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THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

# A hedonic analysis of the value of green spaces in the Dublin area

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# Background

- High level of housing construction in Ireland during Celtic Tiger years
- 18 new builds per 1000 inhabitants in 2007 (Europe: 5.3)
- Need for coherent urban spaces (density versus commuting)
- Benefits of the provision of green spaces and parks in urban areas
  - Recreational
  - Aesthetic
  - Physical

# Previous literature

- Weicher (1973) and Friedman (1962) – value of city parks
- Cho et al. (2008) – value of urban forests
- Voicu and Been (2008) – value of community gardens
- Mansfield et al. (2005) – value density of green areas around houses
- Des Rosiers et al. (2002) – value of a property's outdoor landscaping

# Valuation of green spaces

- Stated preference and revealed preference techniques
- Hedonic house price model: revealed preference
- Look at market variables to assess value people implicitly put on amenities

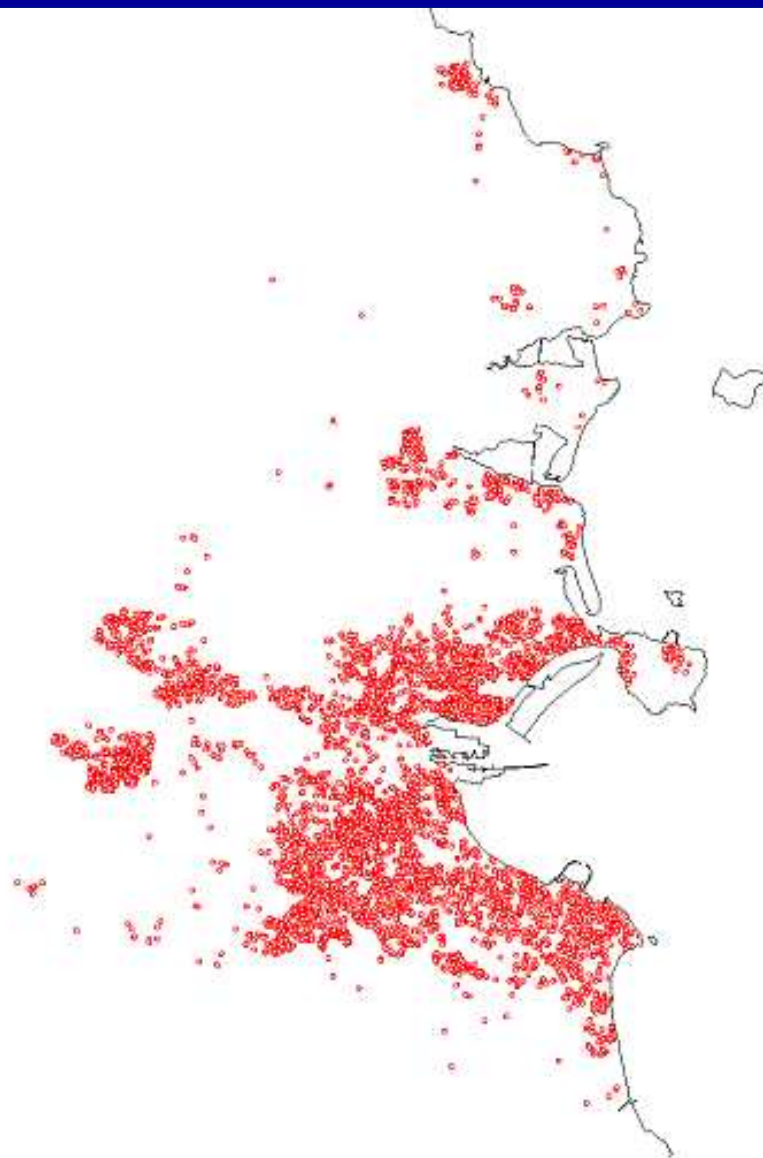
# Hedonic Model

- Griliches (1961) and Rosen (1974)
- Consumer preferences regarding composite goods
- Utility bearing attributes are internalised into the price of the good
- House: number of rooms, bathrooms, car parking space all make different contributions to the price of the house
- Also neighbourhood characteristics
- Hedonic technique: regress logged property price on set of variables measuring quality while controlling for time and area effects

# Data

- House price data – Sherry FitzGerald
- House sales January 2001 to December 2006
- 9700 dwellings geo-coded – find exact location of house – valid sample of 6956
- Covering most of the Dublin area – very detailed and location specific

# Location of houses in sample



# House Characteristics

- Structural variables: floor space, number of bedrooms, utility room, parking, garden, heating system (gas or not), condition of house as assessed by estate agent, type of dwelling (semi-detached, apartment, terraced...), period the house was built
- House price (logged)

