The Economic Impact of Developable Open Space on Housing Prices: A Case Study in the City of Corona, California

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1. Introduction

- Desirable types of open spaces such as urban tree and vegetation are known to generate a wide arrays of benefits such as water quality improvement, scenic beauty, provision for wild-habitat, recreational opportunities, etc. (Bolitzer and Netusil, 2000; Gibbons et al., 2014; Ham et al., 2012; Yoo et al., 2014).
- From an economic perspective, documenting accurate economic values of urban open space is crucial to the efficiency of their management. In addition, it has important implications for establishing effective zoning regulations, in a way that improves the social wellbeing of urban residents.
- The paper builds on existing literature, however, provides more insight on how the capitalized value of open space is measured in the industrial and commercial neighborhoods.

2. Methodology

- **Fixed Effect Spatial Error Model**

$\boldsymbol{Y = X\beta + \varepsilon}$ **and** $\boldsymbol{\varepsilon = \gamma W\varepsilon + u}$,
$\boldsymbol{u \sim iid(0, \sigma_u^2)}$

Where Y : House price

X: Housing characteristics

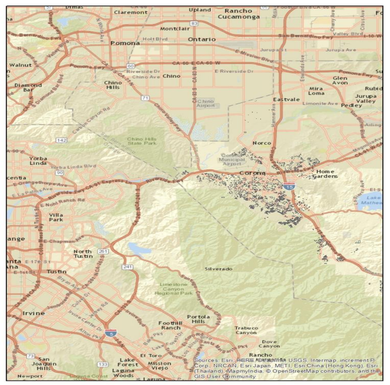
γ : an autoregressive parameter,

ε : Spatially correlated error term

u: spatially uncorrelated error term

W: n X n spatial weights matrix

Spatial Distribution of Residential Properties in Corona



3. Results

Estimated parameter from semi-log OLS and SEM with interaction terms (4,243 observations)

Variable	OLS with interaction	SEM3000m with interaction
Constant	11.5356(0.0221)***	11.3175(0.0064)***
Lot	2.88e-06(2.37e-07)***	3.22e-06(3.1e-08)***
Bedroom	0.0480(0.0045)***	0.0431(0.0043)***
Age	-0.0131(0.0005)***	-0.0104(0.0004)***
Age^2	0.0001(6.52e-06)***	1.11e-04(6.25e-06)***
Fireplace	0.1188(0.0111)***	0.1602(0.0102)***
Pool	0.0722(0.0066)***	0.0645(0.0066)***
# of Baths	0.1378(0.0075)***	0.1116(0.0069)***
Garage	0.0004(2.47e-05)***	4.23e-04(2.40e-05)***
# of story	-0.0300(0.0066)***	-0.0150(0.0065)***
Distance to the nearest Park (in meter)	-7.10e-05(8.13e-06)***	-5.98-e06(1.31e-05)***
Dist.Com(in meter)	**-4.64e-07(3.44e-06)**	**3.23e-05(0.0129)*** **
Dist.Ind(in meter)	**2.37e-05(1.95e-06)*** **	**4.20e-05(0.0134)*** **
OPEN100M	0.2002(0.0440)***	0.1310(0.0207)***
Interaction between OPEN100M and Dist.Com	-4.26e-05(2.08e-05)**	-4.03e-05(1.96e-05)**
Interaction between OPEN100M and Dist.Ind	6.45e-06(1.04e-05)	2.71e-07(2.10e-05)
YR2002	0.1072(0.0073)***	0.1081(0.0071)***
YR2003	0.2484(0.0070)***	0.2458(0.0069)***
σ	-	0.8990(0.0037)***

4. Conclusions

- Urban open space adds value to residential properties
- Open space property premiums decline with the distance to commercial areas, while they are not impacted by the distance to industrial areas.

References

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