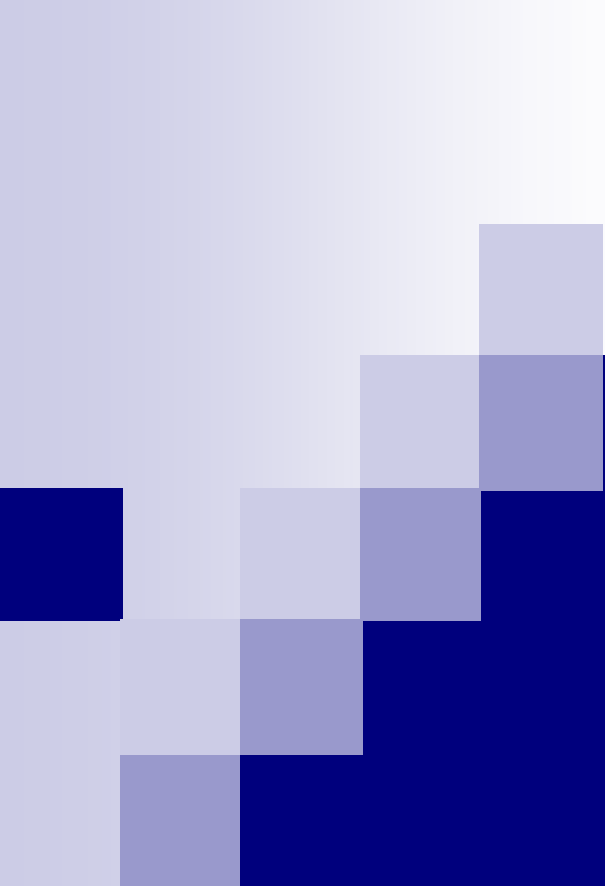




IDB RES Project on Quality of life in urban neighborhoods

The Case of Buenos Aires

IDB-OECD Seminar

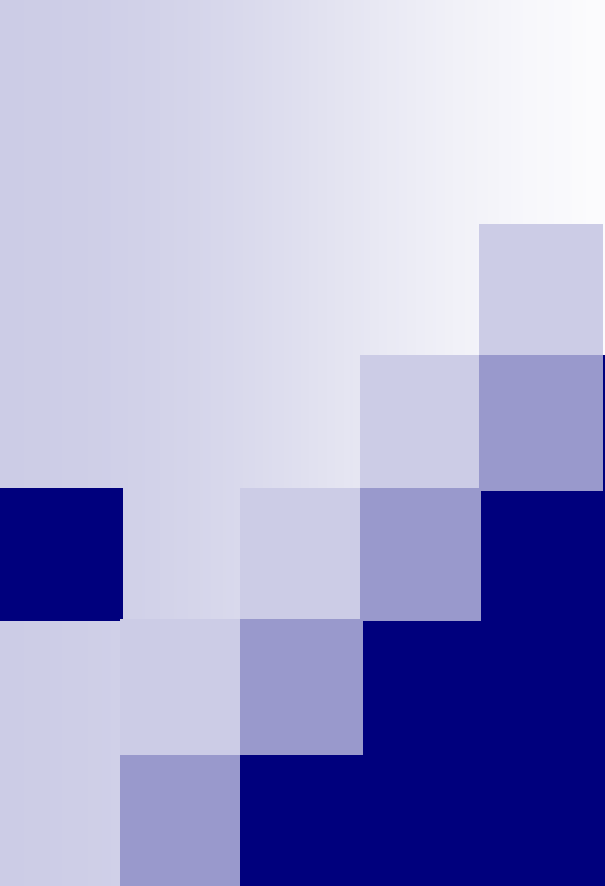
Monitoring the Urban Quality of Life in Latin America

September 26, 2008, Paris

Guillermo Cruces, CEDLAS – Centro de Estudios
Distributivos, Laborales y Sociales, Universidad
Nacional de La Plata, Argentina

One page presentation

- A little bit on the project.
- Data sources and methodology for the BA case.
- Main results from alternative methodological approaches to neighborhood satisfaction:
 - Life satisfaction approach
 - Hedonic price regressions(NB: paper contains all estimation alternatives, focus only on a few examples here)
- What next: index(ces?) and policy recommendations.

