



# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

Presented at the FIG Working Week 2024,  
19-24 May 2024 in Accra, Ghana

## Opacity by design - Transparency of the allotment garden market in Warsaw (12422)

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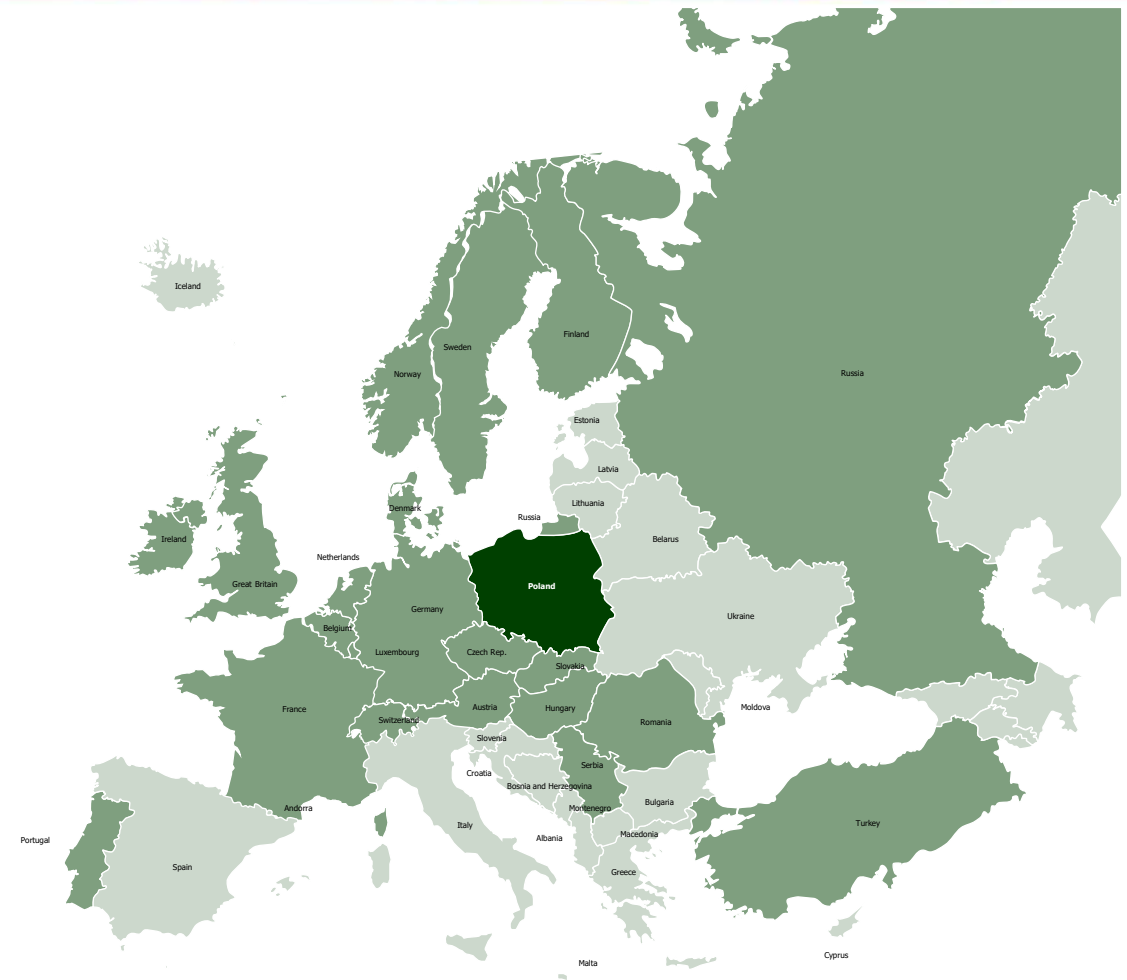
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## Background

