

Multifamily Rental Housing and Naturally Occurring Affordability - The Investor Perspective

Meagan McCollum

Baruch College, City University of New York

Stanimira Milcheva

University College London

Motivation I

- Unaffordable housing is one of the main obstacles to productivity growth in urban areas across the world as urban areas are losing affordable housing faster than new housing can be developed.
- Despite the existence of many national and local government programs that provide housing subsidies, the largest proportion of affordable housing can be classified as naturally occurring affordable housing (NOAH)
- “NOAH refers to residential rental properties that are affordable, but are unsubsidized by any federal program. Their rents are relatively low compared to the regional housing market.” –*Noah Impact Fund homepage*

Motivation II

- Private rental accommodation in the U.S. has mostly been supplied through multifamily rental housing (i.e. apartment buildings) by institutional investors
- However, many naturally affordable rental developments are being converted to higher-market rents
 - This is a particular program in metro areas where there are many restrictions to new construction
- Therefore, it is important to explore to what extent investors perceive investment in affordable housing as viable
 - For example, this opens a new market to achieve impact (impact investment) and prove corporate social responsibility (CRS)

Contribution

- Compared to studies on single-family housing, work on financial performance of multifamily rental housing (MFRH) is relatively sparse, even though these markets are closely related.
- Majority of studies on affordability are at macro level or urban level and do not assess it from investors' point of view.
- We attempt to quantify how local housing affordability levels drives the performance of investment grade MFRH properties.
- The first study that explores empirically the differences in performance between NOAH and non-NOAH buildings.

Research Agenda

- We aim to address three questions:
 1. To what extent does local housing affordability impact occupancy rates for MFRH properties?
 2. To what extent does local housing affordability impact property performance, specifically the capitalization rate and default rates?
 3. To what extent do NOAH and non-NOAH MFRH properties differ in their performance?

Data

- Trepp, Inc.: Loan-level data for 2003-2016 for nationwide sample of MFRH properties. Covers near-universe of loans in private CMBS deals.
 - Origination information on loan and property
 - Monthly performance files
 - Key variables, occupancy rate and building level NOI (used to estimate cap rate), are reported annually. Therefore, we collapse data to annual observations.
- Census data: rent burden, average rental price, average housing price. (Zip code level, annual frequency)
 - Additionally, we control for average change in household income, population, demographic shares, and percentage of renter-occupied households
- Eviction Lab: Number of evictions (Zip code level, annual frequency)

