Policy and Environmental Influences on Physical Activity in Bogota, Colombia

Luis Fernando Gómez MD MPH

Fundación FES Social

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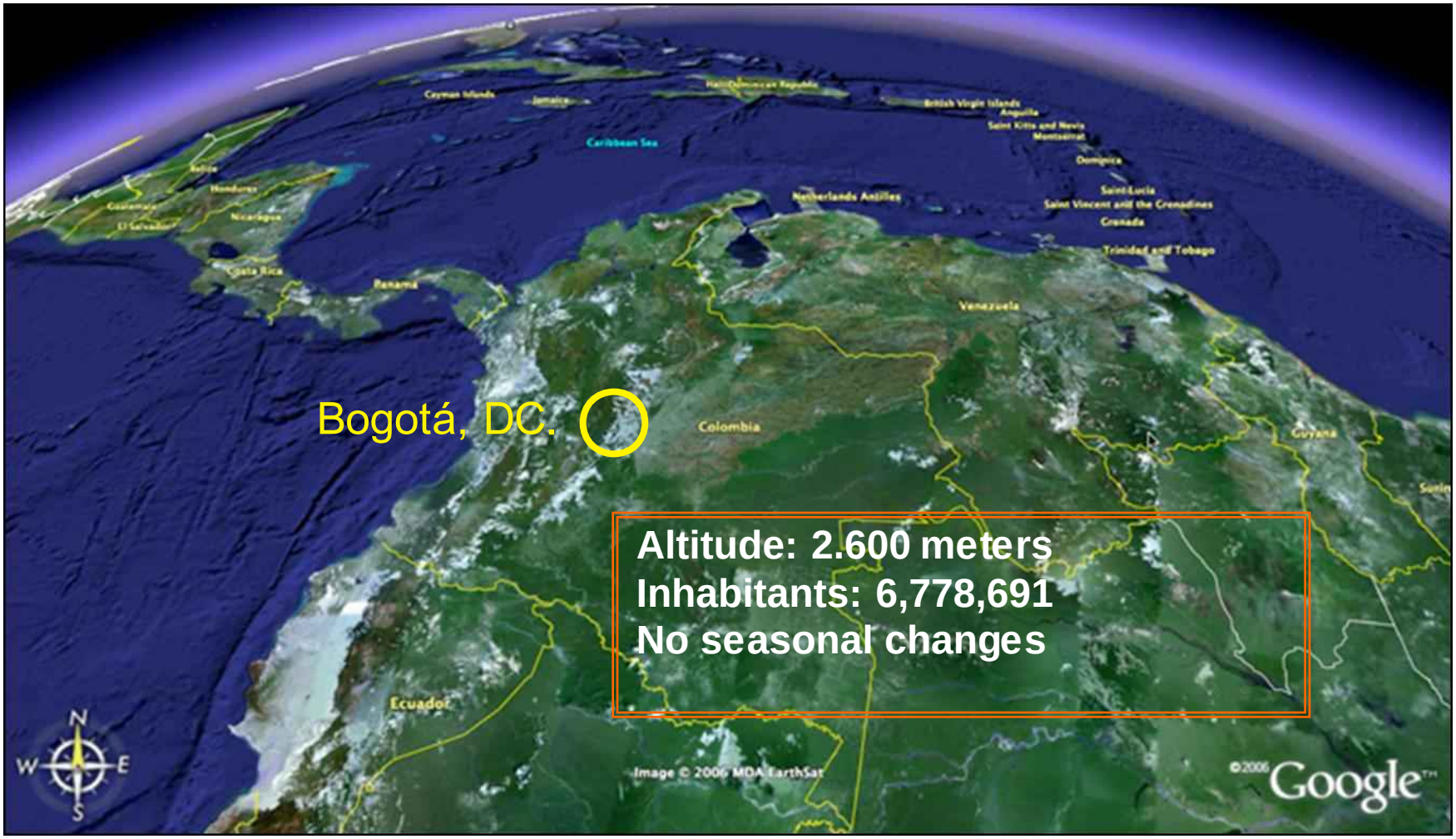
Background information of the city of Bogotá, location

