

Then urban sub centres and the housing and land price in Barcelona

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Research question



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Then urban sub centres and the housing (land) price

Research question?

Housing and land prices in a metropolitan context are influenced by proximity to employment subcentres?

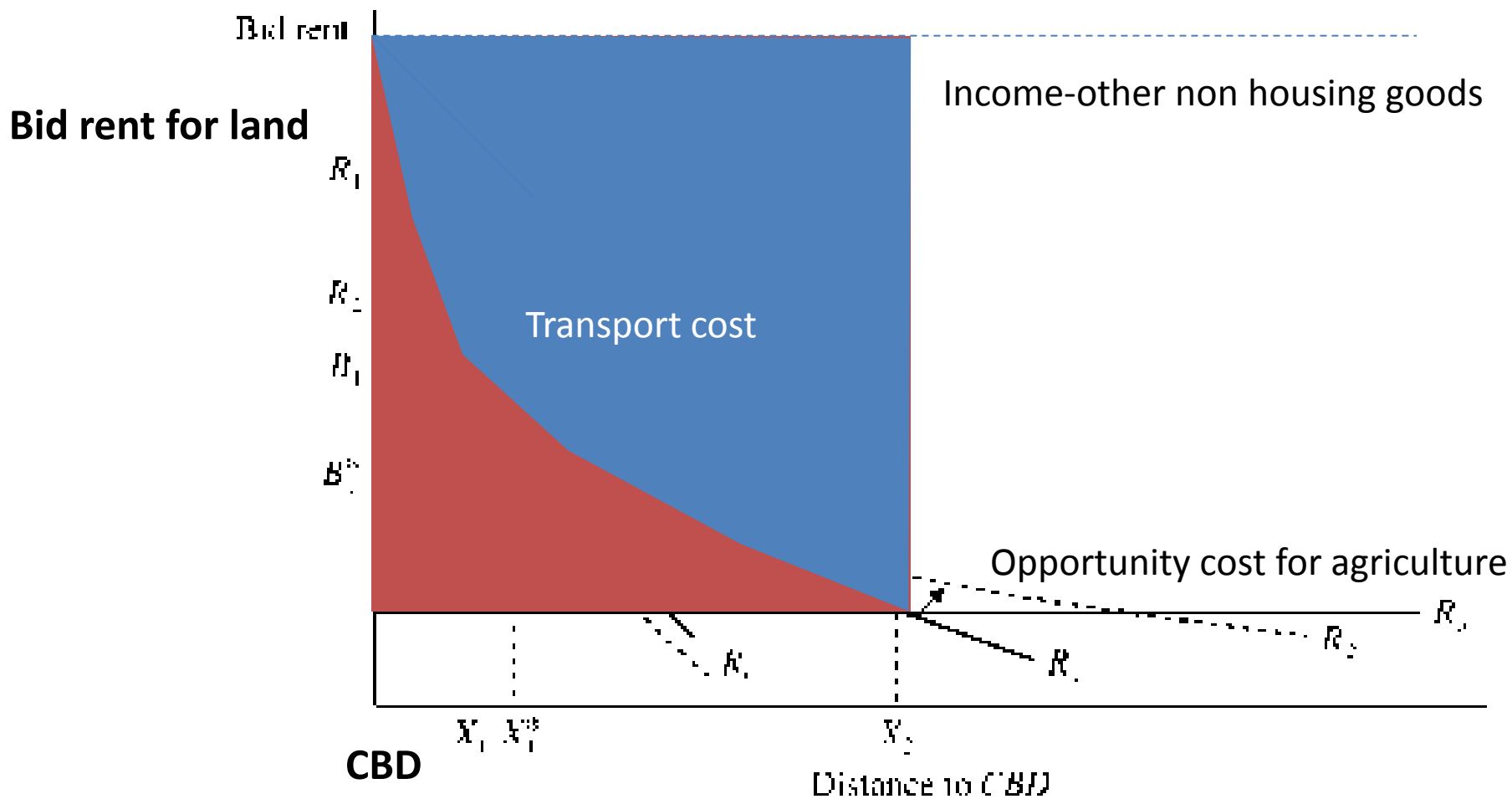
Theoretical framework



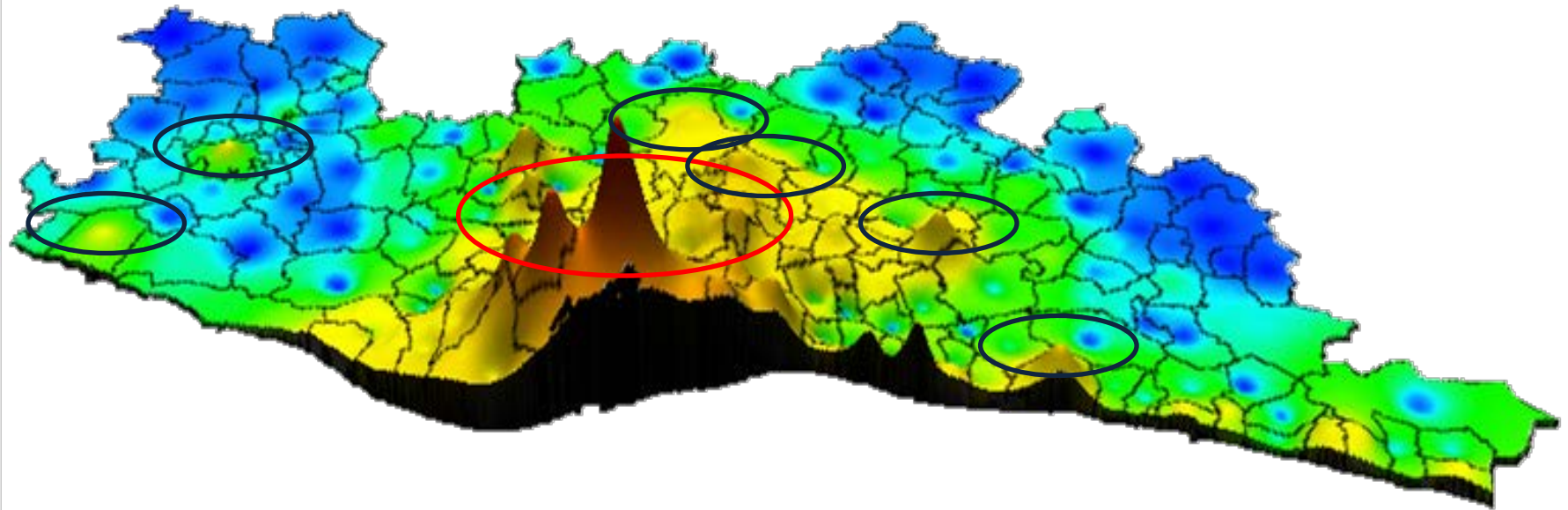
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Then urban sub centres and the housing (land) price

In a monocentric city model land price decrease as distance to CBD, where employment is assumed to be, increases