- Allotment garden – (not) a socialistic relic
- Changing environment
- Market

## Aim

- Explore market nature
- Check for rent-seeking behaviour





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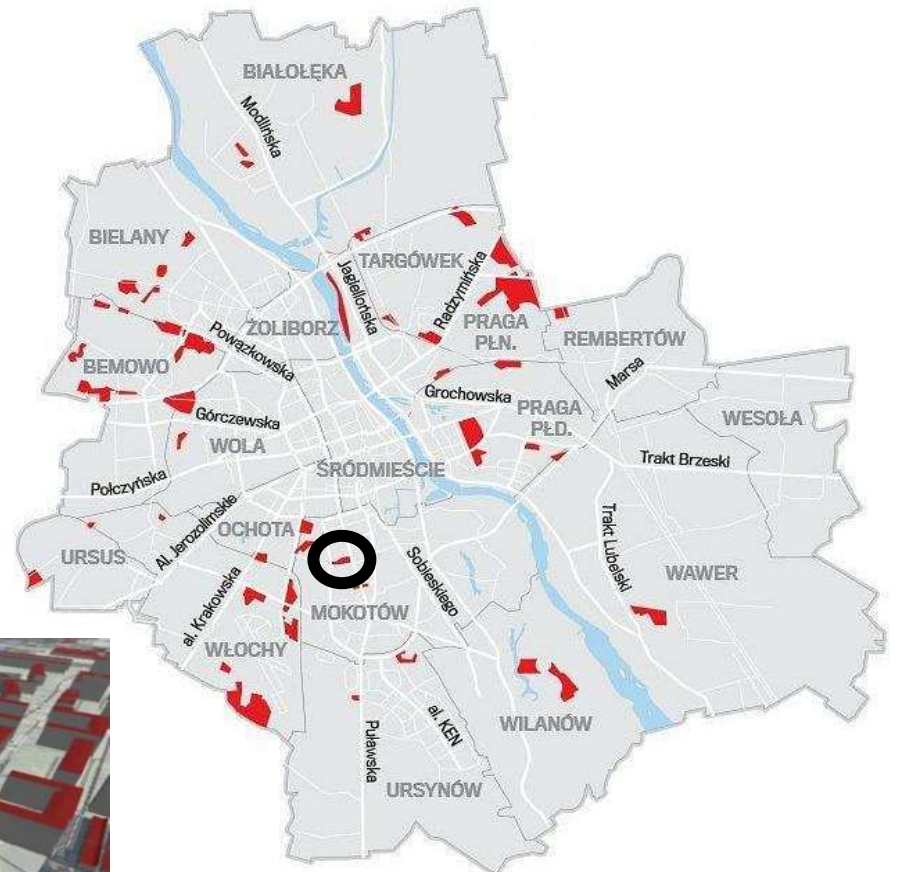
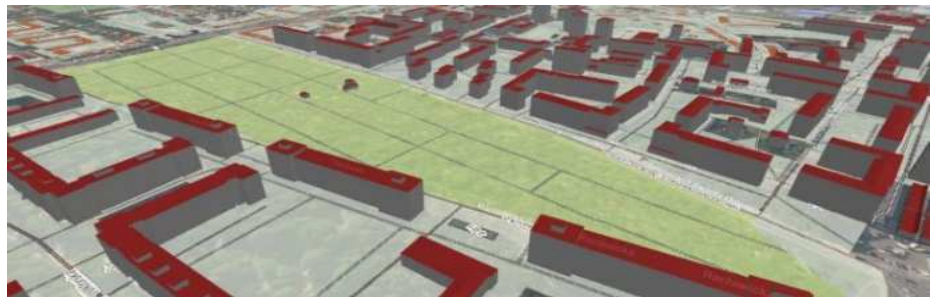
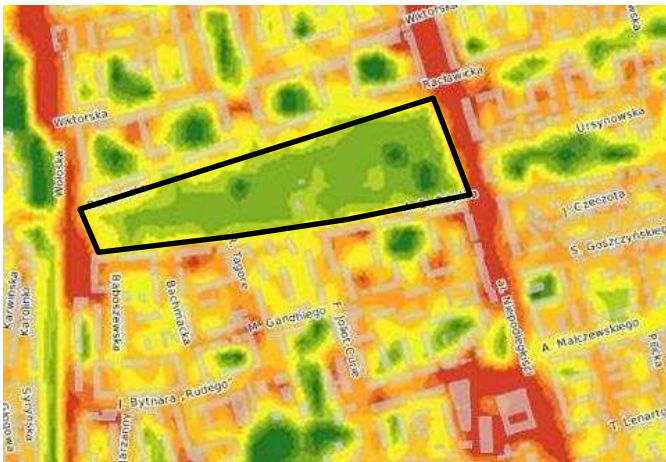
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## Warsaw's allotment gardens