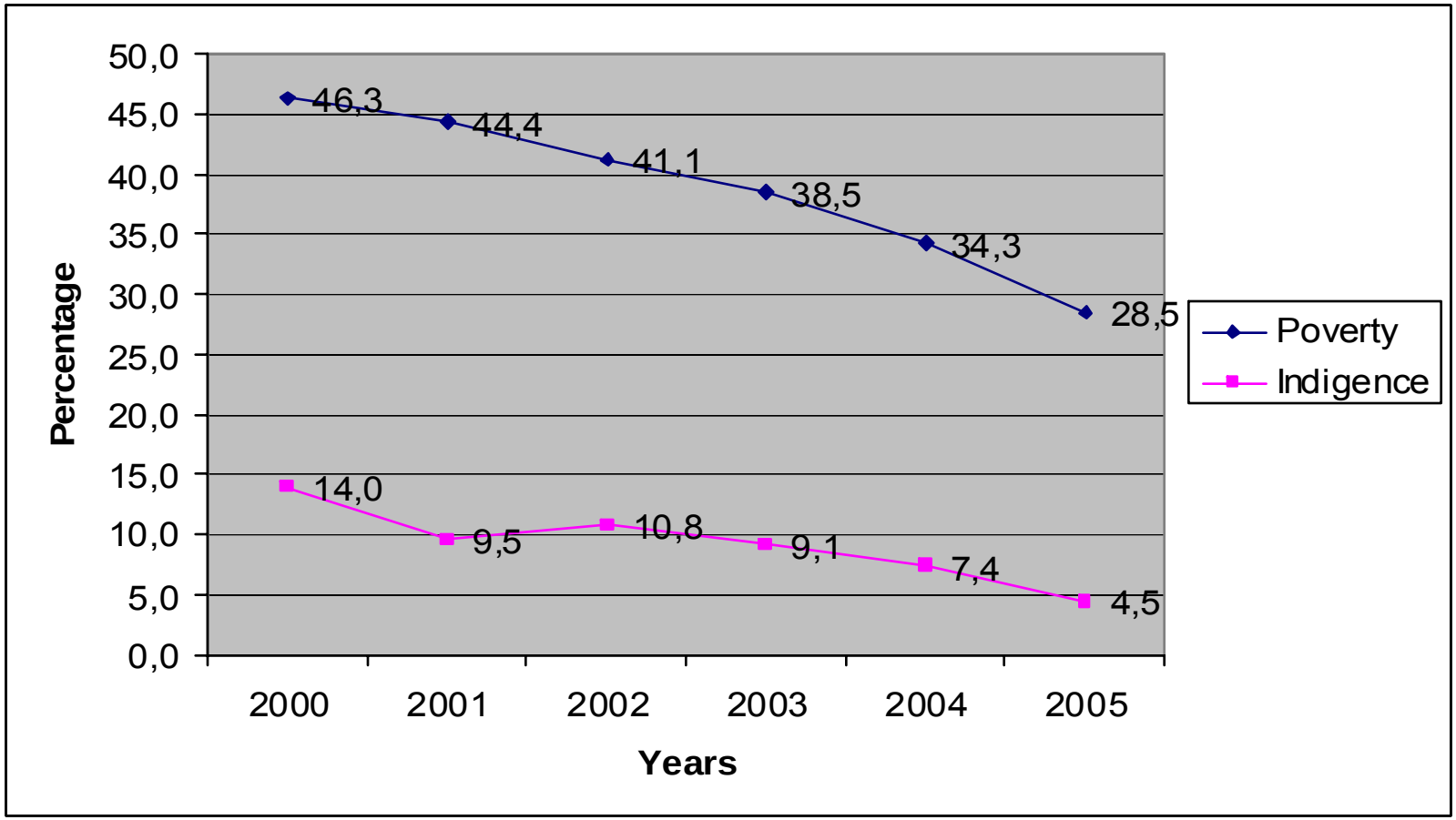


Background information: some health indicators

80% of the mortality due to chronic diseases occurs in low and middle income countries (World Health Organization, 2005)

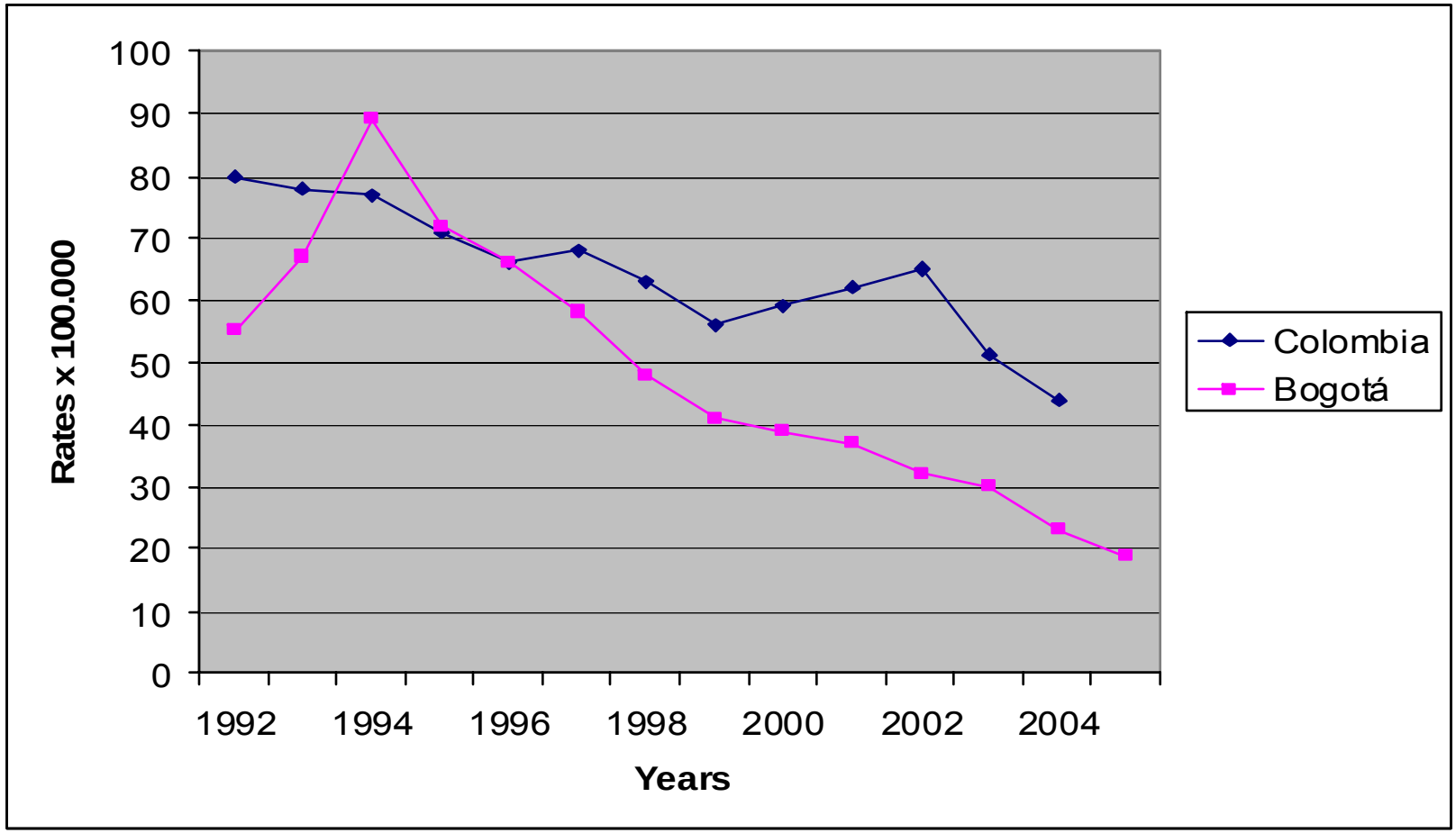
In Bogotá chronic diseases such as heart infarction, stroke, and cancer are the main causes of mortality (Gonzales M & De la Hoz F, 2002)