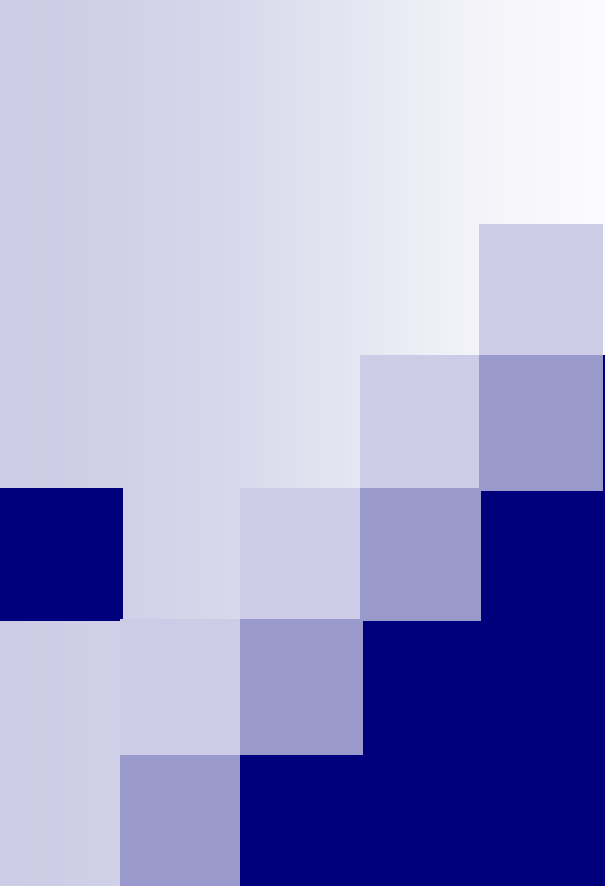


The project



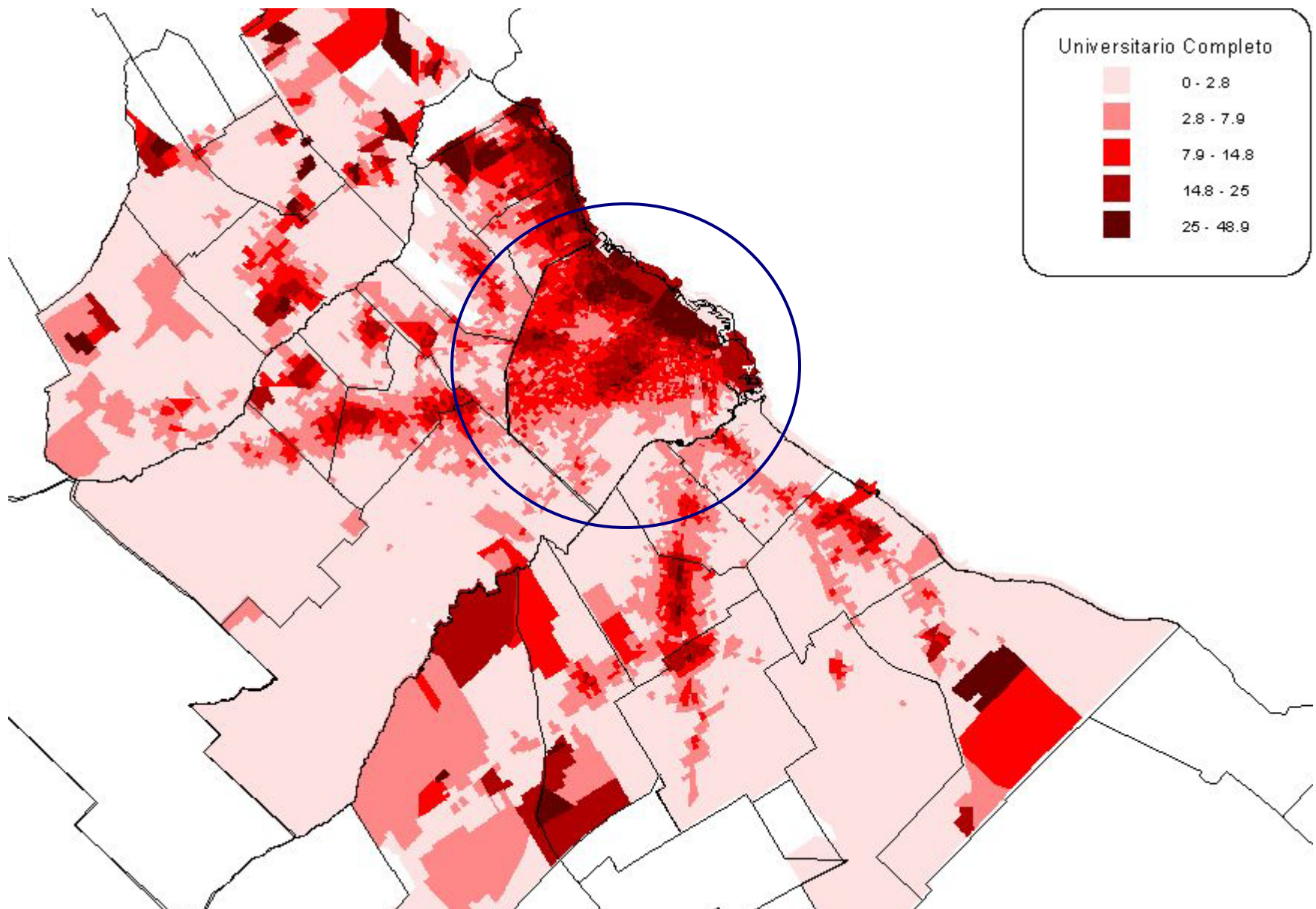
The IDB RES Project on Quality of life in urban neighborhoods

- An opportunity to carry out in-depth studies throughout the region.
- True positive externalities: Interaction among research teams, with academic advisors and with IDB staff lead to sharing of information and collaborative research.
- However, not “one size fits all”: teams concentrated on each cities’ characteristics and salient issues (ex.: altitude in Montevideo, coast in Bogota...)
- The process resulted in new data sources, original methodological development and interesting policy results.