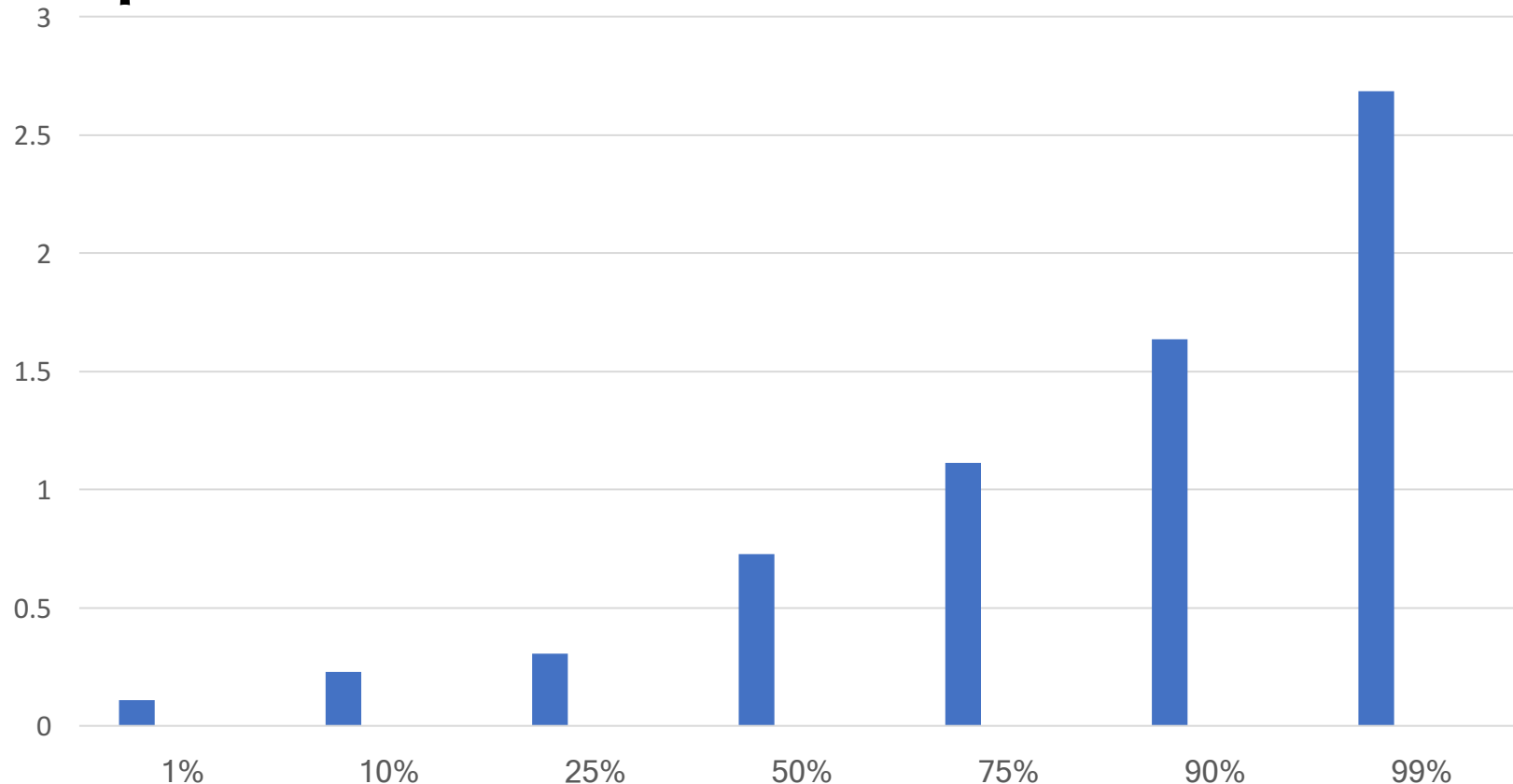
Additional Loan-level Variables

- Balloon
- Rate
- Lock
- LTV at securitization
- Loan balance at securitization
- Loan age (years)
- Units
- Construction Year
- Renovation
- Building size

Measure of NOAH

- We are unable to directly observe rents collected at buildings in our sample. However, we do see a net operating income (NOI) per unit by month.
- $\text{NOAH} = (\text{NOI per unit} * 12) / \text{Median Household Income}$
 - Median household income measured at zip code level on an annual basis.
 - Unfortunately, NOI is not available for full sample of loans. Therefore, we also will use other measures of affordability at the zip code level.

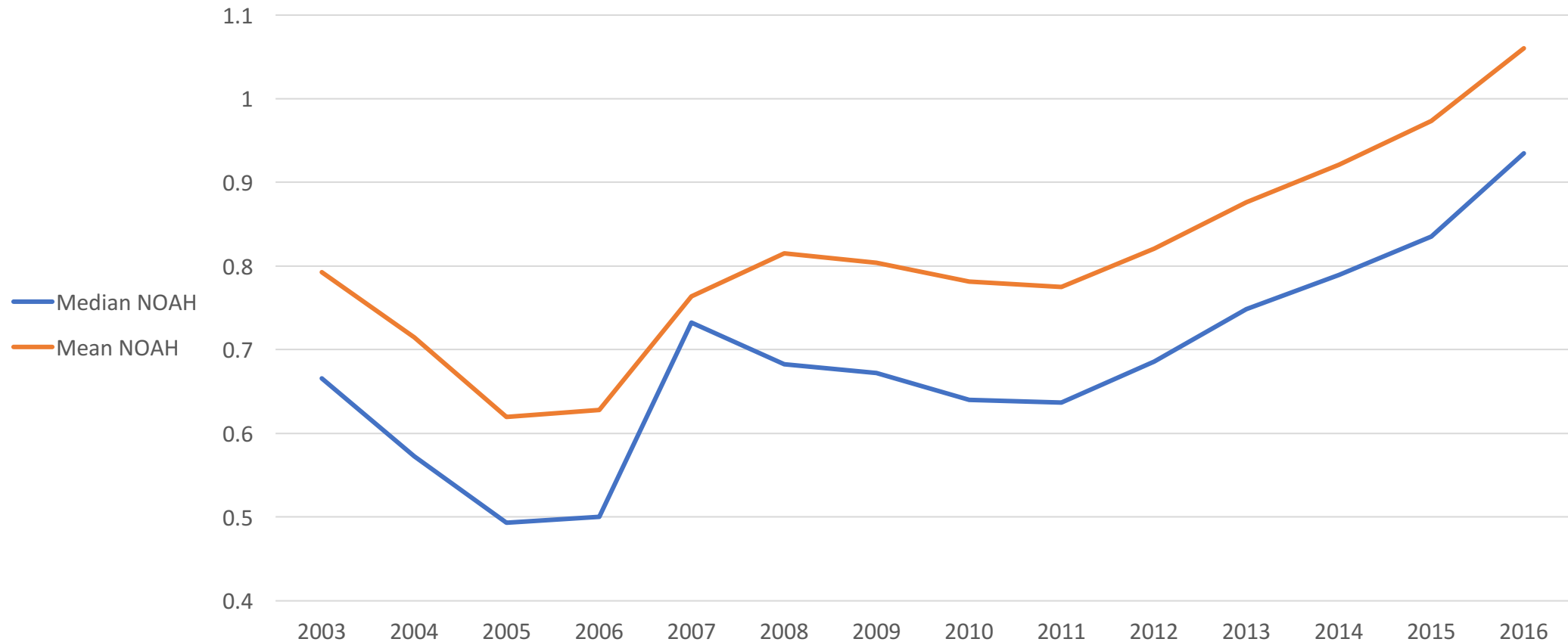
Level of NOAH Across MFRH Buildings in Our Sample



Mean value 0.8624477. Source: own compilation based on Trepp and US census tract data, winsorized at 1%.