Poverty and indigence: Bogota 2000-2005



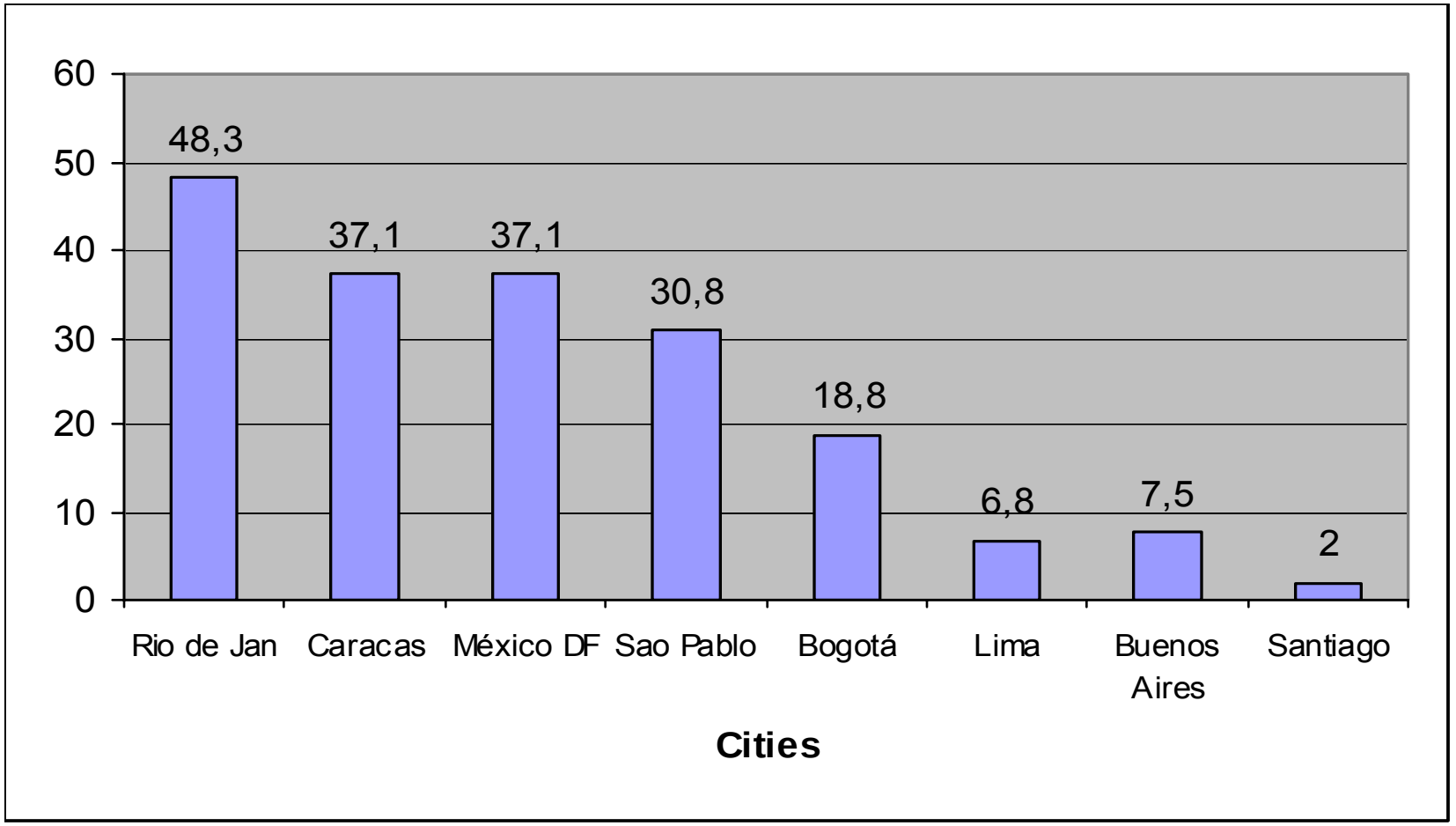
Source: DANE

Homicide rates: National vs Bogota 1992-2005



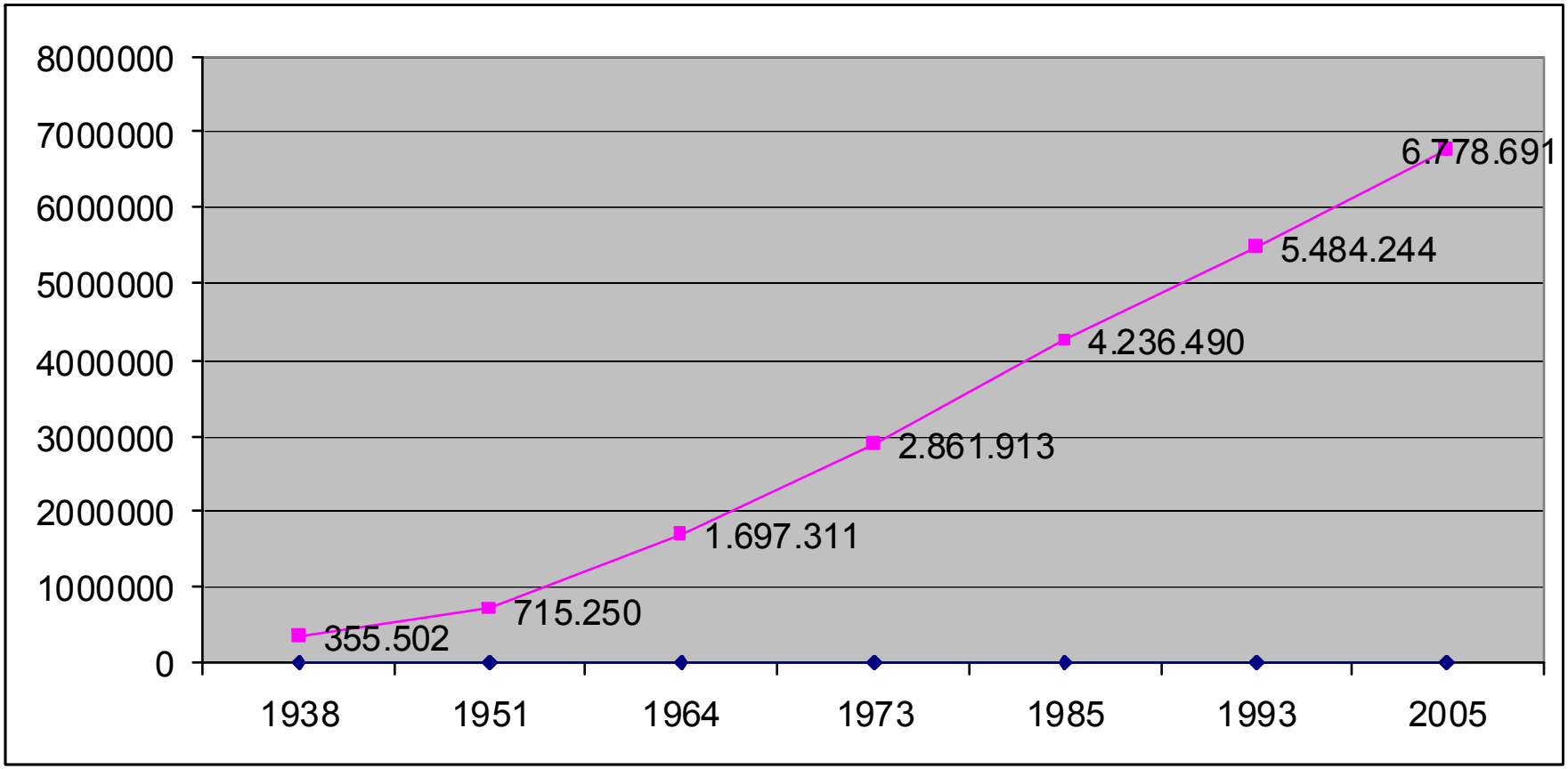
Source: Policia Nacional

Homicide rates in different Latin America cities



Source: El Tiempo, DANE

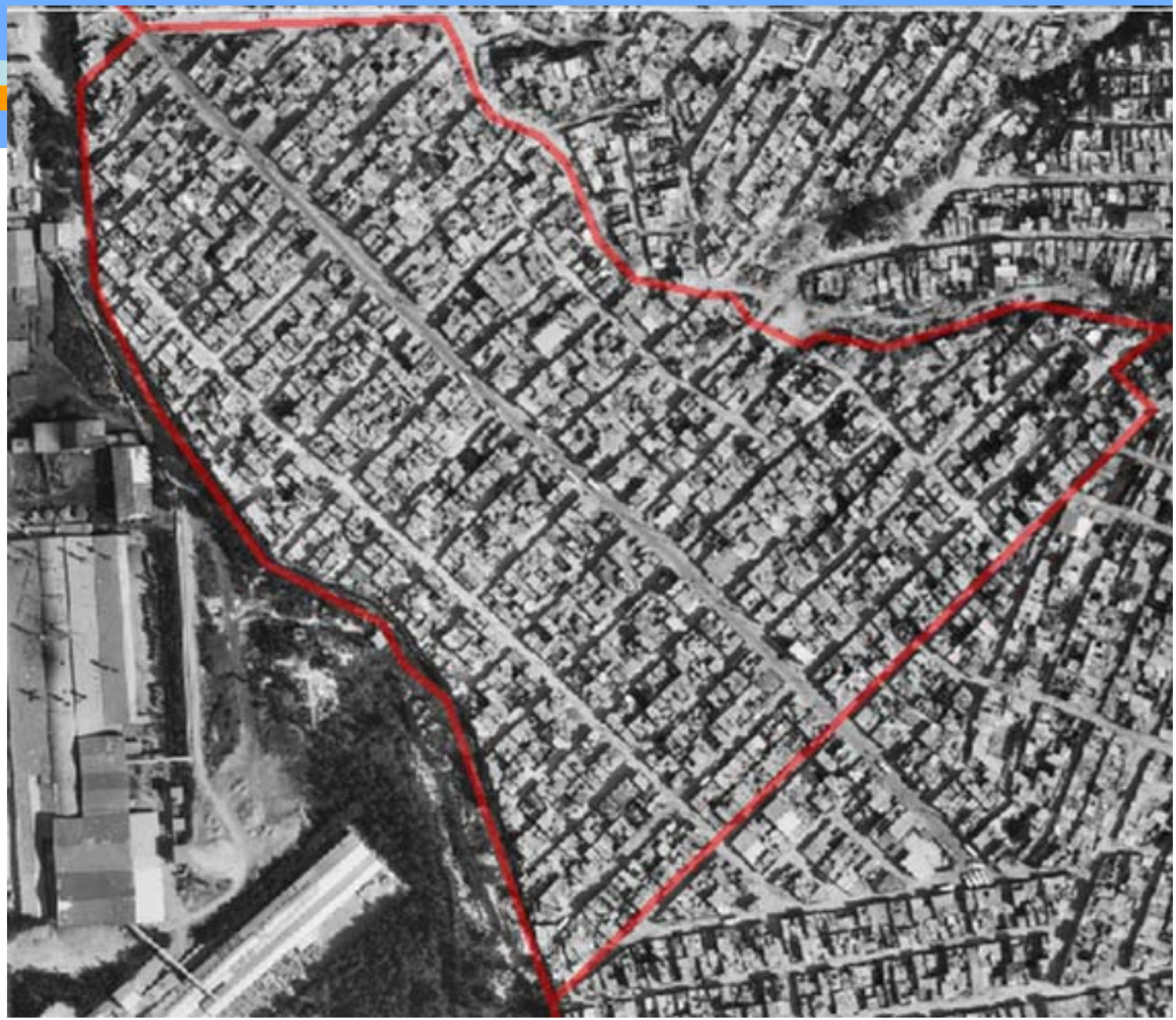
Demographic growth of Bogota



CELADE-CEPAL http://www.eclac.org/publicaciones/xml/0/14000/lcl2013-P1.pdf (accessed:10/10/2007)
CENSO DANE 2005

Bogotá, compact and dense city pattern

INDIVIDUAL DEVELOPMENT



Transmilenio

Foto: M. Ardila, 2005

Foto: O. Sarmiento, 2005

Bike-ways

Foto: D. Parra, 2005

Foto: M. Ardila, 2005

Ciclovía / Recreovía

Foto: O Sarmiento, 2005

Foto: D. Parra, 2005

Recovery of Public Space and Parks

Challenges and aspects to be improved

- Despite the urban changes many social indicators are far from ideal.
- Transmilenio has not resolved the serious mobility problem of the city and people perceive that its quality has worsen. [1]
- Some tracks of bike-ways do not have appropriate designs and are scarcely used by bikers.

1) Bogotá cómo vámos. http://www.bogotacomovamos.org/bogotacv/scripts/EncuestaPercepcion.php?men=28&con=33 (accessed 10/10/2007)

Challenges and aspects to be improved

- The city has marginally increased the green area per inhabitant in the last 4 years.[1]
- Since the last 3 years citizens perceive that the invasion of public space by cars has increased. [2]
- The improvement of the quality of the air is a mayor challenge and Bogota is one the most polluted cities in Latin America.