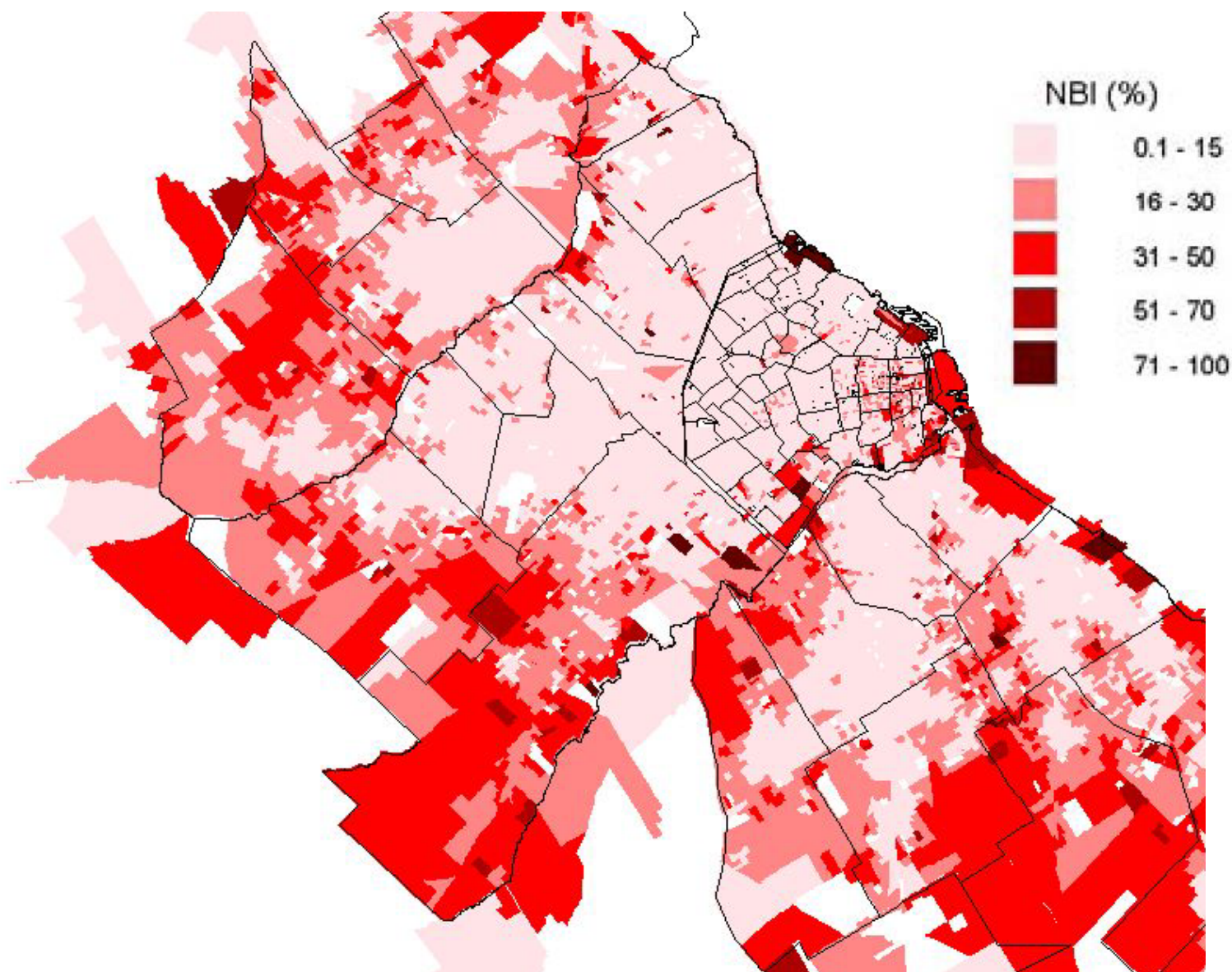


Heterogeneity at the sub-city level: A tale of two AMBAs

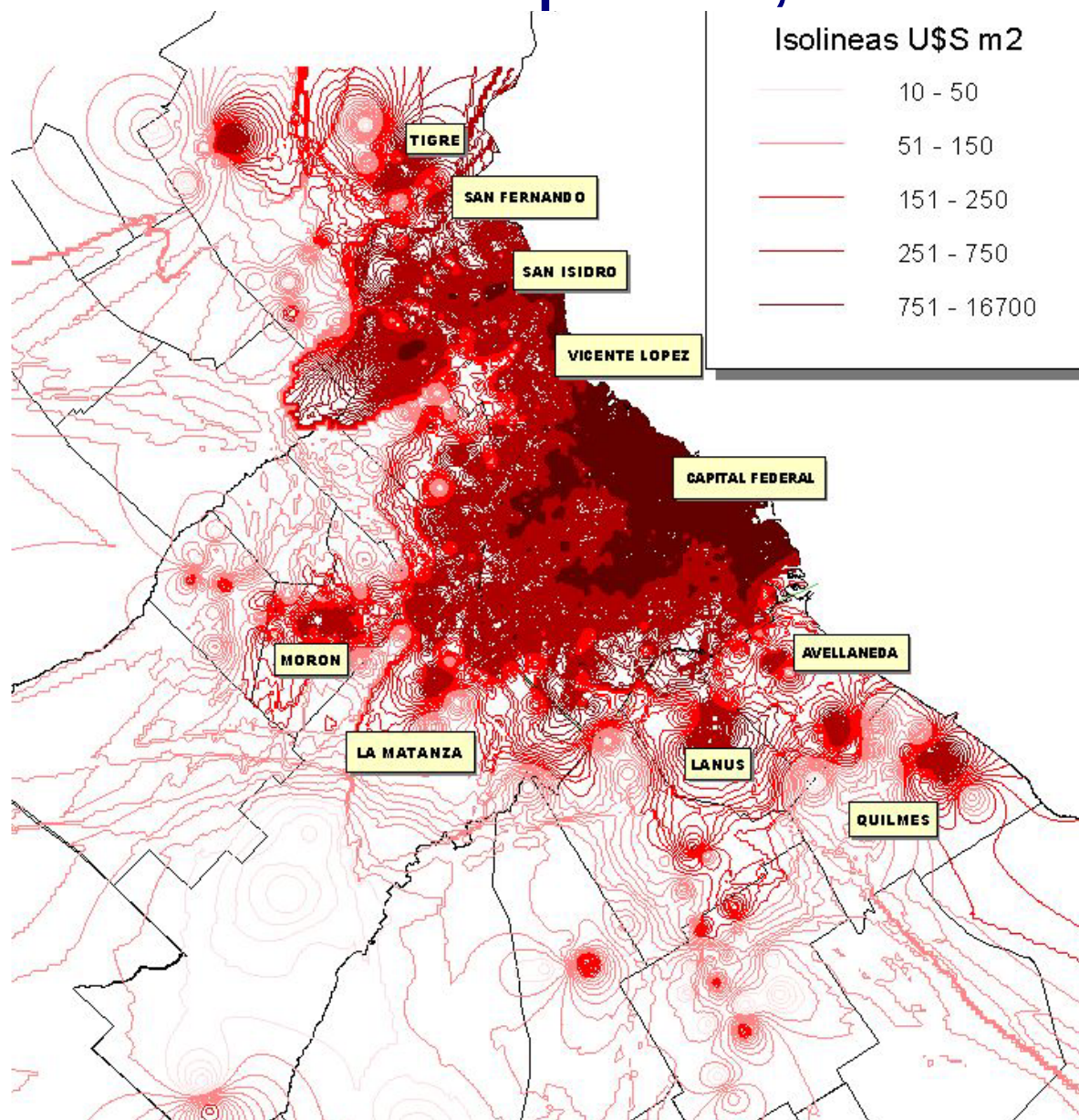
Population with university degree, 2001



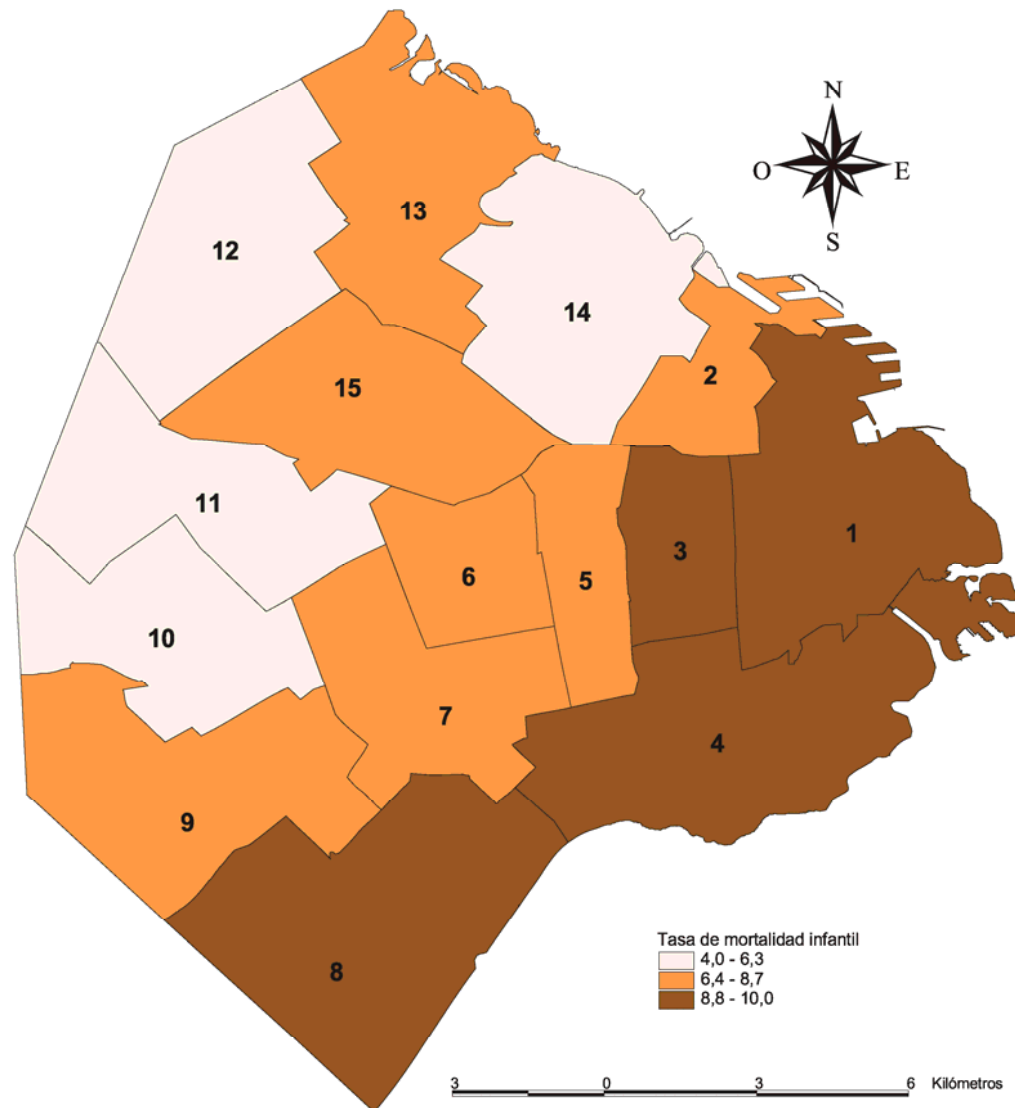
Basic needs deficit (at least one), 2001



