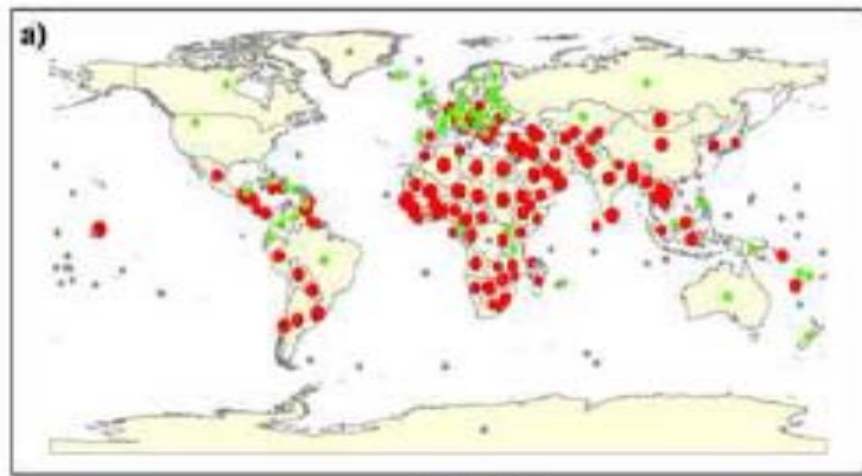


Mitigating health effects of climate changes: challenges and opportunities

Paulo Saldiva

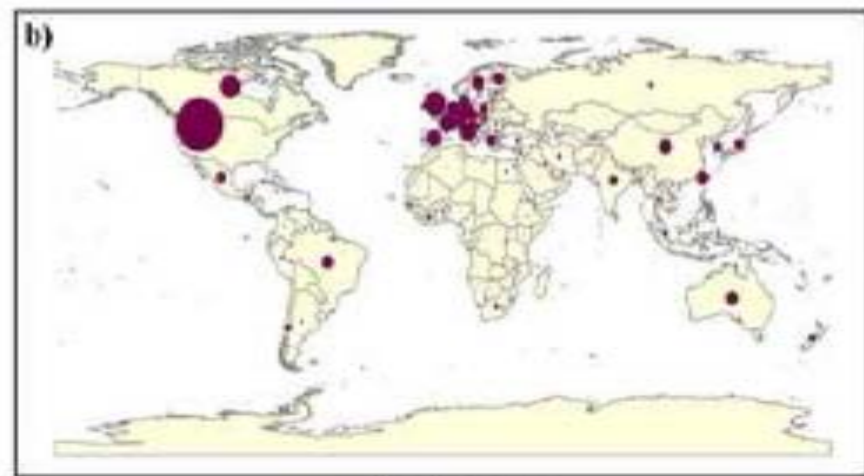
Faculty of Medicine – University of São Paulo

pepino@usp.br



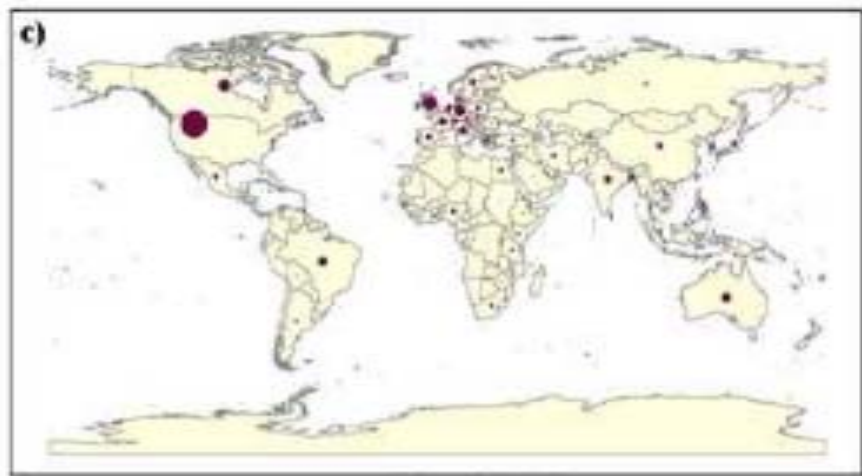
PM10 ($\mu\text{g}/\text{m}^3$)