1) Alcaldia Mayor de Bogotá. http://www.bogota.gov.co/portel/libreria/php/decide.php?patron=01.020104 (accessed 10/10/2007)

2) Bogotá cómo vámos. http://www.bogotacomovamos.org/bogotacv/scripts/EncuestaPercepcion.php?men=28&con=33 (accessed 10/10/2007)

OBJECTIVE

To assess the association between built environment characteristics and physical activity and quality of life among adult-residents of Bogotá.

METHODS –Study Population

30 NEIGHBORHOODS

Socio Economic Status

Slope

Proximity to Transmilenio Stations

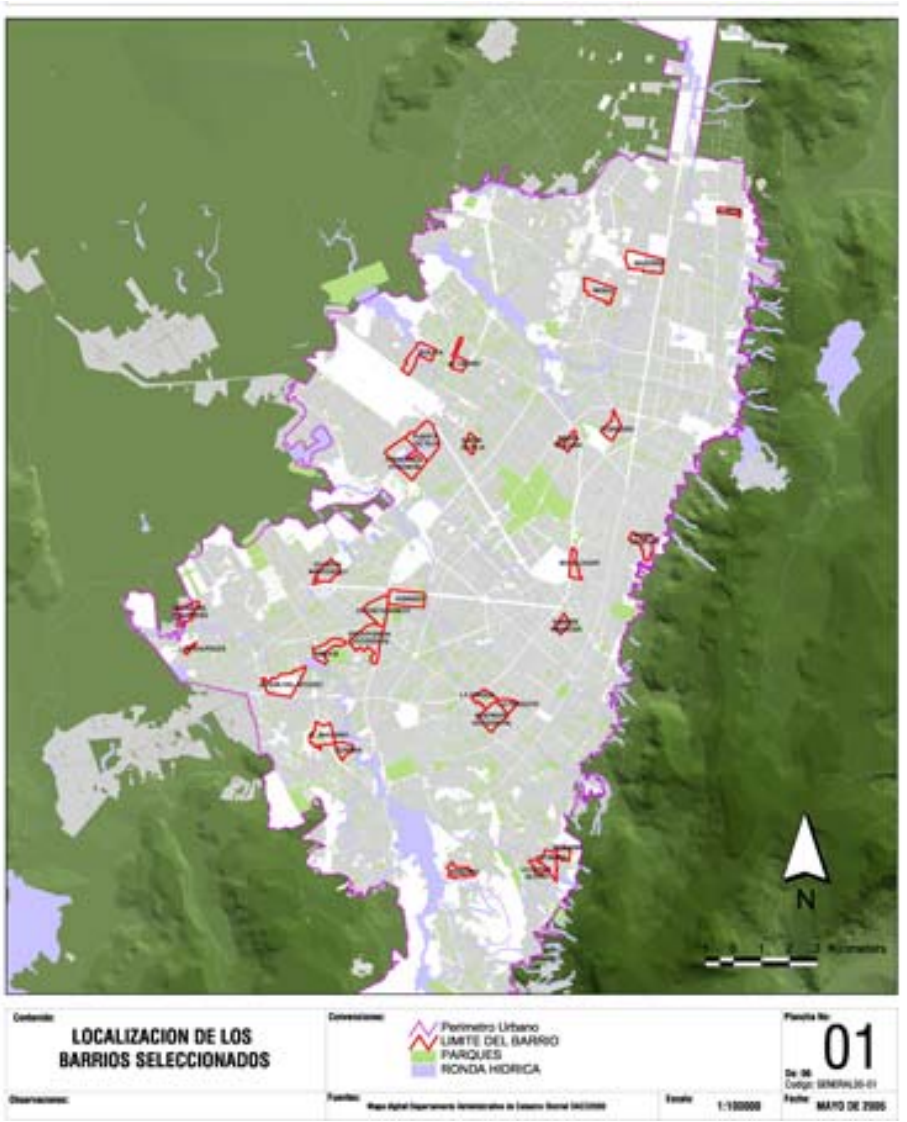
Public Park Provisions

5 BLOCKS

10 HOUSES

1 HOUSEHOLD
18 – 65 years old

Final sample =1334



Outcome Variables

- Utilitarian physical activity
  - Minutes of walking for transport during the last 7 days
    - <150 minutes vs. >=150 minutes
  - Minutes of cycling for transport during the last 7 days
    - 30 minutes vs. >=30 minutes
- Leisure physical activity
  - Meeting CDC recommendations of PA during leisure time
  - Ciclovia participation in the last 4 weekends for sports or recreational purposes
- Statistical analysis
  - Logistic Multi-level analysis using HLM 6.0 software
    - Fixed effects OR and 95%CI