Vacant lot prices, 2006

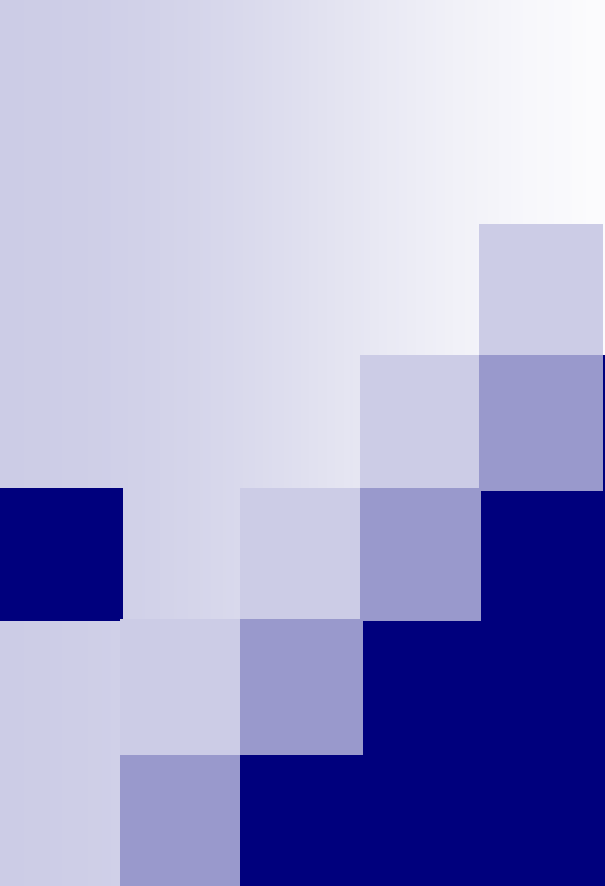


Even within the City: Child Mortality Rates by Administrative Area, City of Buenos Aires 2006



AMBA and data sources

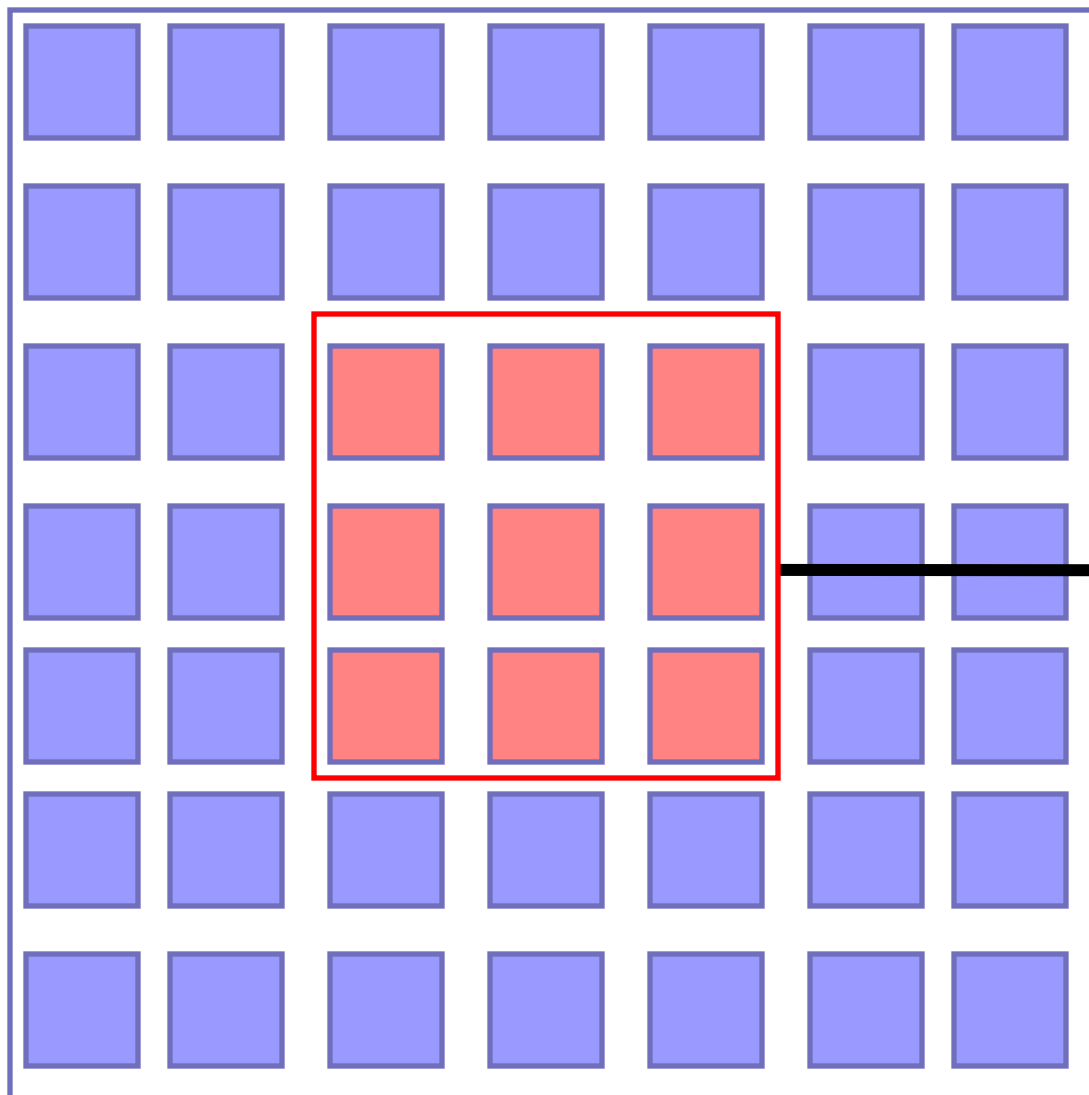
- The Buenos Aires Metropolitan Area (AMBA) comprises the City of Buenos Aires and a series of municipalities (“conurbano” or Gran Buenos Aires-GBA).
 1. Real estate prices from City’s database (thousands of data points).
 2. The NQLS QoL survey was carried out in 4 neighborhoods, 3 in the City and 1 in the GBA. The team interviewed 1000+ households.
 3. Geographers collected urban infrastructure data (block by block) in these neighborhoods.



The NQLS: Neighborhood Quality of Life Survey, Buenos Aires

The NQLS

- Two affluent (one traditional, the other up and coming) and two poorer neighborhoods (one inner city, one suburban).
- The survey contained questions on:
 - Satisfaction with neighborhood and subjective evaluation of neighborhood characteristics.
 - QoL / life satisfaction in different domains
 - Household characteristics (demographics, income, education).
- Geographical survey: provide “hard” data to contrast with subjective evaluations.
- Engaging survey – the team of geographers reported on neighbors mentioning the previous HH survey.



→ Zona de
relevamiento
urbanístico

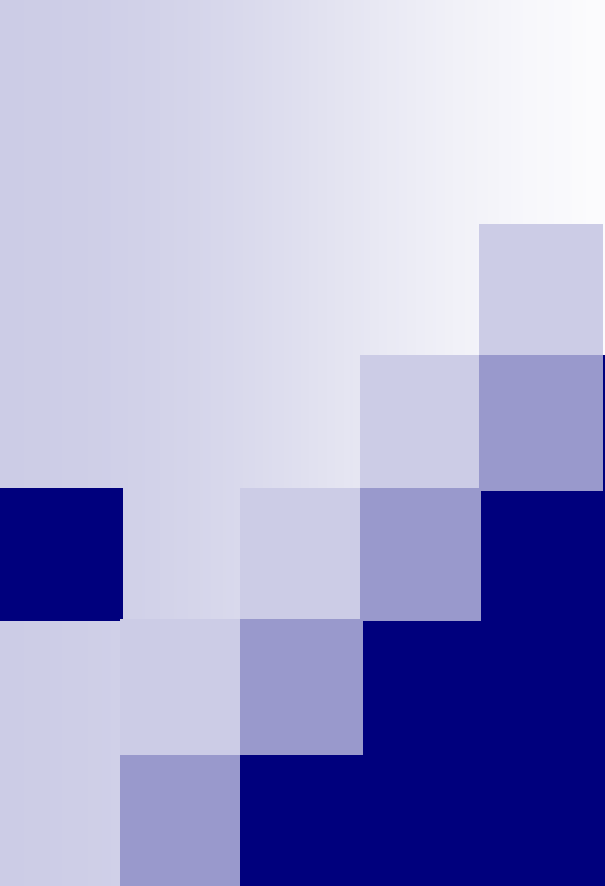
Encuesta
de hogar
geo-referenciada

Subjective evaluation of neighborhood characteristics (1-10 scale)