- 190 family gardens
- 30,000 allotment gardens
- 1,200ha (2.3% of Warsaw's area)
- 7% of all green areas in the city



[mapa.um.warszawa.pl](http://mapa.um.warszawa.pl)  
<https://warszawa.wyborcza.pl/warszawa/7,34862,15801157,tysiacy-hektarow-ogrodow-dzialkowych-do-zwrotu-sa-roszczenia.html>



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## Private spaces but public green infrastructure Property but "not property"

- Act on family allotment gardens (AFAG, 2013)
- Green areas - public infrastructure
- Allotment garden:
  - Max 500m<sup>2</sup>
  - Gardening and/or recreation
- Family garden:
  - Allotment gardens
  - Common infrastructure
- No rent
- No end date or cancelation period
- Maintenance obligation
- Building – max. 35m<sup>2</sup> and height of 4/5m
- No permanent residency and gainful activities
- Not inheritable
- **Transferable – “free” + remuneration for investments**





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## Methodology

Archival searches  
Landscape surveys

On-line offers

Univariate  
analysis

Stacked  
imputation

Hedonic price  
model

- Applications of hedonic price models:
  - residential units (Sirmans et al., 2006; Hill, 2013; Heyman et al., 2019)
  - residential land (Diewert et al., 2015)
- Multiple imputation:
  - Chained equations (van Buuren & Groothuis-Oudshoorn, 2011)
  - Rubin's rules and stacked imputation (Wood et al., 2008)

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## Social changes & Environmental issues & Buildings





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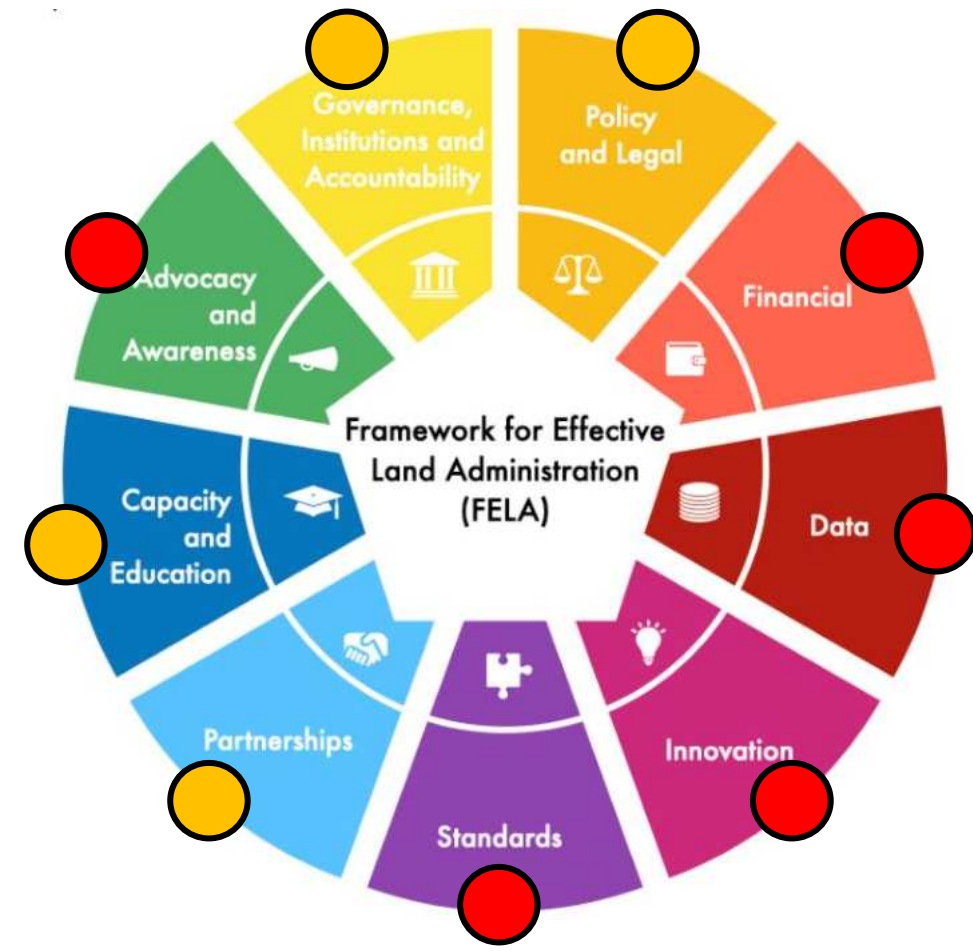
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## Transaction framework

