, and development. A key objective is to ensure that graduates can effectively engage with professionals across the broader corporate finance landscape and, to support this, the programme places strong emphasis on contemporary topics such as mixed-asset portfolio analysis, risk management, financial engineering, and option-based valuation techniques.

In 2024, the programme's classroom-based learning was complemented by field trips to London's Oxford Street and Barcelona.

The MPhil in Real Estate Finance continues to thrive, with 55 students enrolled in the 2023–24 academic year and 64 joining the 2024–25 cohort. We extend our congratulations to all those who graduated this year and wish them every success in their professional journeys.

2024 Prizes and Awards

Alistair Ross Goobey Prize for Best Overall Performance in the MPhil in Real Estate Finance

Anno Kaspar Friedrich Von Heimburg (2023–24)

Douglas Blausten Prize for Best Overall Performance in an MPhil in Real Estate Finance Dissertation

Anno Kaspar Friedrich Von Heimburg (2023–24)

Investment Property Forum Dissertation Prizes

Dara Bahour, MSt in Real Estate 2022–24:
Disentangling the Transmission Channels of US Monetary Policy in the UK: The Role of Real Estate

Anno Kaspar Friedrich Von Heimburg, MPhil in Real Estate Finance 2023–24: *The Dynamics of Volatility Spillovers: Re-evaluating Risk in Real Estate Portfolios*

Appendix 1

2024 Publications

- Akhtyrska, Y., & Fuerst, F. (2024). The effectiveness of climate change regulations in the commercial real estate market. *Energy Policy*. 185, Article 113916. <https://doi.org/10.1016/j.enpol.2023.113916>
- Allen, D., Satchell, S., & Lizieri, C. (2024). Quantifying the non-Gaussian gain. *Journal of Asset Management*. 25(1), 1–18. <http://dx.doi.org/10.1057/s41260-023-00338-9>
- Anderson, J. T., Fuerst, F., Peiser, R. B., & Seiler, M. J. (2024). iBuyer's use of PropTech to make large-scale cash offers. *Journal of Real Estate Research*. 46(1), 114–135. <https://doi.org/10.1080/08965803.2023.2214467>
- Bai, Y., Benerji, S., Wang, Z., & Zhang, W. (2024). Can participation in IMF programs facilitate sovereign debt rescheduling? The role of program size. *Journal of International Money and Finance*. 144, Article 103079. <https://doi.org/10.1016/j.jimonfin.2024.103079>
- Banerjee, A., Das, P., & Fuerst, F. (2024). Are green and healthy building labels counterproductive in emerging markets? An examination of office rental contracts in India. *Journal of Cleaner Production*. 455, Article 141838. <https://doi.org/10.1016/j.jclepro.2024.141838>
- Bao, H. X. H. (2024). Between carrots and sticks, from intentions to actions: Behavioural interventions for housing decisions. *Housing, Theory and Society*. 41(3), 292–317. <https://doi.org/10.1080/14036096.2023.2267060>
- Bao, H. X. H. (2024). Is hiding my first name enough? Using behavioural interventions to mitigate racial and gender discrimination in the rental housing market. *Urban Studies*. 61(11), 2156–2175. <https://doi.org/10.1177/00420980241231712>
- Bao, H. X. H., Jiang, Y., Wang, Z., & Fang, L. (2024). Social capital and the effectiveness of land use policies: Evidence from rural China. *Land Use Policy*. 139, Article 107069. <https://doi.org/10.1016/j.landusepol.2024.107069>
- Bao, H. X. H., & Lizieri, C. (2024). Behavioural finance and the housing market. In K. Gibb, C. Leishman, A. Marsh, G. Meen, R. Ong Viforj, & C. Watkins (Eds.), *The Routledge Handbook of Housing Economics* (pp. 190–204). Routledge.
- Bao, H. X. H., Wang, Z., & Wu, R. L. (2024). Understanding local government debt financing of infrastructure projects in China: Evidence based on accounting data from local government financing vehicles. *Land Use Policy*. 136, Article 106964. <https://doi.org/10.1016/j.landusepol.2023.106964>
- Blok, F. J., & Fuerst, F. (2024). Multiple hazards and residential rents in Switzerland: Who pays the price of extreme natural events? *Ecological Economics*. Advance online publication. <https://doi.org/10.1016/j.ecolecon.2024.108485>
- Chen, S., Quinton, M., Alharbi, A., Bao, H. X. H., Bell, B., Carter, B., Duignan, M. B., Heyes, A., Kaplanidou, K., Karamani, M., Kennelly, J., Kokolakis, T., Lee, M., Liang, X., Maharaj, B., Mair, J., Smith, A., van Blerk, L., & van Zanten, J. V. (2024). Propositions and recommendations for enhancing the legacies of major sporting events for disadvantaged communities and individuals. *Event Management*. 28(8), 1243–1254. <https://doi.org/10.3727/152599524X17077053867647>
- Fratesi, U., Abreu, M., Bond-Smith, S., Corrado, L., Ditzen, J., Felsenstein, D., Franklin, R. S., Fuerst, F., Monastiriotis, V., Piras, G., Quatraro, F., Ravazzolo, F., Tranos, E., Tsiotas, D., & Yu, J. (2024). Location and spatial specificities: contributions from spatial economics. *Spatial Economic Analysis*. 19(4), 521–526. <https://doi.org/10.1080/17421772.2024.2430906>
- Fratesi, U., Elhorst, P., Abreu, M., Amaral, P., Bond-Smith, S., Corrado, L., Ditzen, J., Felsenstein, D., Franklin, R. S., Fuerst, F., Monastiriotis, V., Piras, G., Quatraro, F., Ravazzolo, F., Tranos, E., Tsiotas, D., & Yu, J. (2024). The inextricable nature of space and economy. *Spatial Economic Analysis*. 19(2), 107–114. <https://doi.org/10.1080/17421772.2024.2352306>
- Hahn, A. M., Kholodilin, K. A., Walzl, S. R., & Fongoni, M. (2024). Forward to the past: Short-term effects of the rent freeze in Berlin. *Management Science*. 70(3), 1901–1923. <https://doi.org/10.1287/mnsc.2023.4775>
- Hoesli, M., Lindenthal, T., Ling, D. C., & Ooi, J. (2024). Editorial: 2020 Real Estate Finance & Investment Symposium. *Journal of Real Estate Finance and Economics*. 68, 577–580. <https://doi.org/10.1007/s11146-024-09989-w>
- Li, Q., Zhang, E., Fuerst, F., & Luca, D. (2024). The travel pattern difference in dockless micro-mobility: Shared e-bikes versus shared bikes. *Transportation Research Part D: Transport and Environment*. 130, Article 104179. <https://doi.org/10.1016/j.trd.2024.104179>
- Li, Q., Luca, D., Fuerst, F., & Wei, Z. (2024). Success in tandem? The impact of the introduction of e-bike sharing on bike sharing usage. *Research in Transportation Economics*. 107, Article 101476. <https://doi.org/10.1016/j.retrec.2024.101476>