	Avellaneda	Caballito	Palermo	San Cristobal	Total
Sidewalk conditions when raining	5.27	5.85	5.37	5.11	5.40
Conditions of pavement-streets	5.74	6.22	5.32	5.65	5.73
Street and sidewalk cleanliness	5.01	6.42	5.83	5.39	5.66
Sidewalk forestation	5.56	6.92	6.58	6.02	6.26
Garbage collection in neighborhood	6.42	7.47	6.95	7.06	6.97
Access to public transport	7.83	7.78	7.47	7.55	7.66
Cultural and sports activities in neighborhood	5.57	6.84	6.13	5.79	6.07
Amount and quality of green areas	5.12	7.07	7.28	5.96	6.36
Police performance in the neighborhood	4.61	5.70	5.88	5.25	5.35
Street and sidewalk lighting at night	6.62	6.81	6.70	6.14	6.57
Traffic in neighborhood	6.13	5.63	5.97	5.03	5.70
Security during the day	5.30	6.49	6.42	5.73	5.98
Security during the night	4.49	5.59	5.33	4.33	4.93
Evaluation of neighbors	7.59	7.77	7.38	7.22	7.49
<i>Simple average</i>	5.80	6.61	6.33	5.87	6.15

Geographical survey indicators

	Avellaneda	Caballito	Palermo	San Cristobal	Total
Trees and large plants	15.9	19.1	18.5	15.7	17.4
Wooden posts	12.1	0.20	0.90	1.20	3.44
Steel posts	0.76	5.53	7.36	4.47	4.60
Street lighs	3.69	4.43	3.72	2.99	3.73
Public transport stop	0.06	0.17	0.41	0.15	0.20
Garbage bins and containers	0.05	2.60	3.06	2.00	1.97
Policemen	0.00	0.06	0.13	0.13	0.08
Rubbish bags during the day	5.68	2.32	4.70	2.48	3.75
Broken sidewalk	7.06	1.60	2.71	5.99	4.23
Leisure-related venues	0.36	0.80	1.71	0.60	0.88
Residential units (houses, apartment blocks)	11.1	11.6	10.9	8.97	10.7
Tall buildings	0.53	6.95	6.23	6.21	5.07
Health facilities	0.01	0.09	0.18	0.02	0.07
Educational facilities	0.06	0.09	0.11	0.00	0.07
Commercial facilities	0.76	2.55	3.41	4.46	2.80
Parking lots	6.58	6.26	3.79	0.11	4.23
Visual contamination	6.15	2.66	4.89	2.63	4.04
Red lights	0.51	1.09	2.07	1.79	1.37
Payphones	0.13	0.32	0.39	0.29	0.28
Street name posts	2.02	1.35	1.71	1.70	1.68
Estate agent signs	0.34	0.60	0.56	0.61	0.53



QoL at the neighborhood level: The life satisfaction approach

Life satisfaction and urban QoL

- “Leyden” assumptions on quantifiable utility and interpersonal comparability.
- van Praag and Baarsma (2005): valuation of an urban externality (airport noise).
- Extension to urban quality of life.
- Alternatives in the paper:
 - Hedonic price regressions
 - Direct determinants of neighborhood satisfaction
...but careful with reverse causation (ex.: noise, traffic) and expectations.
 - Neighborhood satisfaction as a life satisfaction “domain”.



Satisfaction in life domains

(1-10 scale)

	Avellaneda	Caballito	Palermo	San Cristobal	Total
General life satisfaction	7.59	8.00	7.88	7.68	7.79
Satisfaction with neighborhood quality of life	7.08	7.82	7.71	6.75	7.34
Satisfaction with own economic situation	6.99	7.23	7.26	6.68	7.04
Job satisfaction	7.88	7.93	8.27	8.04	8.03
Satisfaction with friends	8.76	9.02	9.05	9.03	8.96
Satisfaction with emotional life	7.94	8.07	8.10	7.85	7.99
Satisfaction with physical health	7.75	8.18	8.11	7.85	7.97
Satisfaction with mental health	7.99	8.16	8.20	7.90	8.06
Satisfaction with home	8.11	8.34	8.12	8.18	8.19
<i>Simple average</i>	7.79	8.08	8.08	7.77	7.93

Neighborhood satisfaction as a domain of life satisfaction

$$GS_i = a + bY_i + cX_i + dNS_i + e_i$$

- General life satisfaction as a function of income, satisfaction in other “domains” (NS) and individual characteristics X.
- Neighborhood satisfaction as a function of subjective evaluation of neighborhood characteristics SE and objective indicators:

$$NS_i = a + bSE_i + cZ_i + e_i$$

- Derive valuations by mean of the coefficient of the income variable in the life satisfaction regression (marginal utility of income).

Life satisfaction regression

Dependent variable: GS (general life satisfaction)

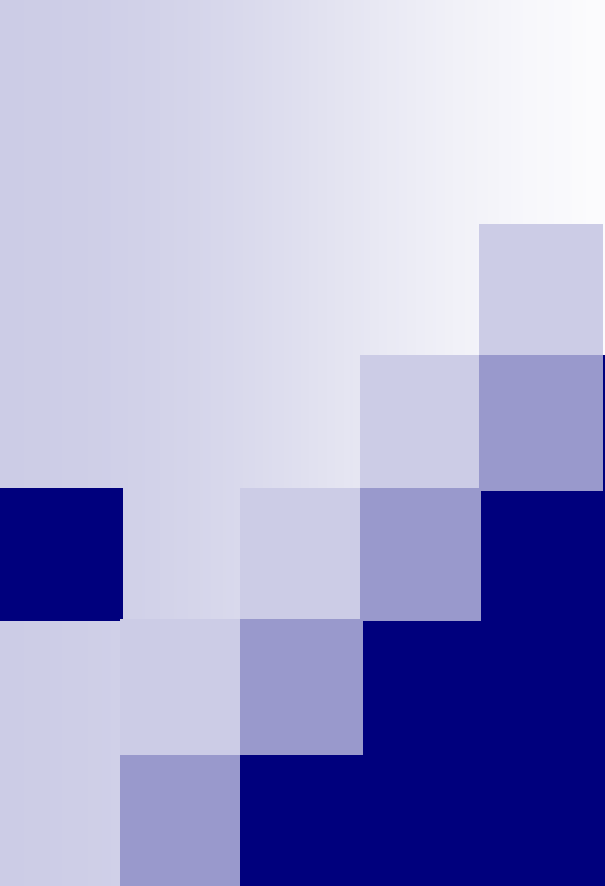
	COLS	3SLS (COLS)
Satisfaction with neighborhood quality of life	0.3343 [8.25]***	0.4748 [7.87]***
Log total household income	0.0794 [2.09]**	0.0882 [2.33]**

