

## Energy efficiency and the housing market. A skeptical view-point on retrofitting practices

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## A snapshot of Brenda Boardmans message to the COST Action ENGAGER, Athens 2018

„Reducing energy poverty is about capital investment“  
(Boardman 2018)



## A snapshot of Brenda Boardmans message to the COST Action ENGAGER, Athens 2018

„Reducing energy poverty is about capital investment“  
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- Who makes the investment?
  - How does the investment interplay with local housing markets?
  - What happens to the households? Who profits?
- socio-spatial segregation

## Interplay of retrofitting and socio-spatial segregation

- Residential Segregation is the uneven distribution of social groups in urban space
- Segregation research has revealed a set of drivers influencing the unevenness of this distribution of social groups
- Segregation is problematic for a lot of reasons, i.a. because the poor tend to cluster in substandard housing

### Supply of housing

- Investment and real estate development
- Housing market segments - private/ public, - owners/ tenants
- Allocation strategies of landlords and companies

### Demand for housing

- Residential mobility
- Housing preferences (depending on households resources)
- Restrictions in access, forced mobility

### Welfare state regulations and support

- Housing policies, subsidies
- Laws and regulations
- Housing provision (state, municipalities)
- Urban planning and neighbourhood development strategies

## A glance at the economic perspective ...

- Dinan and Miranovski (1986), Journal of Urban Economics, **USA**

*“At the average efficiency level of homes in the sample, an **efficiency improvement which results in a \$1 decrease in the level of expenditures** necessary to maintain the house at 65°F (in the average heating season) **will increase the expected selling price of the house by \$11.63.**”*

- Hyland et al. (2013), Energy Economics, **Ireland**

*“Our results show that **energy efficiency is capitalised in house prices**: relative to obtaining a D energy rating, an **A-rated property receives a price premium of 9.3%**, and a B rating increases the price by 5.2%. At the other end of the scale, receiving an **F or G rating reduces the price by 10.6% relative to D-rated properties**, ceteris paribus.” ... “We find that while **the magnitude of the effect is weaker in the rental market**, a positive relationship still holds between energy ratings and rental prices.”*

## A glance at the economic perspective ...

Citation	Country	Property type	Transaction type	Major finding
Gilmer, 1989	USA (Minnesota)	Residential	Sales	Energy-efficient labels shorten search times
Dinan & Miranowski, 1989	USA (Des Moines, Iowa)	Residential	Sales	Efficiency improvements increase expected sales price
ABS, 2008				increase by 1.2% in 2006 for each point on the energy scale
Brounen & Kok, 2011				labeled as “green” resulted in 3.7% sales premium
Zheng et al., 2012				labeled residential properties had an initial sales premium, but resell or are let at a discount
Cajias & Piazzolo, 2012				improvements in energy efficiency increased rents by 0.08% and market value by 0.45%
Kahn & Kok, 2012	USA (California)	Residential	Sales	Homes labelled as “energy efficient” transact at a premium of 9%

In sum:

- private housing market actors seek return on investment
- capital investment into energy efficiency pays off, especially in the real estate market (with few exceptions)

## The residents perspective ...



### Hannover, Germany

„For Hans Freiwald, the energetic retrofit leads to a **rent increase of 1.200 Euro per month** – on top of the 700 Euro basic rent he did pay already. This is an increase of ca. 10 Euro per squaremeter.“

national TV documentation (ARD, panorama3, 18.11.2014 )

## The residents perspective ...



### Berlin, Germany



- last tenant of Kopenhagener Straße 46, (foto), activist against energetic retrofitting

## The residents perspective ...

Position	amount in Euro
Net rent before retrofitting	644,23
Heating and Utilities	399,87
Cost increase for energetic retrofitting measures	1,436,93
Cost increase for other modernisations	446,63
New overall rent	2,927,66
rent increase	280%

### Berlin, Germany



## The residents perspective ...

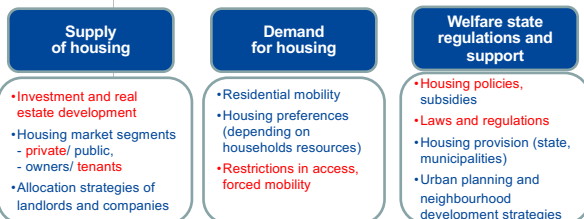
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### German building law

→ Landlord can add 11% of investment costs annually to the rents



## Interplay of retrofitting and socio-spatial segregation



## The neighbourhood perspective ...

Bouzarovski, Frankowski and Tirado Herrero 2018

### Gdansk, Poland

the regeneration of the neighbourhood of Letnica as a case of „low-carbon-gentrification“