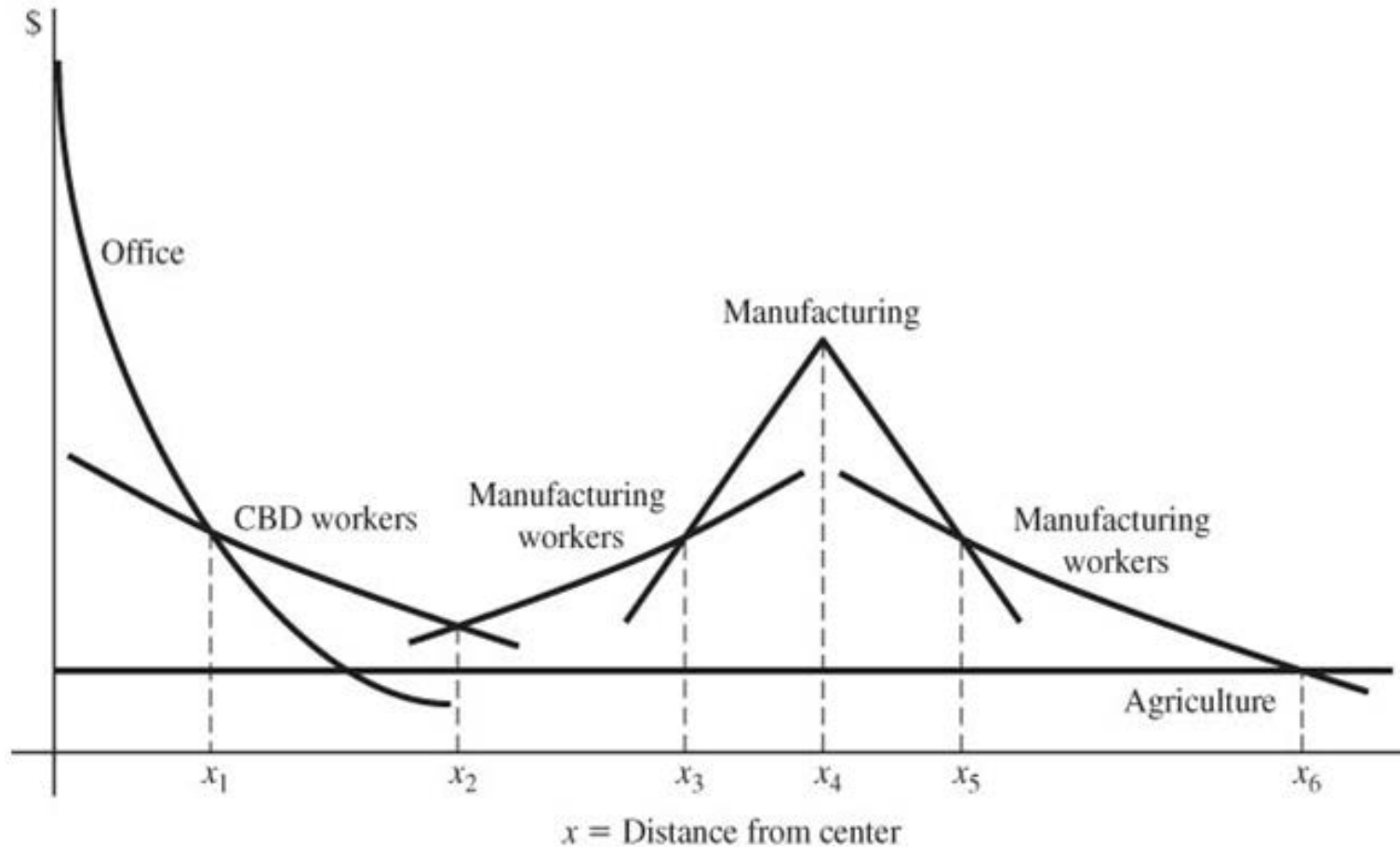


Nonetheless, nowadays metropolises are not monocentric
as Barcelona our case study



Employment density in Barcelona (2001)