Lizieri, C. (2024). Real Estate Insight: Individuals, beliefs and decision-making in commercial real estate markets: some reflections from the past. *Journal of Property Investment and Finance*. 42(1), 120–130. <https://doi.org/10.1108/JPIF-12-2023-0108>

Mansley, N., & Wang, Z. (2024). The size and structure of the UK property market: End-2023 update. *Investment Property Forum Research Programme*. Advance preview. <https://www.ipf.org.uk/resourceLibrary/the-size---structure-of-the-uk-property-market-year-end-2023--march-2025--report.html>

Naidin, M. D., Waltl, S. R., & Ziegelmeier, M. H. (2024). Objective housing sales and rent prices in representative household surveys: Implications for wealth, inequality, housing market, and affordability statistics. *Review of Income and Wealth*. Advance online publication. <https://doi.org/10.1111/roiw.12692>

Sha, Y., Wang, Z., & Yin, Z. (2024). House purchase restriction and stock market participation: Unveiling the role of nonpecuniary consideration. *Journal of Economic Behavior and Organization*. 224, 390–406. <https://doi.org/10.1016/j.jebo.2024.06.012>

Tang, T. H., & Bao, H. X. H. (2024). Political uncertainty and carbon emission trading: Evidence from China. *Cities*. 145, Article 104713. <https://doi.org/10.1016/j.cities.2023.104713>

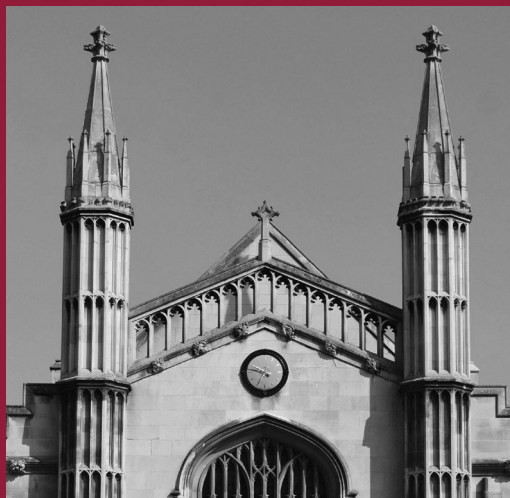
Wang, T., Wan, L., & Bao, H. X. H. (2024). Land-use efficiency and local government revenue: Evidence from 272 Chinese cities using a novel structural equation modelling approach. *Environment and Planning B: Urban Analytics and City Science*. Advance online publication. <https://doi.org/10.1177/23998083241272092>

Zhao, Q., Bao, H. X. H., & Yao, S. (2024). Unpacking the effects of rural homestead development rights reform on rural revitalization in China. *Journal of Rural Studies*. 108, Article 103265. <https://doi.org/10.1016/j.jrurstud.2024.103265>

Zhu, B., & Lizieri, C. (2024). Local beta: Has local real estate market risk been priced in REIT returns? *Journal of Real Estate Finance and Economics*. 69, 682–718. <http://dx.doi.org/10.1007/s11146-022-09890-4>

Zhu, B., van Dijk, D., & Lizieri, C. (2024). Price diffusion across international private commercial real estate markets. *Journal of International Money and Finance*. 140, Article 102976. <http://dx.doi.org/10.1016/j.jimonfin.2023.102976>





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