- 0 - 5
- 6 - 20
- 21 - 30
- 31 - 50
- 51 - 70
- 71 - 142



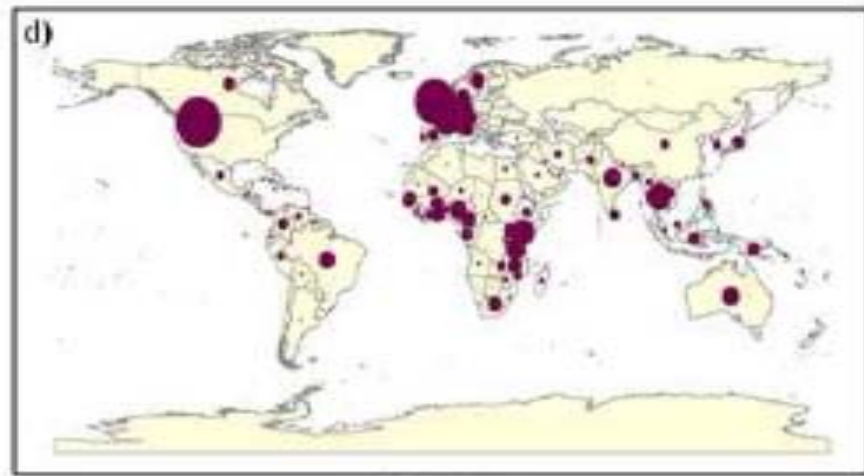
Air pollution articles

- 1
- 10
- 1,000



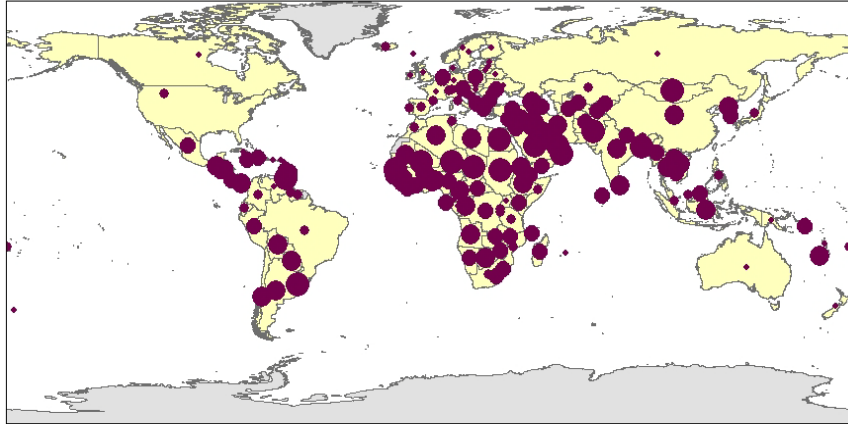
Water quality articles

- 10
- 1,000

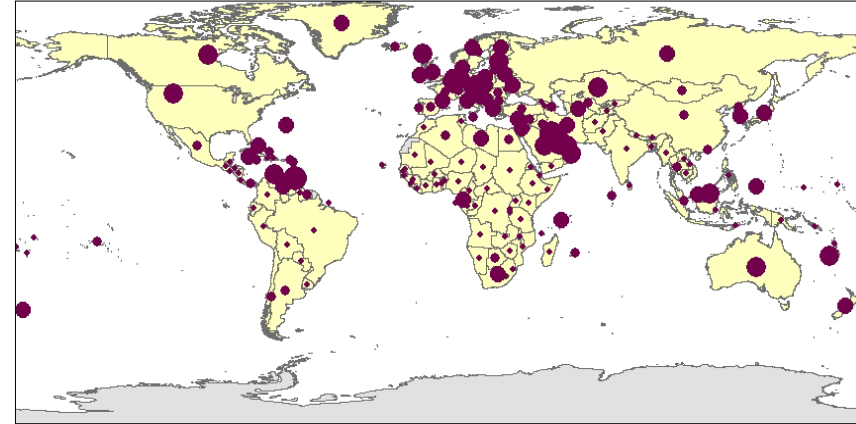
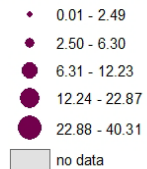