Neighborhood satisfaction regression

Dependent variable: NS (neighborhood satisfaction)		
	COLS	3SLS (COLS)
<i>Objective characteristics (OC variables)</i>		
Parking lots	0.0128 [1.89]*	0.0131 [1.82]*
Payphones	0.0707 [2.05]**	0.0761 [2.26]**
<i>Subjective characteristics (SC variables)</i>		
Annoying noise during the day	-0.0754 [1.95]*	-0.0651 [1.65]*
Beggars	-0.0501 [1.52]	-0.0416 [1.27]
<i>Subjective evaluations (NE variables)</i>		
Sidewalk conditions when raining	0.0793 [2.43]**	0.0865 [2.99]***
Conditions of pavement-streets	0.0668 [1.90]*	0.0557 [1.76]*
Street and sidewalk cleanliness	0.0482 [1.46]	0.0499 [1.75]*
Cultural and sports activities	0.0414 [2.31]**	0.0402 [2.37]**
Amount and quality of green areas	0.0733 [2.60]***	0.0829 [3.44]***
Traffic in neighborhood	0.0533 [1.98]**	0.0616 [2.40]**
Security during the day	0.0895 [2.39]**	0.0927 [2.81]***
Evaluation of neighbors	0.119 [5.35]***	0.1208 [6.62]***

Relevant factors for neighborhood satisfaction

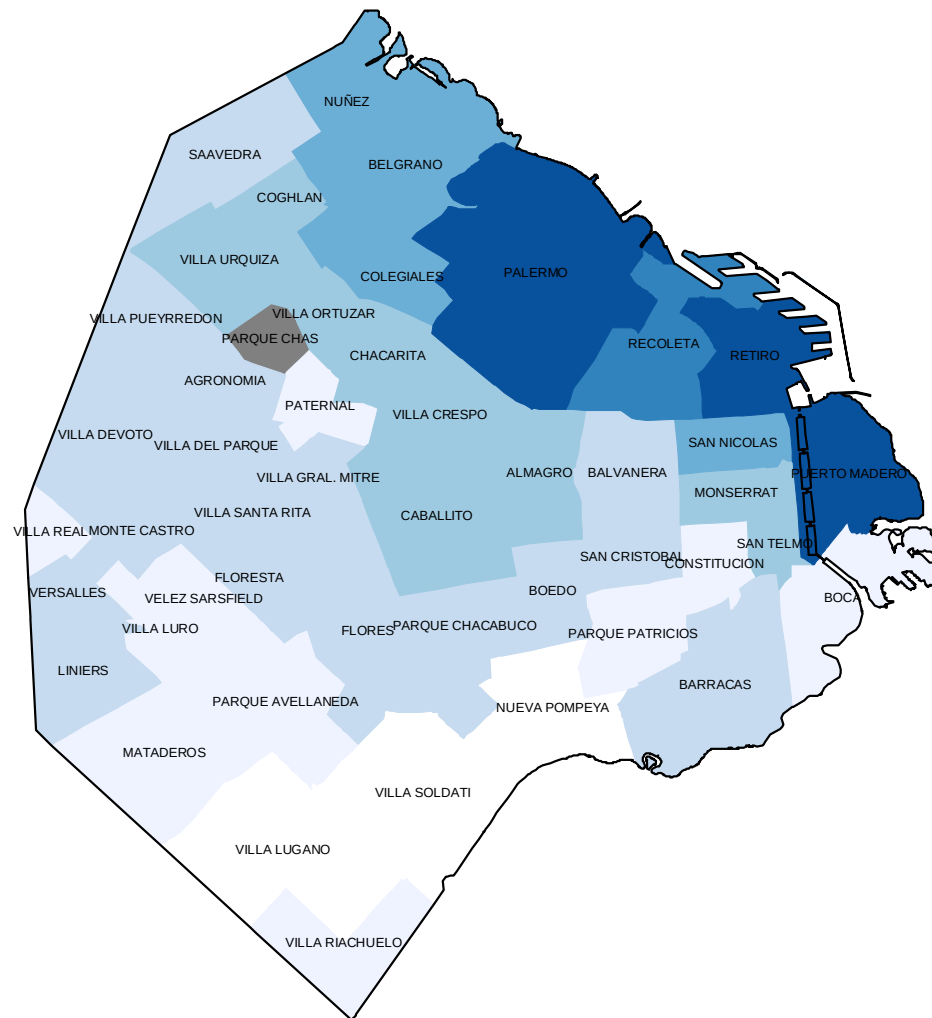
- Significant relationship between life satisfaction and neighborhood satisfaction.
- Evaluation of the neighbors as a significant factor.
- Factor susceptible to policy intervention:
 - ☐ Safety-security
 - ☐ Infrastructure: Parking lots, Payphones, Pavement-streets-sidewalks
 - ☐ Green areas
 - ☐ Culture-sports
- However, little relevance of objective indicators (less variation?)



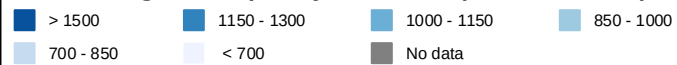
Hedonic price regressions

Hedonic regressions

- Hedonic price regression study (urban economics). No simultaneous wage regression since all data from the same urban area.
- Main focus: importance urban infrastructure variables.
- Distance to facilities *for each property in the database*).
- Property's characteristics as controls.



Average Property Prices (2006 USD)



Hedonic price regressions

$$\log(P / m^2)_{ij} = \alpha + \sum_h \eta_h HC_{ij}^h + \sum_h \partial_h D_{ij}^h + u_{ij}$$

- where HC is a matrix of household characteristics (lot size, building age, rooms, bathrooms, garage, etc.),
- D is a vector of the logarithm of distances to amenities:
 - green areas and parks,
 - avenues,
 - train stations,
 - the business center,
 - freeways,
 - subway stations and
 - schools
- for each property.
- Derive valuation of amenities D through the ∂ coefficients and construct an index by neighborhood.

House price per m2 regression

Coefficient of distance to amenities variables

Distance to avenue	0.012 [0.006]**
Distance to school	-0.035 [0.017]**
Distance to green space	0.006 [0.012]
Distance to freeway	0.049 [0.020]**
Distance to center	0.058 [0.085]
Distance to subway	-0.095 [0.031]***
Distance to train station	-0.057 [0.026]**

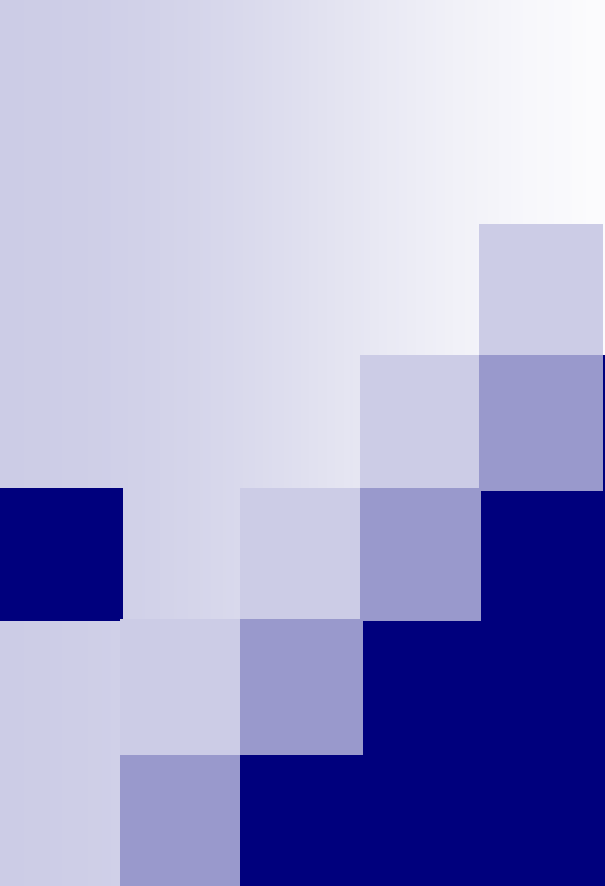


Hedonic regressions with real estate prices

- All property characteristics as expected.
- Some urban infrastructure variables statistically significant...
- But neighborhood dummies strongly significant, and capture most of the infrastructure variables effects.
- Interpretation of these results: within/between (neighborhoods with and without Metro...).
- Significance of neighborhood dummies indicate that there's more to it than location.