Density

Diversity

Foto: M. Ardila, 2005

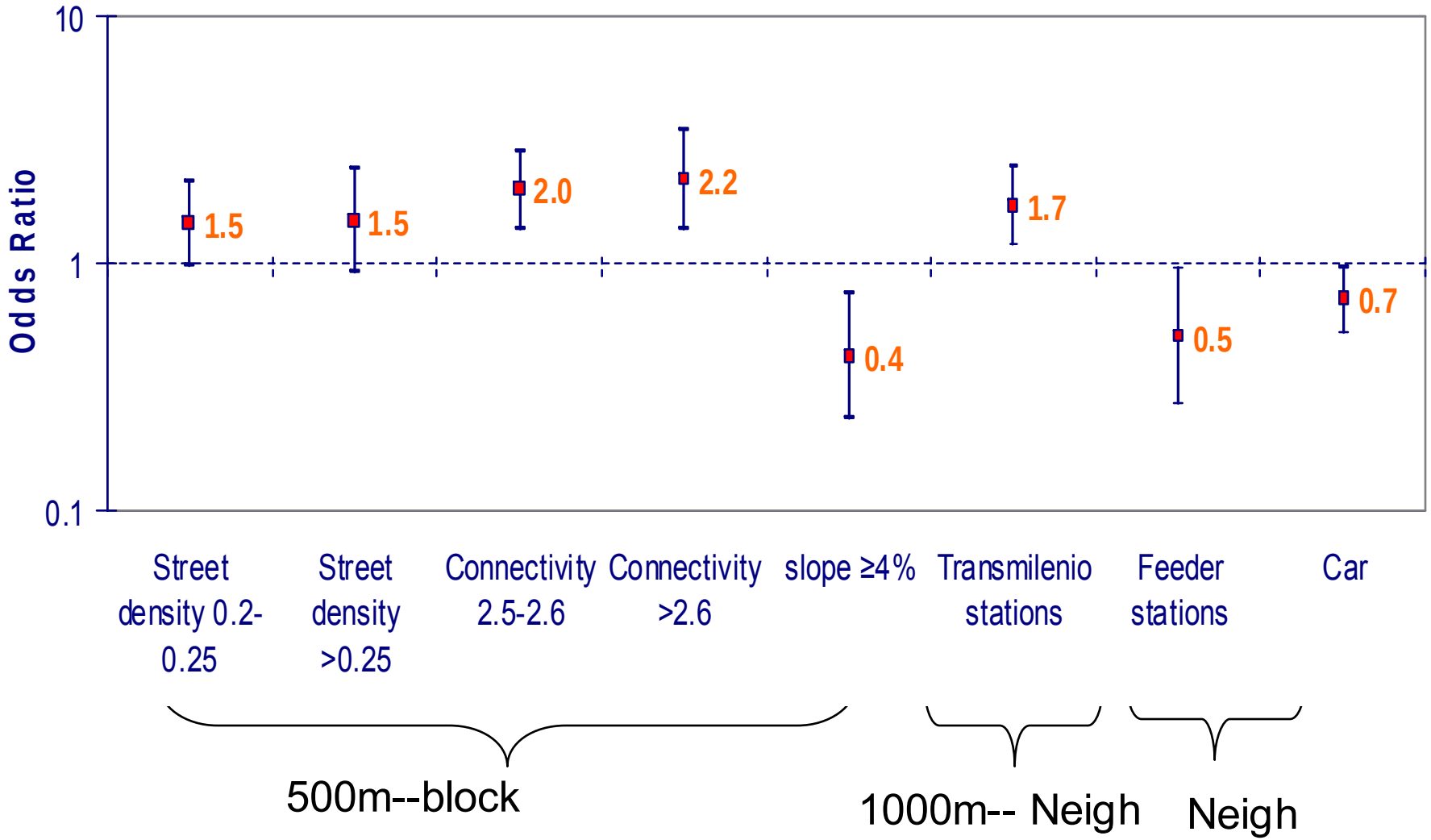
Design

Foto: M. Ardila, 2005

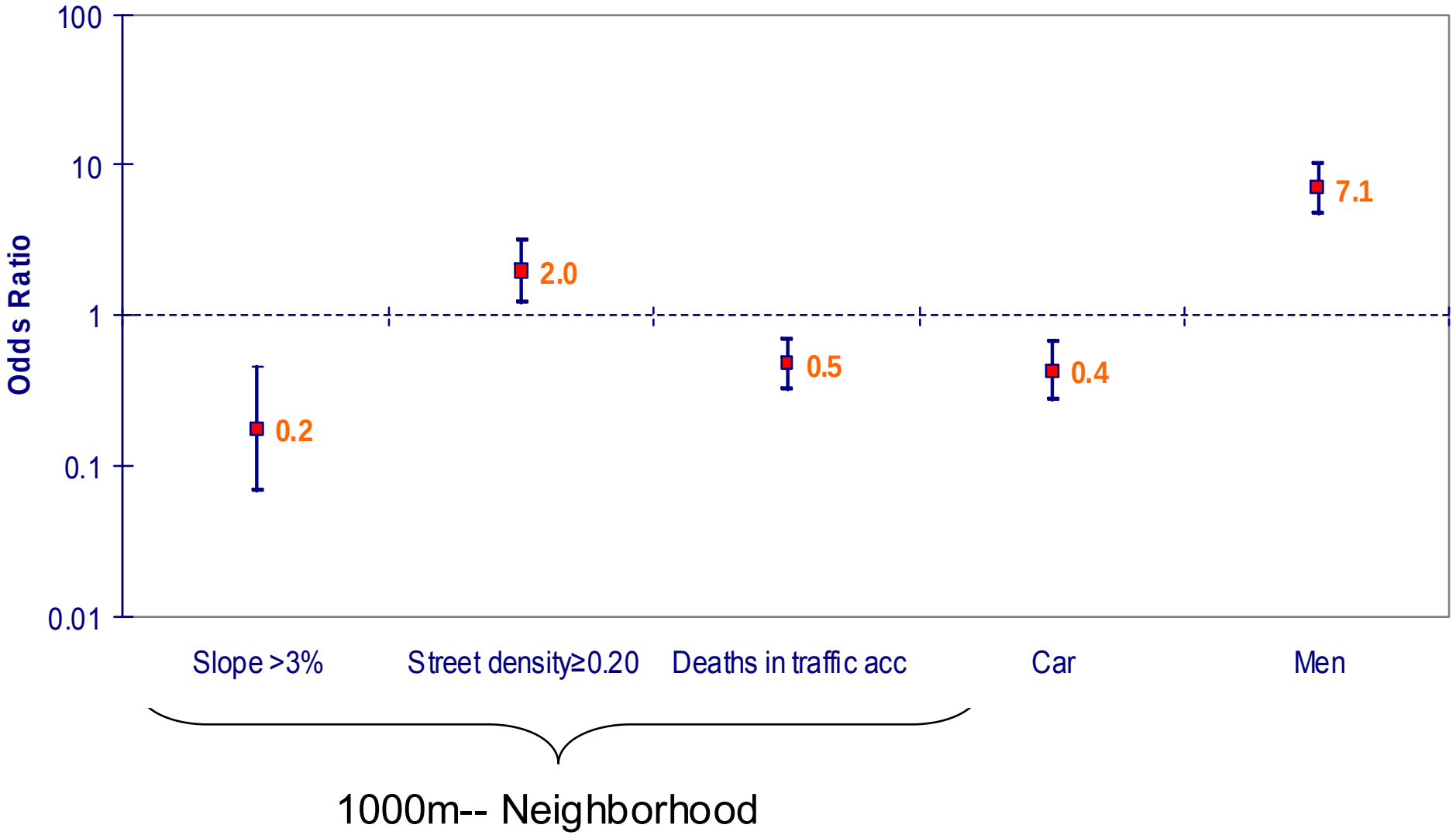
Distance to transit and accessibility

Foto: M. Ardila, 2005

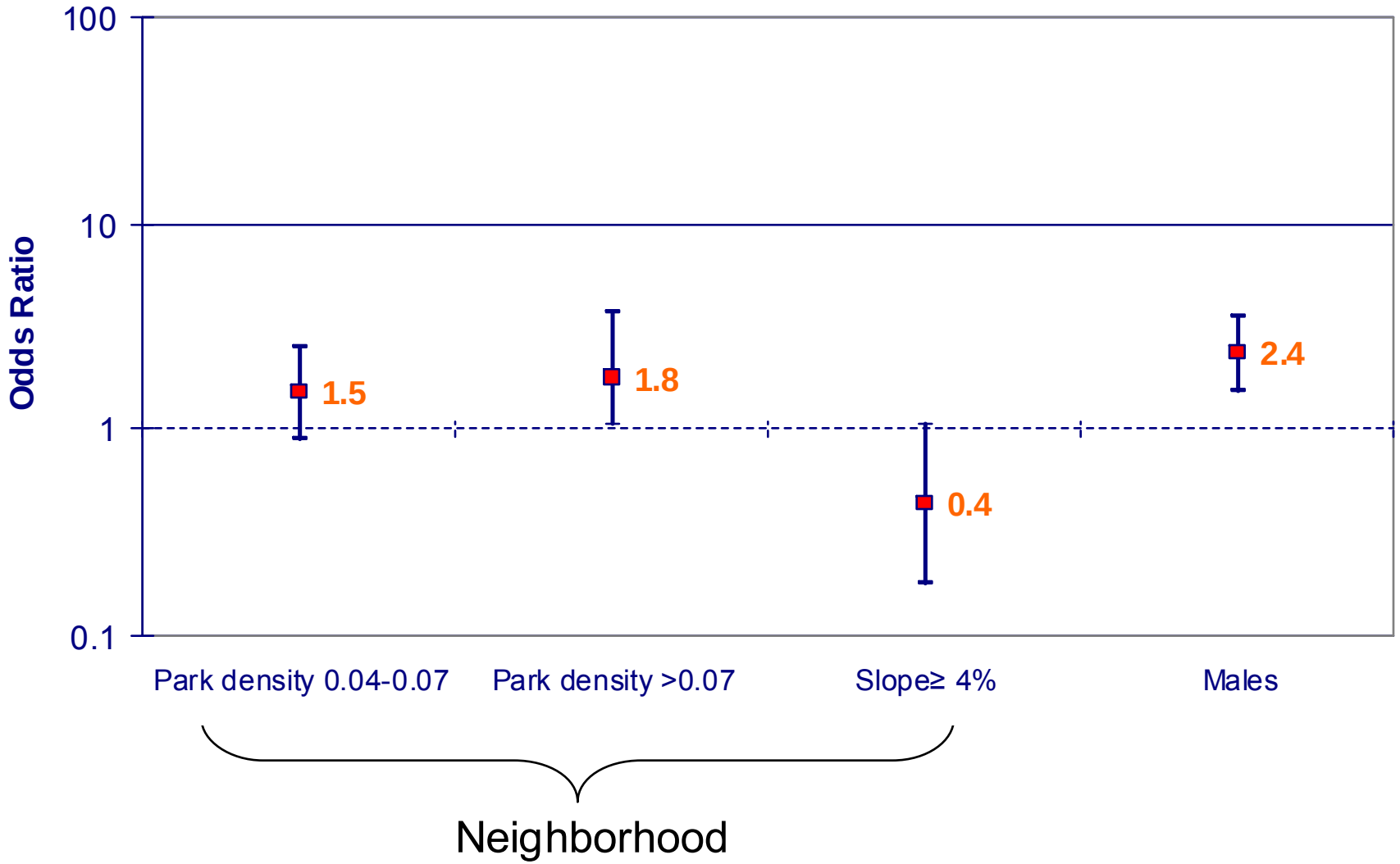