TABLE 1 Displacement types in Letnica, with numbers of households involved

Group	Type of Displacement	Estimated Numbers
Returnees to the district	Temporary—absence from homes during renovation	45 households
	Relocation to new TBS housing in Letnica	22 households
Moved elsewhere	Indirect displacement—households who decided to leave Letnica for different reasons (residential preferences, increased housing costs etc.)	43 households, 13 of whom were housed in newly-built municipal apartments; the rest moved to older municipal housing
	Direct displacement—rental debtors moved to social housing outside Letnica	25 households

SOURCES: authors' own calculations based on secondary evidence and Grabkowska et al. (2015) background on the right (photo by Jan Frankowski, January 2018)

## The neighbourhood perspective ...



### Dortmund + Erfurt, Germany

#### Four case studies, retrofitted between 2008 and 2014

- Two cities, two neighbourhoods each
- central neighbourhood owned by private company
- fringe location, municipal property

#### Findings:

- Steep rent increase and high outmigration in the centers/ privately owned stock
- Moderate rent increase and low outmigration in the periphery/ municipal stock



Dortmund South West inner city



Erfurt Daberstedt

## The neighbourhood perspective ...



### e.g. Brunnckviertel, Ludwigshafen, Germany (municipal housing company LUWOGÉ)



#### before :

- 450 flats
- Bad image, low quality, high energy costs
- 20 % vacancies
- 4,- Euro / m<sup>2</sup> net rent



#### after :

- 220 flats + offices
- High comfort, low energy costs
- No vacancies
- 7,- Euro/ m<sup>2</sup> net rent

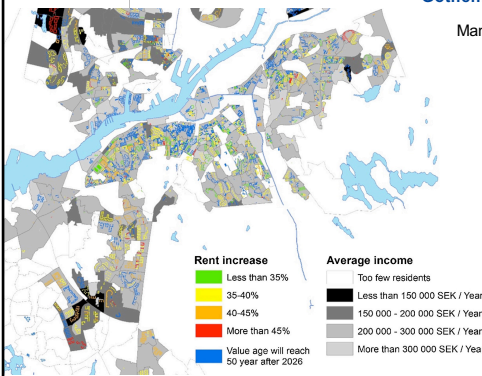
CEO:  
„you cannot keep  
the rents low“,  
„many stayed,  
some left“

## The urban perspective ...



### Gothenburg, Sweden

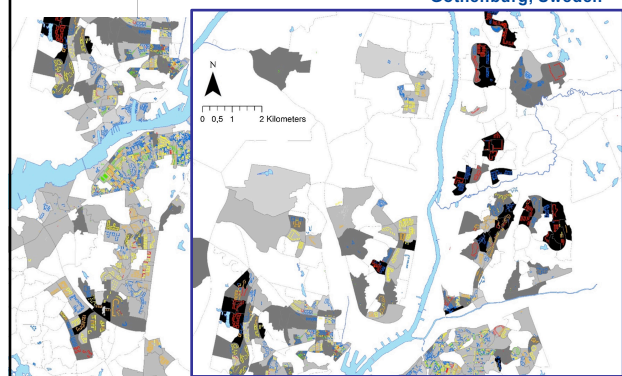
Mangold et.al. 2016



## The urban perspective ...



### Gothenburg, Sweden



## Interplay of retrofitting and socio-spatial segregation



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## Energetic standards as a driver of residential mobility?



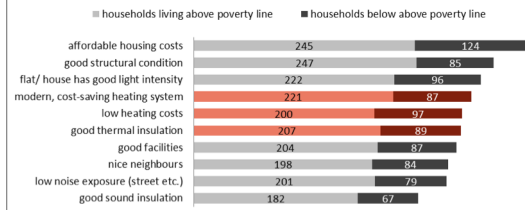
### Delitzsch, Germany



## Energetic standards as a driver of residential mobility?

Delitzsch, Germany

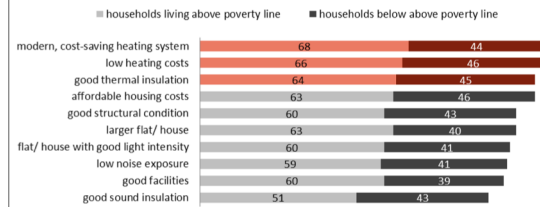
### Pull-factors for previous relocation



## Energetic standards as a driver of residential mobility?

Delitzsch, Germany

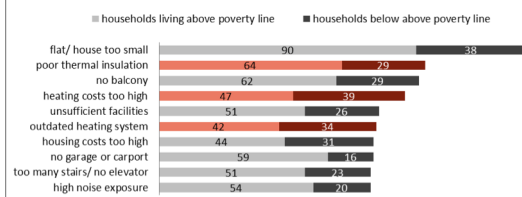
### Pull-factors for envisioned relocation