- *Transfer of rights and obligations* to the allotment garden between the current and new allotment gardener
  - No *compensation* (price) for rights and obligations to the allotment garden
  - *Remuneration* for legally permitted plantations, installations, and objects (site improvements), that are owned by the allotment gardener
- Limited formal “transfer” requirements and role of the notary, no central registration
- Transfer tax (1% - right, 2% - remuneration)
- Income tax on sale (remuneration only)





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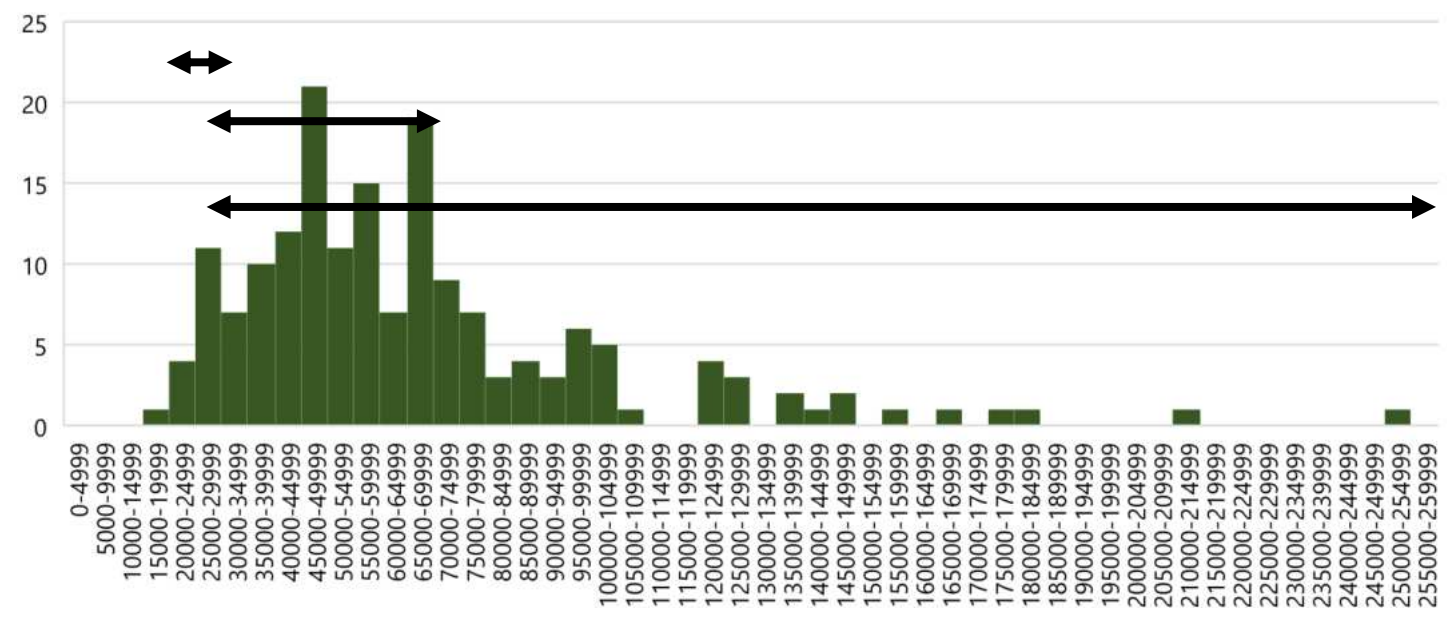
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## Market offers (in PLN)