This paper aim to answer if prices are also influence by proximity to subcentres



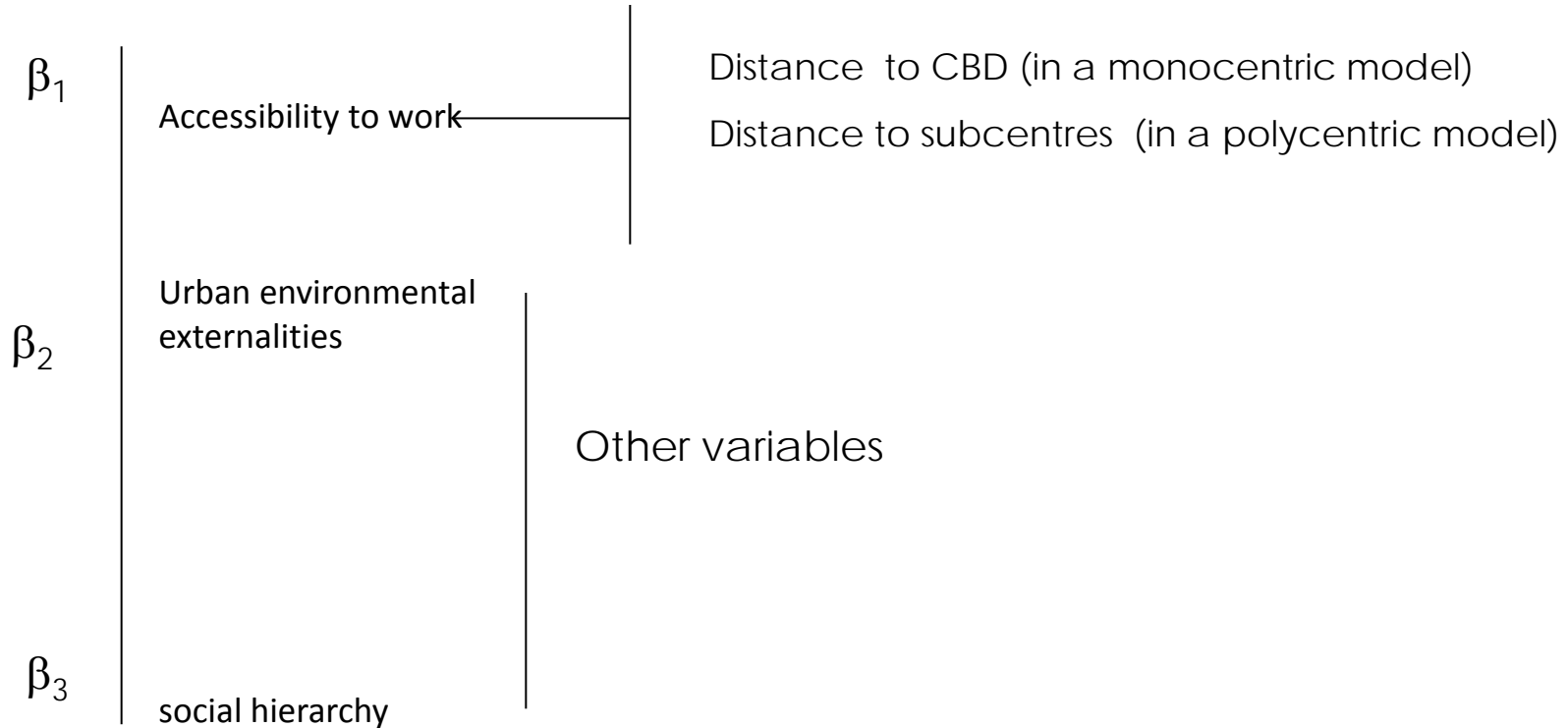
A housing price hedonic model

Accessibility to work
Urban environmental externalities
social hierarchy



Price

multivariate regression
Hedonic prices
 $Price = F(Acc; Ex; SH)$



A housing price hedonic model

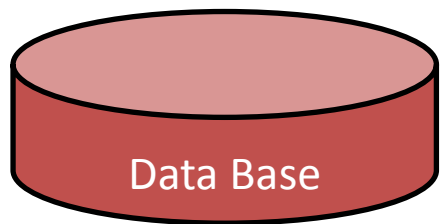
Monocentric model

$$\ln(P_i) = K + (\beta_1) D\text{-CBD}_i + (\beta_2) EX_i + (\beta_3) SH_i + \varepsilon_i$$

Polycentric model

$$\ln(P_i) = K + (\beta_1) D\text{-CBD}_i + (\beta_s) 1/D\text{-nSub}_i + (\beta_2) EX_i + (\beta_3) SH_i + \varepsilon_i$$

Guideline



- β_1 | Accessibility to CBD
- β_2 | Urban environmental externalities
- β_3 | social hierarchy



Selected by stepwise
Regression Base



Sub centre
Hypothesis



Polycentric model

Monocentric model (m2 floor space)