Adjusted OR and 95% CI for the Association Between *Walking ≥ 150 Minutes for Transport* and BE Factors



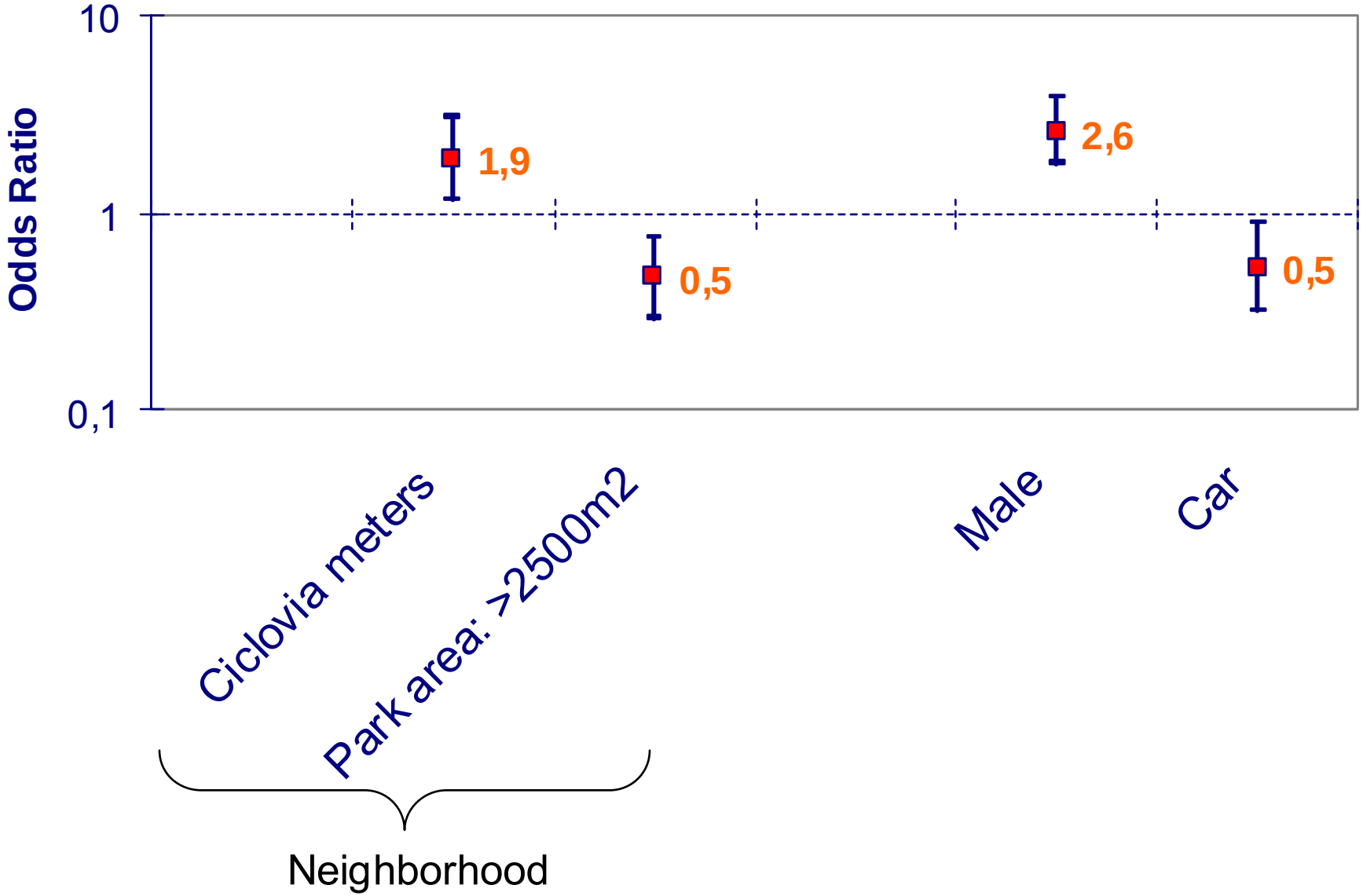
Adjusted OR and 95% CI for the Association Between *Biking ≥ 30 Minutes for Transport* and BE Factors