- n=175, 52 locations, June 2023 / September 2023
- Pre-2010: 15,000-25,000 (\$5,000-8,000)
- Pre-pandemic: 20,000-75,000 (\$5,000-20,000)
- **2023: 19,900-260,000 (\$5,000-63,000)**



Sale prices in PLN





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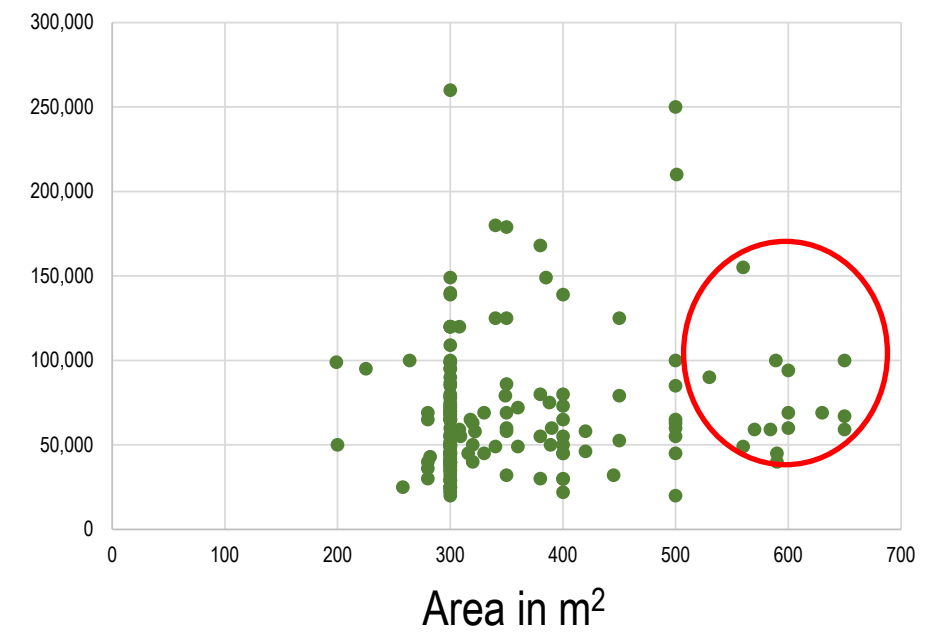
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## Characteristics, data gaps and other issues

- Building
- Floor area
- Number of floors
- Building material
- Bathroom
- Kitchen
- External building quality
- Fit-out
- Occupancy type
- Green area – Type
- Green area – Maintenance
- Land size
- District
- Distance to the city centre
- Data completeness
- 9% - allotment gardens exceeding the AFAG maximum area of 500m<sup>2</sup>
- 5% advertised for *all-year occupation* (!)

Sale prices in PLN





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## Hedonic regression

- $R^2 = 63.4\%$
- Small, poor-quality allotment garden with no building was greater than zero:
  - USD 9,600;
- Asking price increases with land size:
  - USD 13/m<sup>2</sup>

- Building
- Floor area
- Number of floors
- Building material (brick)
- ~~• Bathroom~~
- Kitchen
- External building quality
- Fit-out
- Occupancy type
- ~~• Green area – Type~~
- Green area – Maintenance
- Land size
- ~~• District~~
- ~~• Distance to the city centre~~



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## Conclusions

- Ineffective transaction and land management framework
- Investment positively impacting price offers:
  - Building size & quality
  - Maintenance of green area
- **Rent-seeking - intrinsic “land value” and size effect**
- No impact of location

## Next steps

- Data
- Compliance interventions
- Preservation of urban green infrastructure



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## SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals

# Commission 9

### Valuation and the Management of Real Estate

### Serving Society for the Benefit of People and Planet