Malaria articles

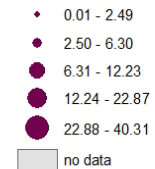
- 10
- 1,000



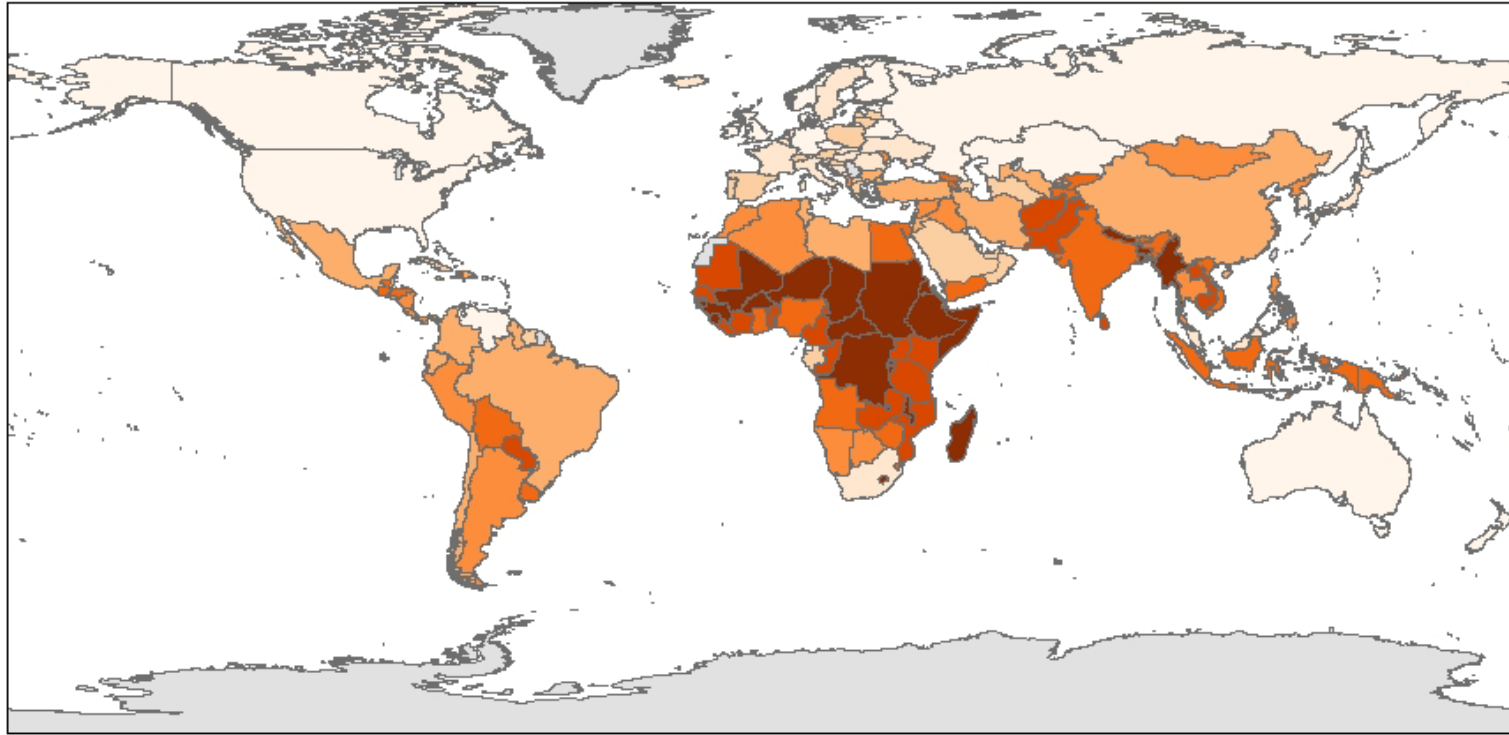
PM10 -----
(micrograms per cubic meter)