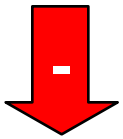
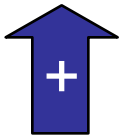
Adjusted OR and 95% CI for the Association Between *Meeting CDC Recommendations for PA During Leisure Time* and BE Factors



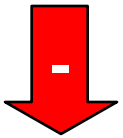
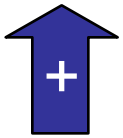
Adjusted OR and 95% CI for the Association Between *Ciclovia Participation* and BE Factors



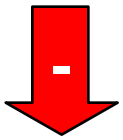
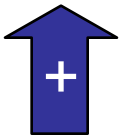
Main results and implications

Variable	Main results		Implications
Walking for transportation	•Number of feeder bus stations • Car ownership • Slope		The importance of considering the design of transport and the natural atributtes of the built environment
	• Existence of Transmilenio stations • Street density • Conectivity		•The importance of the design of transport systems and urban forms

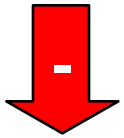
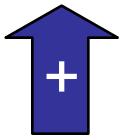
Main results and implications

Variable	Main results		Implications
Bicycling for transportation	• Deaths in traffic accidents • Car ownership • Slope of the terrain		• Traffic security as an strategy to increase the use of bike • The importance of the design of transport systems • Realistic strategies concidering the slope of terrain
	• Street density • Men		• The importance of the design of urban forms • Reduce gender inequities

Main results and implications

Variable	Main results		Possible implications
LTPA	•Perception of insafety • Slope of the terrain		•Improve the security as an strategy to increase LTPA • Realistic strategies considering the slope of terrain
	• Park density • Men		• Relevance of the parks in the promotion of LTPA • Reduce gender inequities

Main results and implications

Variable	Main results		Possible implications
Ciclovía	•Park areas •Car ownership		• Ciclovía as a relevant strategy in neighborhoods with low park provitions
	•Men • Existence of Ciclovía in the neighboorhood		•Diminish gender differences •The importance to improve the access to Ciclovía

What this study adds

- This is the first study to our knowledge that explores the links between the built environment characteristics with physical activity and quality of life in a city from Latin America.

- As in other cities from the world, Bogotá's built environment characteristics are associated with P.A. However these relationships varies depending of the domain especially for leisure time and transportation.

- The study has a multi-sectorial approach, drawing upon the knowledge and experience of experts from public health, transportation and urban design.

Discussion and limitations

- Understand Bogota's cultural, economic, and urban characteristics
- The cross-sectional design did not allow us to infer causality.
- The survey was self report and may have induced recall bias.
- Selection bias by excluding high SES strata (5 and 6) and very low SES strata 1.
- The year of some BE variables.
- Small sample size for the biking model.

Future research

- Identify other built environment characteristics that may be relevant for cities from developing countries.
- Conduct studies in subpopulations: older adults and children that could be more sensitive to the BE.
- Further studies should consider the influence that the BE outside the place of residency has on levels on physical activity.
- Refine the design of self reported instruments that measure physical activity in the context of studies that involve the links of BE with PA.

Credits

- **Luis Fernando Gómez,**MD MPH. División de Salud. Fundación FES Social
- **Robert Cervero.**PhD. Department of City and Regional Planning, University of Berkeley.
- **Olga L. Sarmiento.**MD MPH Ph.D.Facultad de Medicina. Universidad de los Andes
- **Enrique Jacoby.** MD, MPH. Food and Nutrition Program, Pan American Health Organization
- **Andrea Neiman.**MPH., PhD Candidate. Research Fellow, University of Chicago
- **Janeth Mosquera,** Trabajadora Social. División de Salud. Fundación FES Social
- **Thomas Schmid,** PhD. ,Centers for Disease Control and Prevention, PAHB
- **Michael Pratt,** MD, MPH. Centers for Disease Control and Prevention. PAHB.
- **Mauricio Ardila,** Arch. MA. UrbDes., Corporación Universidades del Centro de Bogotá.
- **José David Pinzón,** Arch., Corporación Universidades del Centro de Bogotá.
- **Diana Parra,** CPT, Fundación FES Social, Centers for Disease Control and Prevention
- **Candance Rutt,** PhD., Centers for Disease Control and Prevention. PAHB.
- **John Duperly,** MD, PhD., Facultad de Medicina, Universidad de los Andes.
- **German Lleras,** MCP., MSc., Facultad de Ingeniería. Universidad de los Andes
- **Carlos F. Pardo,** GTZ SUTP