Hedonic regressions with NQLS

- The paper also presents hedonic price regressions based on NQLS data.
- Augmented with other characteristics (subjective evaluations and objective indicators).
- Relevant factors in the determination of rental prices :
 - ☐ local safety,
 - ☐ cleanliness,
 - ☐ peace and quiet,
 - ☐ infrastructure maintenance and
 - ☐ transport availability
- This approach resulted in some counterintuitive results: reverse causation...

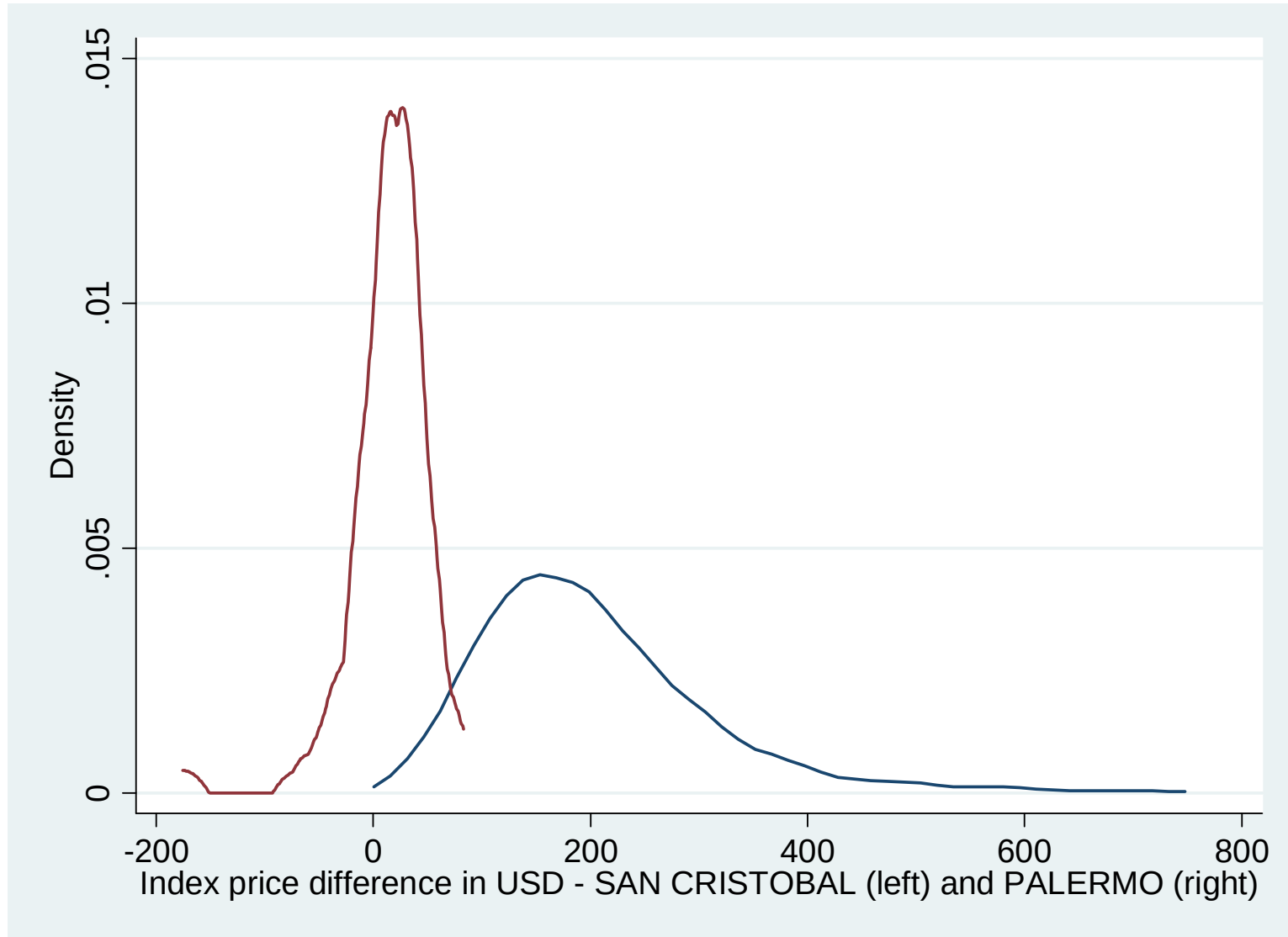


Comparative analysis: San Cristobal and Palermo

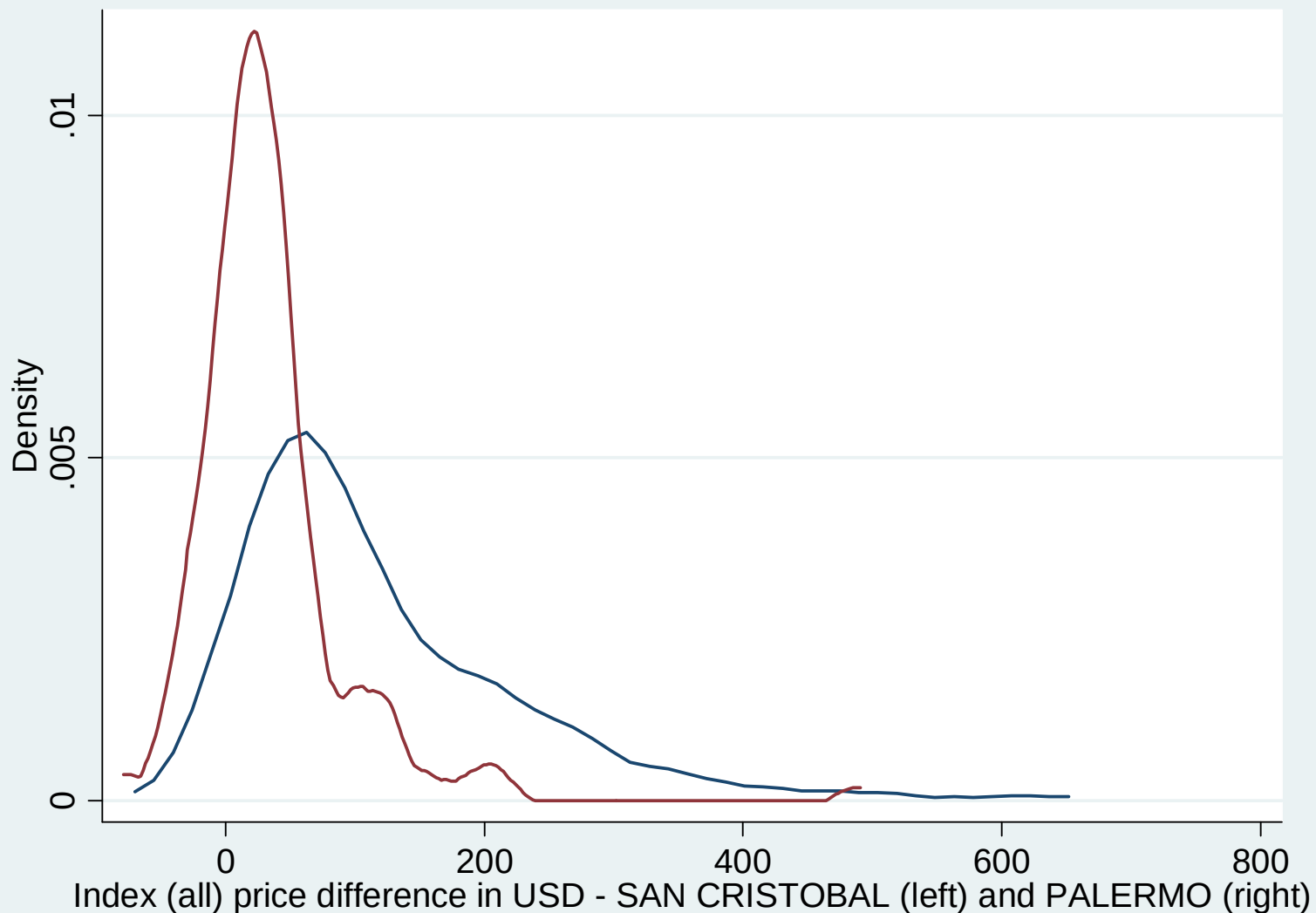
The results

- Two alternative methodologies:
 - hedonic price regressions
 - the life satisfaction valuation
- Two alternative datasets:
 - the Buenos Aires Real Estate database
 - the Neighborhood Quality of Life Survey
- Comparing two neighborhoods with different combinations of data/methodology.