NOAH measured as the share of annual apartment NOI to ZIP-code level annual median household income

Level of NOAH Across MFRH Buildings in Our Sample



Source: own compilation based on Trepp and US census tract data, winsorized at 1%.

NOAH measured as the share of annual apartment NOI to ZIP-code level annual median household income

Descriptive Statistics

Variable	Mean	Std. Dev
Occupancy Rate	93.35	6.14
Cap Rate*	5.09	2.25
Delinquency	14.80	0.36
Rent Burden	29.69	7.76
Ownership Affordability**	4.02	2.50
Rental Affordability***	0.02	0.01
Poverty Rate	10.79	10.16
Eviction Rate	7.72	13.38
LTV at origination	70.01	11.23
Ln Orig Loan Balance	15.56	1.03
Interest Rate	5.75	1.35
Loan Age	5.08	3.35
Property Year	1980	20.57
Units	196.35	238.42

*Using price at time of sale

**Median property value/Median Annual Household Income

***Median monthly gross rent/Median Annual Household Income

Descriptive Statistics

Variable	Low NOAH (more affordable)	High NOAH (less affordable)
Occupancy Rate	90.57	94.95
Cap Rate	3.81	6.00
Delinquency	0.23	0.11
Rent Burden	28.50	31.57
Ownership Affordability	3.16	5.44
Rental Affordability	0.02	0.02
Poverty Rate	7.90	14.46
Eviction Rate	3.34	2.50
LTV at origination	70.77	68.79
Ln Orig Loan Balance	15.23	15.75
Interest Rate	6.17	5.42
Loan Age	5.62	4.78
Property Year	1978	1980
Units	203	182

Descriptive Statistics

Variable	More Affordable	Less Affordable
Occupancy Rate	93.74	94.51
Cap Rate	5.31	4.92
Delinquency	0.11	0.08
Rent Burden	26.14	37.15
Ownership Affordability	3.23	6.68
Rental Affordability	0.01	0.03
Poverty Rate	5.55	21.96
Eviction Rate	5.89	7.89
LTV at origination	71.12	68.10
Ln Orig Loan Balance	15.29	15.18
Interest Rate	6.23	6.06
Loan Age	6.54	7.59
Property Year	1981	1970
Units	169	156

Empirical Strategy

- We estimate an unbalanced panel regression for the years 2003-2016.

$$Y_{it} = \beta X_{it} + \theta Z_{ct} + \alpha + u_{it} + \epsilon_{it} \quad (1)$$

- We estimate Random Effects GLS regression
- We use fixed effects for year, loan origination year, origination index
- We group the observations by master loan provider
- We cluster the error terms by ZIP code

Cap Rate and Affordability

L.rent-burden -0.00215

L.House Afford **0.00159**

L.Rent Afford **-3.337****

L.NOAH **1.402*****

Observations	79221	78588	79191	72662
--------------	-------	-------	-------	-------

Cap Rate and Affordability

Rent afford = 2	-0.0290
Rent afford = 3	-0.0138
Rent afford = 4	-0.169***
NOAH = 2	1.757***
NOAH = 3	3.087***
NOAH = 4	4.416***

Change in NOI and Affordability

L.rent-burden -0.0000300

L.Own afford -0.000789*

L.Rent Afford -0.149

L.NOAH -0.128***

Observations 73947 73365 73918 71779

Change in NOI and Affordability

Rent afford = 2 0.000960

Rent afford = 3 0.000583

Rent afford = 4 0.000606

NOAH = 2 0.0976***

NOAH = 3 0.152***

NOAH = 4 0.190***

Occupancy Rate and Affordability

Rentburden = 2 -0.0539

Rentburden = 3 -0.0222

Rentburden = 4 0.106

Homeafford = 2 0.141

Homeafford = 3 0.323***

Homeafford = 4 0.849***

Occupancy Rate and Affordability

Rent afford = 2 **-0.0897**

Rent afford = 3 **-0.00880**

Rent afford = 4 **0.0937**

NOAH = 2 **2.162*****

NOAH = 3 **2.895*****

NOAH = 4 **3.448*****

Default Rate and Affordability

	Current Default	Historic Default
NOAH = 2	-0.0287***	-0.054***
NOAH = 3	-0.0337***	-0.747***
NOAH = 4	-0.0438***	-0.957***

Default Rate and Affordability

	Current Default	Historic Default
Rent Afford = 2	-0.0019	-0.0708
Rent Afford = 3	-0.0090**	0.0111
Rent Afford = 4	-0.0133***	0.1167

Conclusions

- Investment grade multifamily housing financial performance is significantly impacted by building level and area level measures of affordability.
- For relatively affordable buildings, occupancy rates are lower, probability of default is higher, year over year NOI change is positive and cap rates are lower.
- For buildings located in relatively affordable areas, occupancy rates and year over year NOI change are not significantly impacted, default rates are slightly higher, and cap rates are higher.