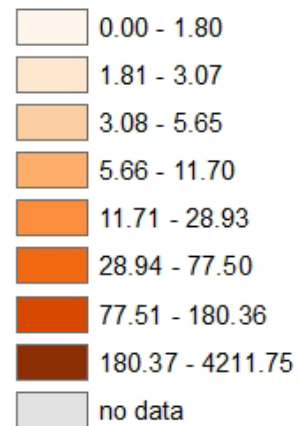
CO2 emissions
(metric tons per capita)



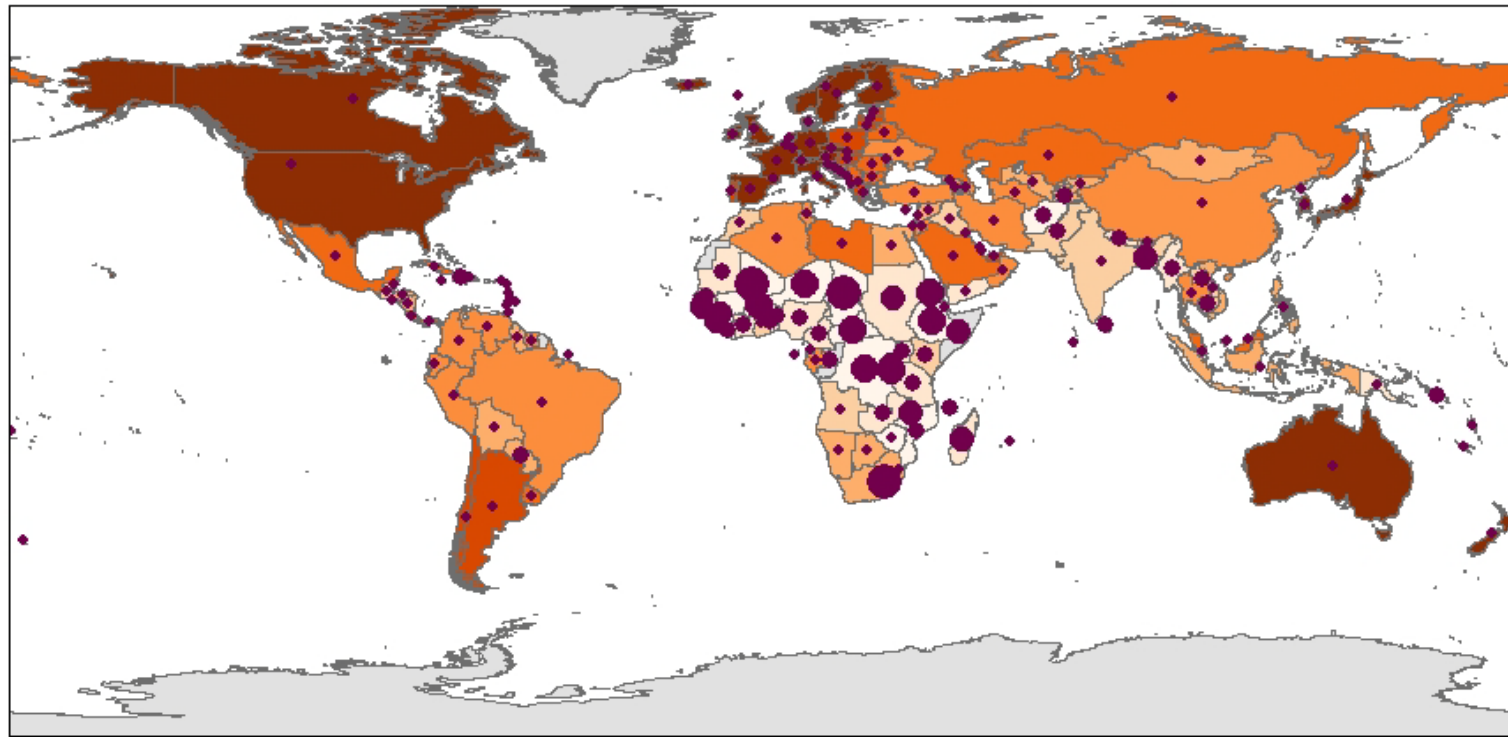
A comparison of PM10 levels and CO2 emissions in 2010 by country.
Data from the World Bank



**Energetic Inefficiency Index
(PM10/CO2)**



2010 data , source: the World Bank



Energetic inefficiency index (PM10/CO2)