R2 Adjust: 0.752

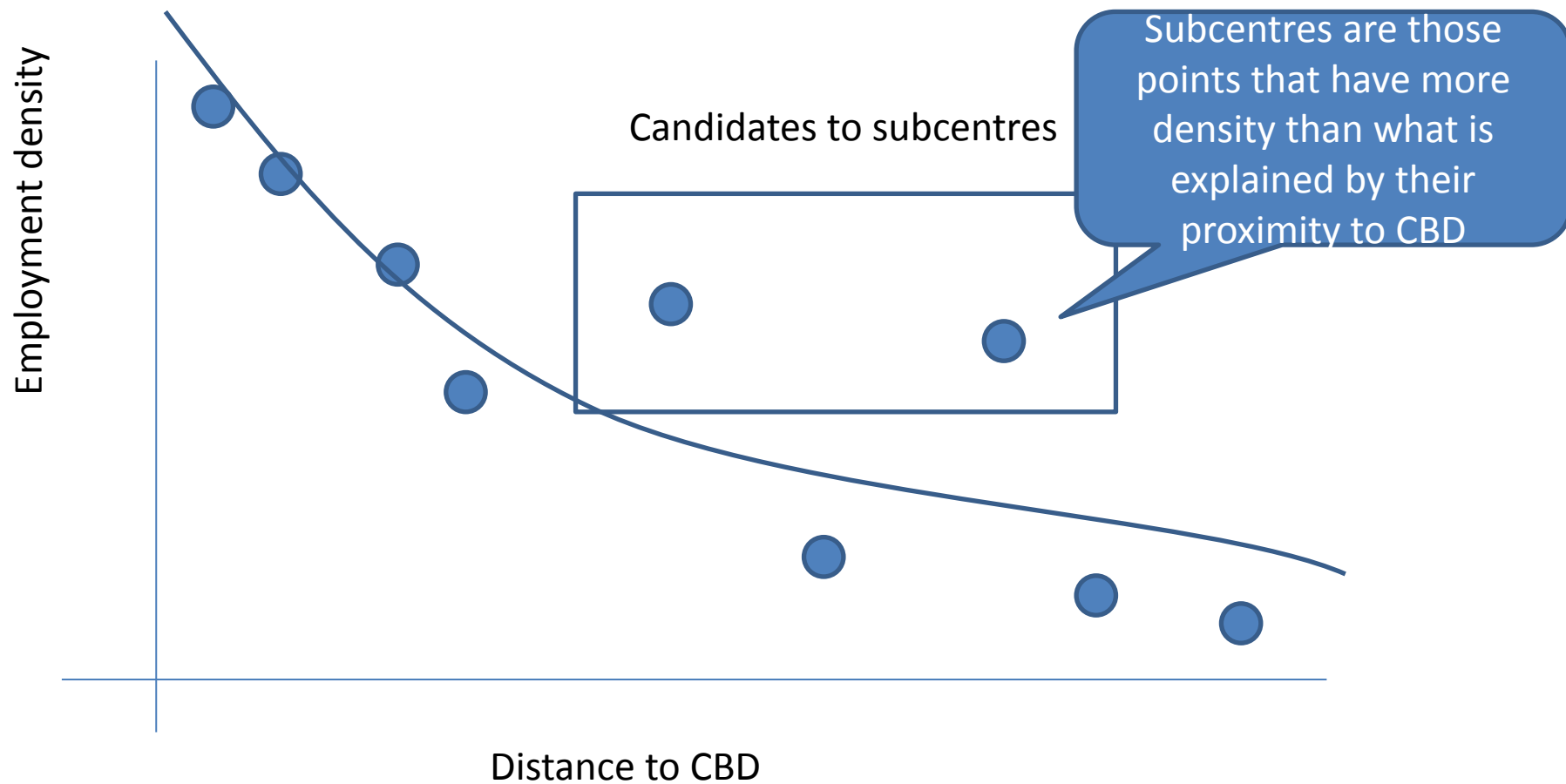
Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7,096	,296		24,001	,000
	Dist_BCN	-,011	,001	-,827	-18,847	,000
	ILOCcc_11100	-,058	,011	-,232	-5,285	,000
	Antigüedad tasaciones	-,004	,002	-,100	-2,088	,038
	FAC3_RW	,059	,011	,224	5,343	,000
	Costa	,178	,027	,285	6,491	,000
	FAC4_FLE	,033	,010	,130	3,131	,002
	Indicador de habitabilidad	,052	,029	,079	1,793	,075
	FAC3_LTL	,048	,011	,189	4,547	,000
	Viviendas con pocas zonas verdes (%)	-,003	,001	-,166	-3,647	,000

a. Dependent Variable: In_pmed

- Distance to CBD
- % of suburban-like urban fabrics
- Age of housing
- + Income of resident working population
- + Coast effect
- + Income of in-commuters
- + Quality of housing
- + Office and service-based economic activity
- Deficiency of greenery