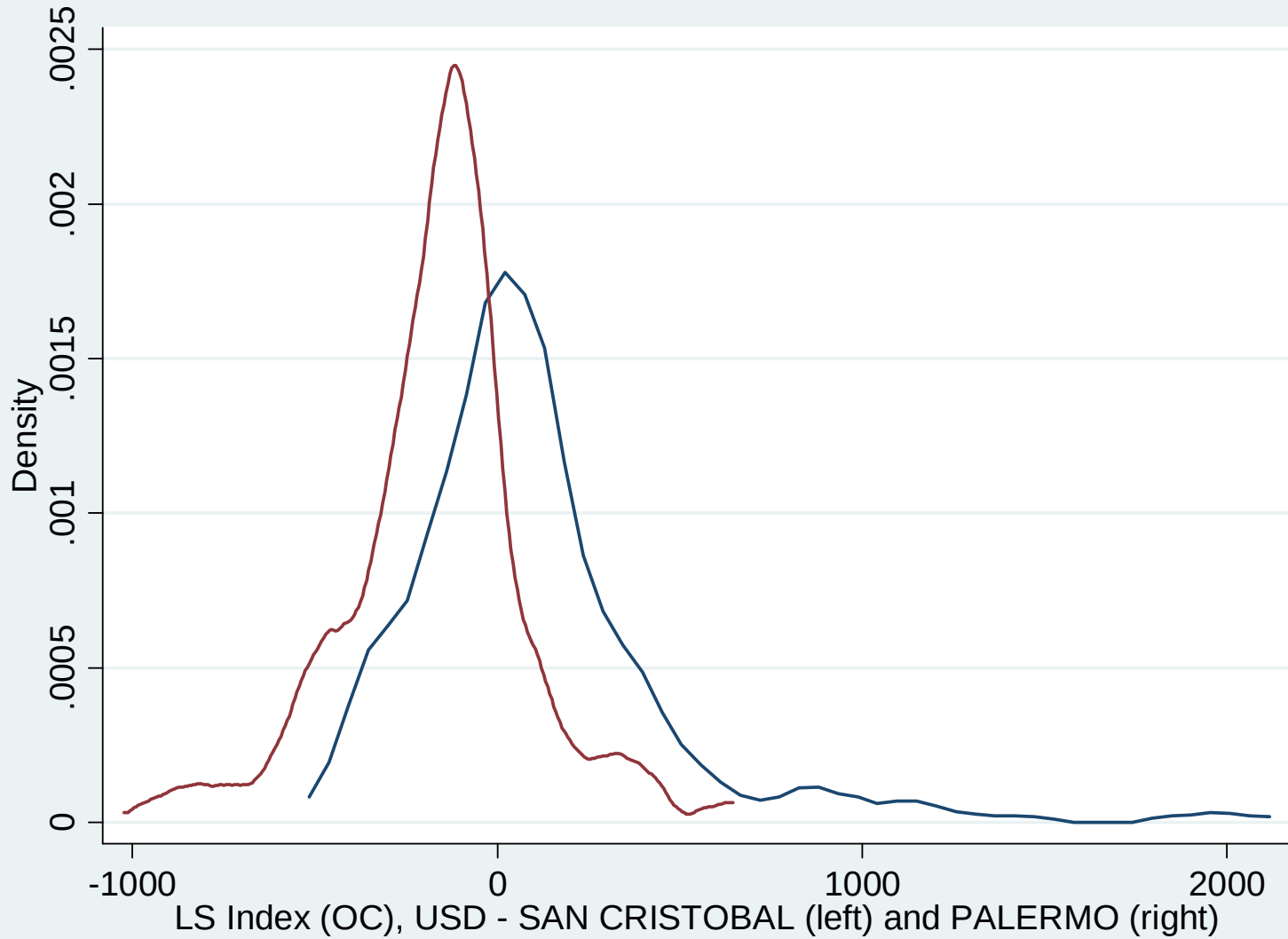
Hedonic regression, real estate database

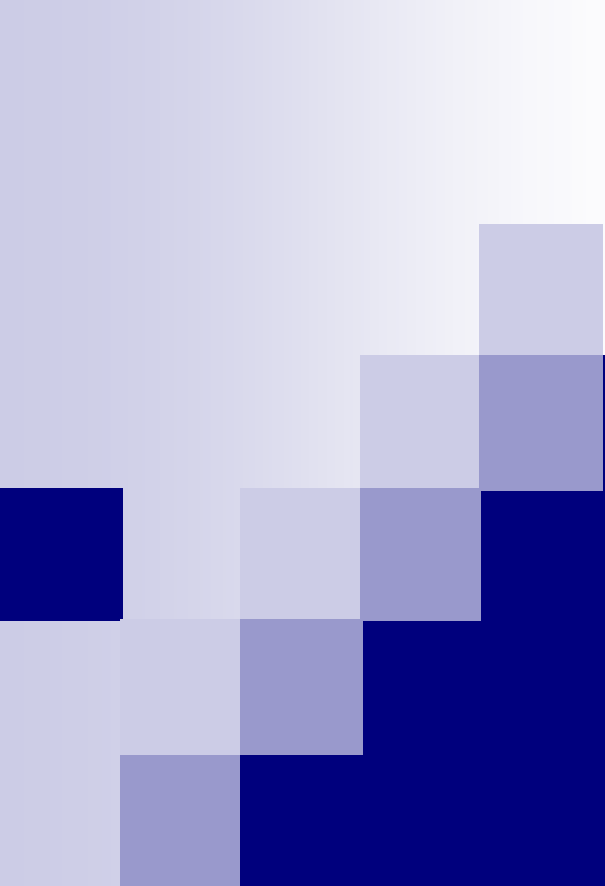


Hedonic regression, NQLS database



Life satisfaction index, NQLS





Conclusions



Conclusions

- Multidimensional quality of life factor associated with neighborhood characteristics (distribution of indices).
- Significant and robust relationship between life and neighborhood satisfaction.
- The approaches indicate an important role for urban public policy making in improving quality of life.
- IDB pilots indicate some of the relevant dimensions of well-being at the sub-city level.
- Towards a feasible periodic urban QoL surveys to inform policy makers. Win-win? Evaluation tool for municipal governments, input for local elections...
- Caveats with subjective indicators: cater to expectations or cater to needs? Strike a balance.