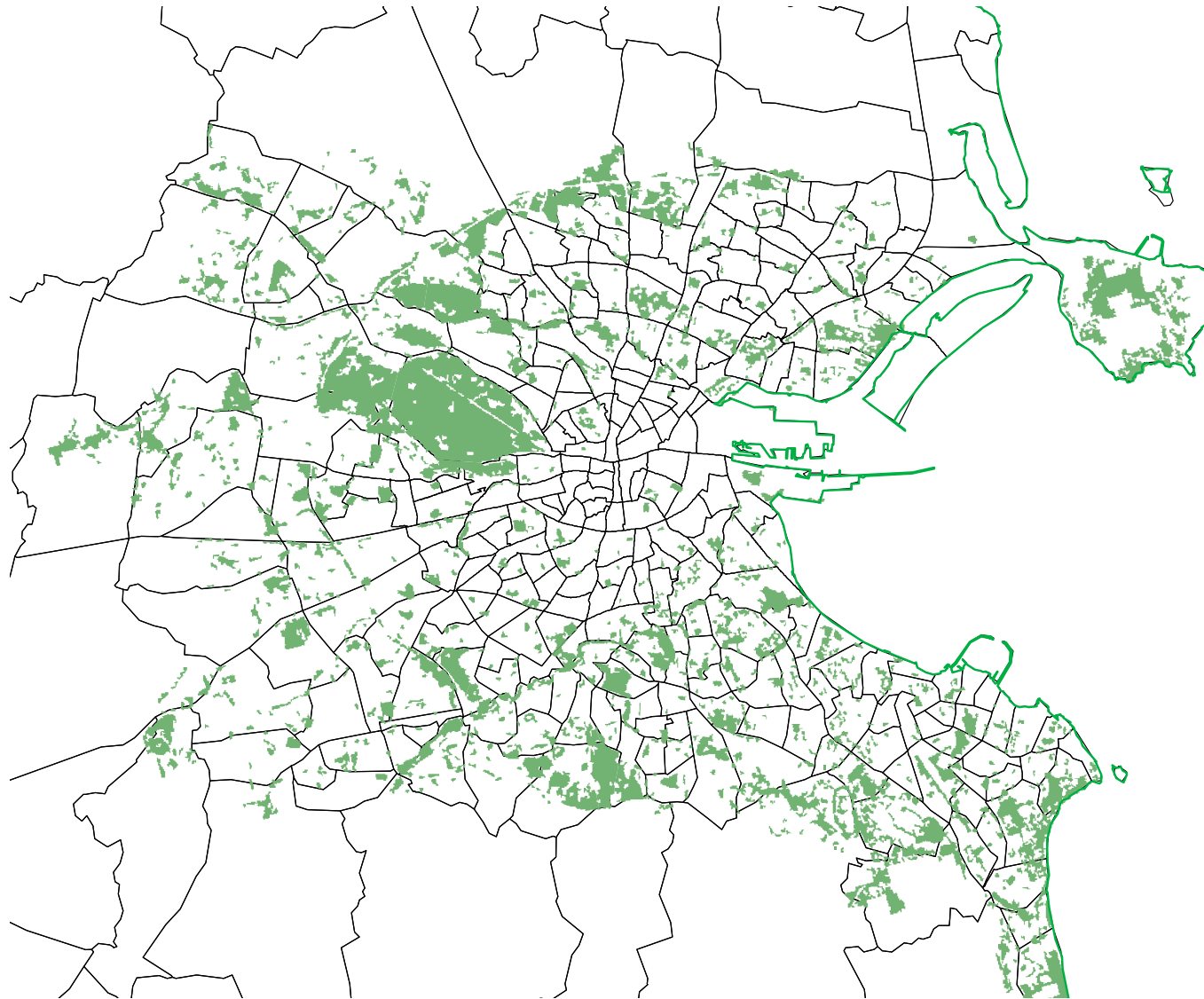
# Environmental and neighbourhood variables

- Distance to nearest bathing beach and to coastline (EPA)
- Rail transport variables:
  - Distance to nearest DART station
  - Distance to nearest train station
  - Distance to nearest rail tracks
  - Distance to nearest Luas station (according to zone lived in and depending on opening date and house purchase time)
- Quarterly and monthly dummies
- 105 locality dummies

# Green spaces and parks

- Identification of green spaces and parks using EEA and CORINE data
- Creation of buffers around each house (200m buffer and 200m to 2000m buffer) and calculation of the density of green spaces, parks, and both combined within these buffers
- Phoenix park dummy

# Location of green spaces in sample



# House characteristics 1

Variable	Coefficient
Log Floor Area	0.64***
Number of bedrooms	0.03***
Existence of a utility room	0.04***
Garden	0.03***
Parking	0.01**
Good condition	-0.03***
Fair condition	-0.08***
Poor condition	-0.09***
Very poor condition	-0.15***

# House characteristics 2

Variable	Coefficient
Apartment	-0.02
Detached house	0.16***
Terraced house	-0.07***
Cottage	-0.08***
Built pre-1900	0.16***
Built pre-1950	0.09***
Built pre-1975	-0.03***
Built pre-2000	-0.04***

# Environmental characteristics

Variable	Coefficient
Within 200m of a beach	-0.27***
Between 250-500m of a beach	0.13***
Between 500m-1km of a beach	0.07***
Between 1km-1.5km of a beach	0.03**
Within 200m of the coast	0.22***
Between 250-500m of the coast	0.16***
Between 500m-1km of the coast	0.12***
Between 1km-1.5km of the coast	0.06***

# Density of green spaces

Variables	Model 1	Model 2	Model 3
Phoenix Park dummy	0.02*	0.02*	0.02*
% green space within 200m	0.9***	0.9***	
% of green space between 200m and 2000m	0.76***	0.76***	
% of park space within 200m	0.66***		
% of park space between 200m and 2000m	0.67***		
% of park space within 2000m		0.67***	
% of park and green space within 200m			0.89***
% of park and green space within 2000m			0.75***

# Conclusions 1

- Use of a hedonic house price model to estimate the impact of proximity to green spaces on house prices in Ireland
- Beaches and coastlines positive externalities
- Structural variables: prefer bigger, older, detached houses, but in good condition
- Living close to railway stations: positive externality – improves transportation access but proximity to train tracks: negative externality – noise and intrusion

# Conclusions 2

- Green spaces have a positive externality
- Owners distinguish between green space in close vicinity of their house and within walking distance in their neighbourhood
- Value being close to park amenities but do not value close proximity highly
- Green spaces provide aesthetic and visual externality and parks have recreational value

Thank you

Questions and comments welcome



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