## Energetic standards as a driver of residential mobility?

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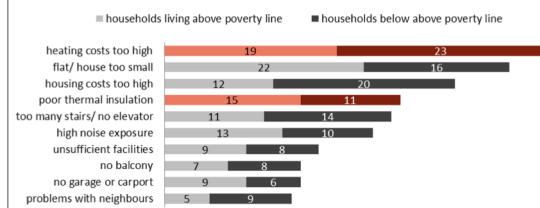
### Push-factors for previous relocation



## Energetic standards as a driver of residential mobility?

Delitzsch, Germany

### Push-factors for envisioned relocation



## Relocations within the past five years (2012)



## Concerns regarding social impact of investment in retrofitting homes



### Individual level

- decreasing heating and electr. costs for tenants, rising rents and housing costs
- Causing displacement: for which households?

### Neighbourhood level

- Upgrading, image gain
- But: can be part of gentrification processes (speculative investment, state-led gentrification)

### City wide level

- Adding high(er) prize housing while reducing the share of affordable housing
- Dynamics of housing markets are likely to increase residential segregation

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Good practices that manage to get around these dynamics?

## Good practices?!

### Brno, CZ

Nový Lískovec



District mayor, green party, turned Nový Lískovec into low-energy neighbourhood with EU (Urb Act) funding



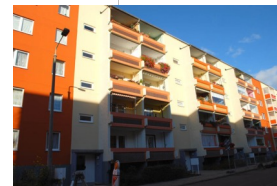
District mayor, conservative party, privatised the stock

Starý Lískovec

## Good practices?!

### Leipzig, Germany

- Refurbished inner city prefab housing
- Won the silver medal in a national competition
- Received funding from national model project funding scheme



Prize in 2015 after retrofit:

e.g. 60 qm for 330,- Euro net rent (460,- Euro incl. Utilities)

inhabitant: „It is 10,- Euro more now, that is no problem“

Foto: Immobilienscout24.de, 19.06.2015

## Good practices?!

### Lichterfelde, Germany

- Housing cooperative aims at a socially responsible energetic retrofitting



	before	possible	after
Rent incl. heating and utilities / m <sup>2</sup>	7,94€	12,92€	8,25€
Overall rent	254,08€	413,44€	264,00€

## Good practices?!

### Lichterfelde, Germany

- Housing cooperative aims at a socially responsible energetic retrofitting
- Refinanced investment through an upper market building extension



	before	possible	after
Rent incl. heating and utilities / m <sup>2</sup>	7,94€	12,92€	8,25€
Overall rent	254,08€	413,44€	264,00€

## Good practices?!

FHE  
Munich, Germany

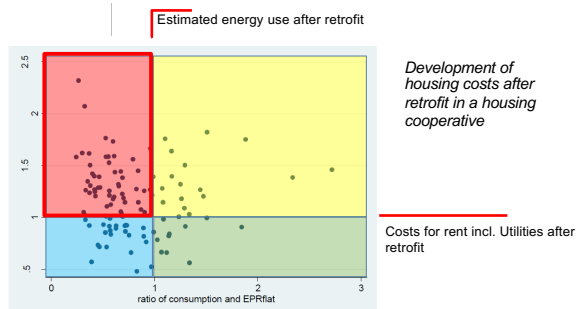


Figure 3: Comparison of the heating consumption relative to the flat-specific heating demand and the heating costs after the retrofit including a rent increase relative to the heating costs prior retrofit

source: Wolff, A. und Weber, I. 2017: Who bears the cost?

## Conclusion

- **Energy interventions are a potential driver for residential mobility**
  - increase of prizes, add high prize housing to the market
  - decrease the affordable housing segment
- Technological solutions affect buildings, not households, but **markets affect households**
- **Housing markets moderate who can profit from the better technology**
  - Private investment will not provide energy efficient housing for poor people
  - Welfare state policies are not innocent, can open up displacement mechanisms
  - Even projects outside market logics cannot avoid increasing housing costs, unless there is extra funding available
  - Model projects will serve only a small share of energy poor households

## Conclusion

FHE  
Munich, Germany

“Reducing energy poverty is about capital investment” (Boardman 2018)

- significant state involvement in instigating and guiding the process (Boardman, 2010)

→ The role of urban space and segregation dynamics needs more attention to avoid that energy efficiency becomes just a new frontier of gentrification and segregation where high income household enjoy comfortable, efficient housing while low income households are directly or indirectly displaced to the next substandard housing in (likely) fringe locations.