Polycentrism detection using parametric models



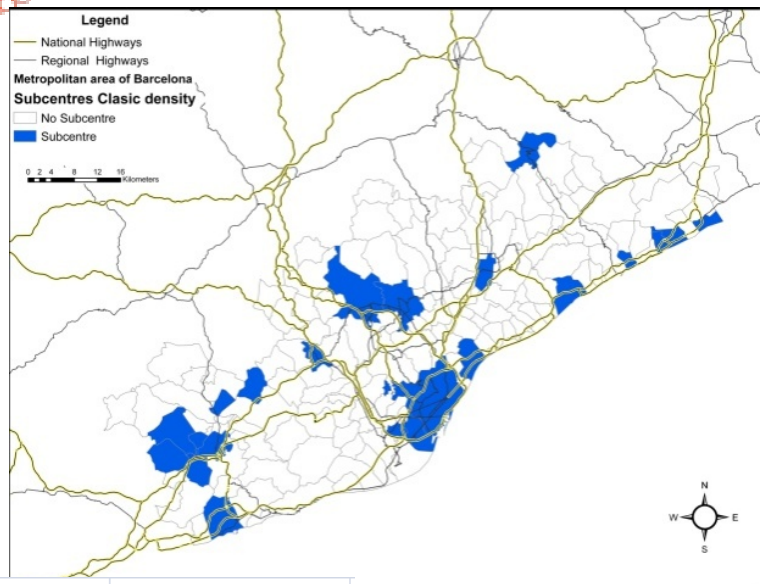
Polycentrism detection using parametric models

In this paper we have tested both the classical employment density (jobs/artificial land), but also the compound density proposed by us in other paper.

Compound density (Marmolejo & Aguirre, 2010), integrates density departing from: in-coming commuters, resident workers and out-going commuters. It is said to detect employment subcentres in a better way, since it gives priority to municipalities that are:

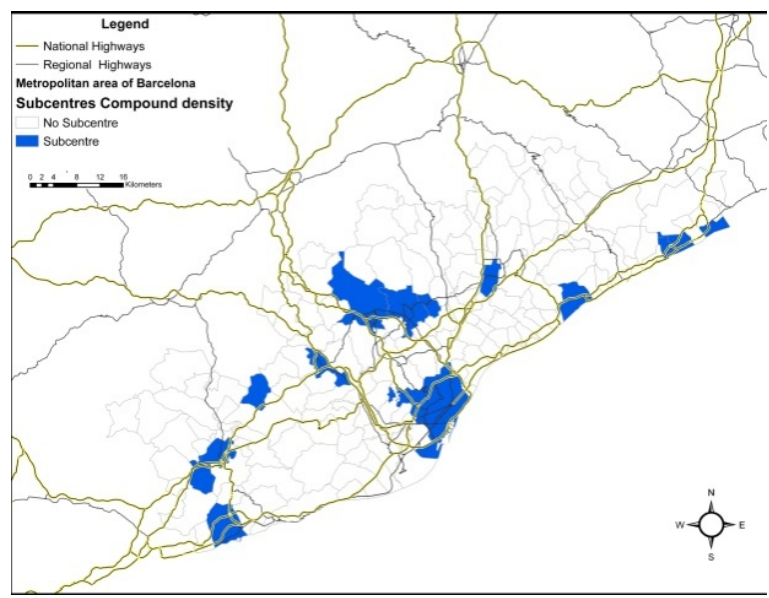
1. attractive to live in,
2. attractive to retain their residing population and
3. attractive to attract commuters.

Classical density subcentres



	Subcentre candidate
8019	Barcelona
8187	Sabadell
8279	Terrassa
8101	Hospitalet de Llobregat,
8015	Badalona
8121	Mataró
8096	Granollers
8073	Cornellà de Llobregat
8114	Martorell
8307	Vilanova i la Geltrú
8305	Vilafranca del Penedès
8163	Pineda de Mar
8110	Malgrat de Mar
8035	Calella
8240	Sant Sadurní d'Anoia
8251	Santa Margarida i els Mon
8040	Canet de Mar
8227	Sant Martí Sarroca
8065	Castellví de la Marca
8154	Pacs del Penedès
8164	Pla del Penedès, el
8137	Montseny
8174	Puigdàlber

Compound density subcentres



	Subcentre candidate	
8019	Barcelona	
8187	Sabadell	
8279	Terrassa	
8121	Mataró	
8096	Granollers	
8114	Martorell	
8307	Vilanova i la Geltrú	
8305	Vilafranca del Penedès	
8196	Sant Andreu de la Barca	
8167	Polinyà	
8163	Pineda de Mar	
8110	Malgrat de Mar	
8035	Calella	
8240	Sant Sadurní d'Anoia	
8251	Santa Margarida i els Mon	

Polycentric model considering subcentres resulting from classical density analysis (m2 floor space)

Proximity to nearest subcentre does positively affect housing prices but in a non significant way

R2 Adjust: 0.751
D min not significant at 95%

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	7,095	,296		23,935	,000
	Dist_BCN	-,012	,001	-,831	-17,873	,000
	ILOCcc_11100	-,059	,011	-,237	-5,119	,000
	Antigüedad tasaciones	-,004	,002	-,103	-2,103	,033
	FAC3_RW	,060	,011	,226	5,286	,000
	Costa	,178	,028	,284	6,441	,000
	FAC4_FLE	,033	,010	,131	3,133	,000
	Indicador de habitabilidad	,053	,029	,079	1,800	,074
	FAC3_LTL	,048	,011	,189	4,525	,000
	Viviendas con pocas zonas verdes (%)	-,003	,001	-,165	-3,579	,000
	Inverso de la Distancia minima	,004	,013	,014	,307	,759

a. Dependent Variable: ln_pmed

Polycentric model considering subcentres resulting from compound density analysis (m2 floor space)

Proximity to nearest subcentre does positively affect housing prices but in a non significant way

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	7,082	,297		23,882	,000		
	Dist_BCN	-,012	,001	-,840	-17,907	,000	,638	1,567
	ILOCcc_11100	-,060	,011	-,243	-5,281	,000	,664	1,507
	Antigüedad tasaciones	-,004	,002	-,105	-2,181	,031	,600	1,668
	FAC3_RW	,061	,011	,230	5,389	,000	,770	1,298
	Costa	,179	,027	,286	6,506	,000	,725	1,379
	FAC4_FLE	,033	,010	,133	3,177	,002	,806	1,241
	Indicador de habitabilidad	,055	,029	,082	1,862	,064	,718	1,392
	FAC3_LTL	,048	,011	,188	4,530	,000	,811	1,232
	Viviendas con pocas zonas verdes (%)	-,003	,001	-,163	-3,548	,001	,666	1,501
	Inverso de la Distancia minina	,011	,014	,035	,788	,432	,711	1,407

a. Dependent Variable: ln_pmed

R2 Ajust: 0.752
D min No
significativa al 95%

Up to now there is not evidence in Barcelona that distance to nearest employment subcentre does positively affect the price of a square meter of housing.

Nevertheless, the conclusions change when we try to explain the spatial variation of the square meter of plot (land prices), which intrinsically consider the floor area ratio (edificability index).

Polycentric model considering subcentres resulting from compound density analysis (m2 plot space)

Proximity to nearest subcentre does positively affect housing prices and it is statistically significant

R2 Ajust: 0.836

INV D min

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	5,834	,113		51,751	,000					
	Dist_BCN	-,035	,002	-,624	-19,485	,000	-,636	-,830	-,593	,906	1,104
	ILOCcc_11100	,315	,036	,312	8,784	,000	,568	,556	,268	,736	1,358
	Viviendas con pocas zonas verdes (%)	-,019	,002	-,295	-8,440	,000	-,533	-,541	-,257	,759	1,317
	Costa	,622	,081	,244	7,629	,000	,356	,503	,232	,909	1,100
	Inverso de la Distancia minina	,134	,043	,109	3,146	,002	,208	,233	,096	,768	1,303

a. Dependent Variable: Ln_Psuelo1

Conclusions

- According to the models used here there is not apparent significant correlation between housing prices and distance to nearest employment subcentre
- Nonetheless land prices are influenced conjointly, in the expected way, both by the distance to CBD and to subcentres
- Behind of such a conclusion might be the elasticity to consume more space in cheaper and non central (nor subcentral) sites. This elasticity might flat the curve of housing prices but not land prices.

Aknowledgements

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