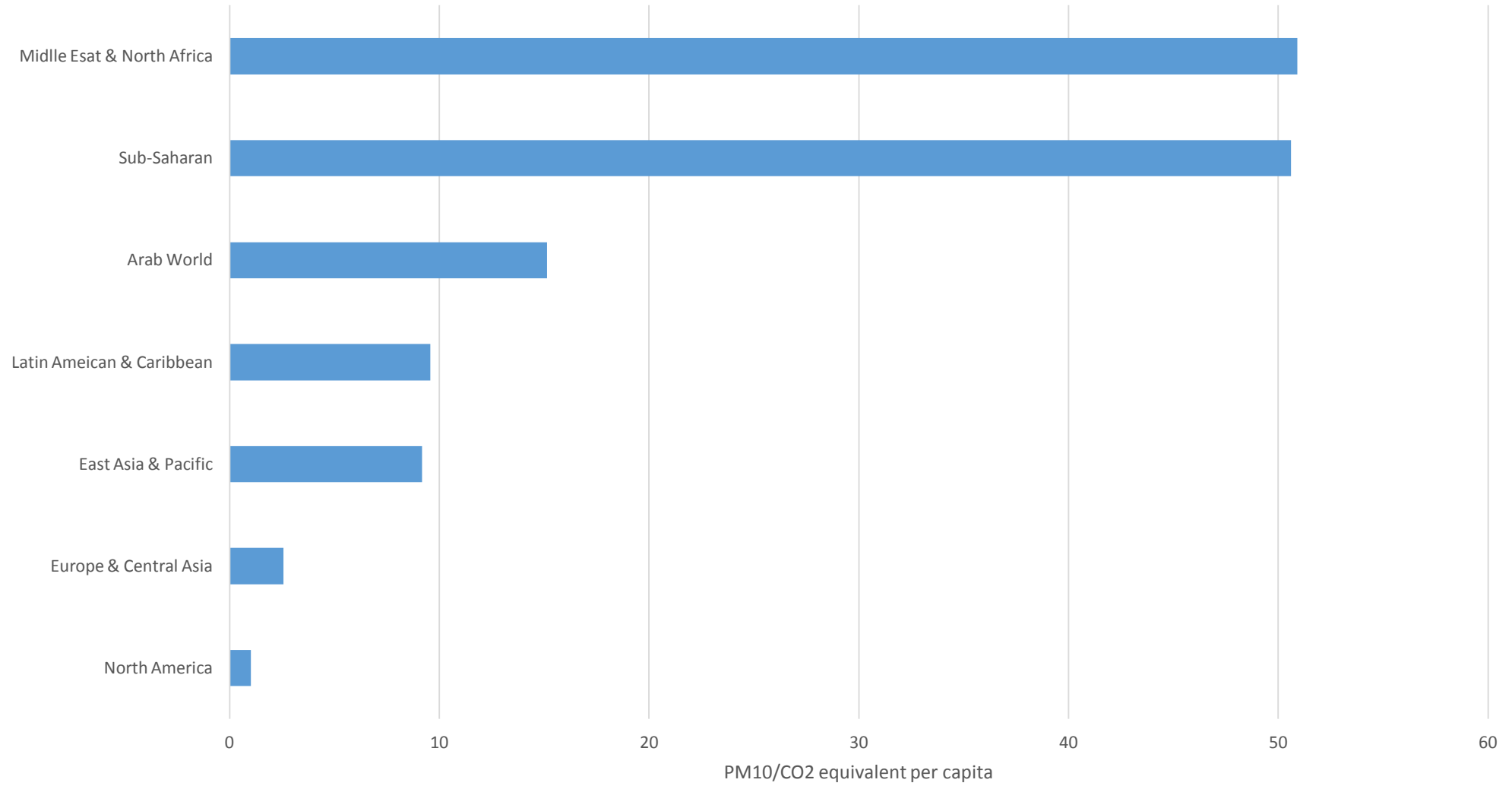
- ◆ 0.0 - 66.4
- 66.5 - 230.0
- 230.1 - 482.6
- 482.7 - 1076.5
- 1076.6 - 4211.7

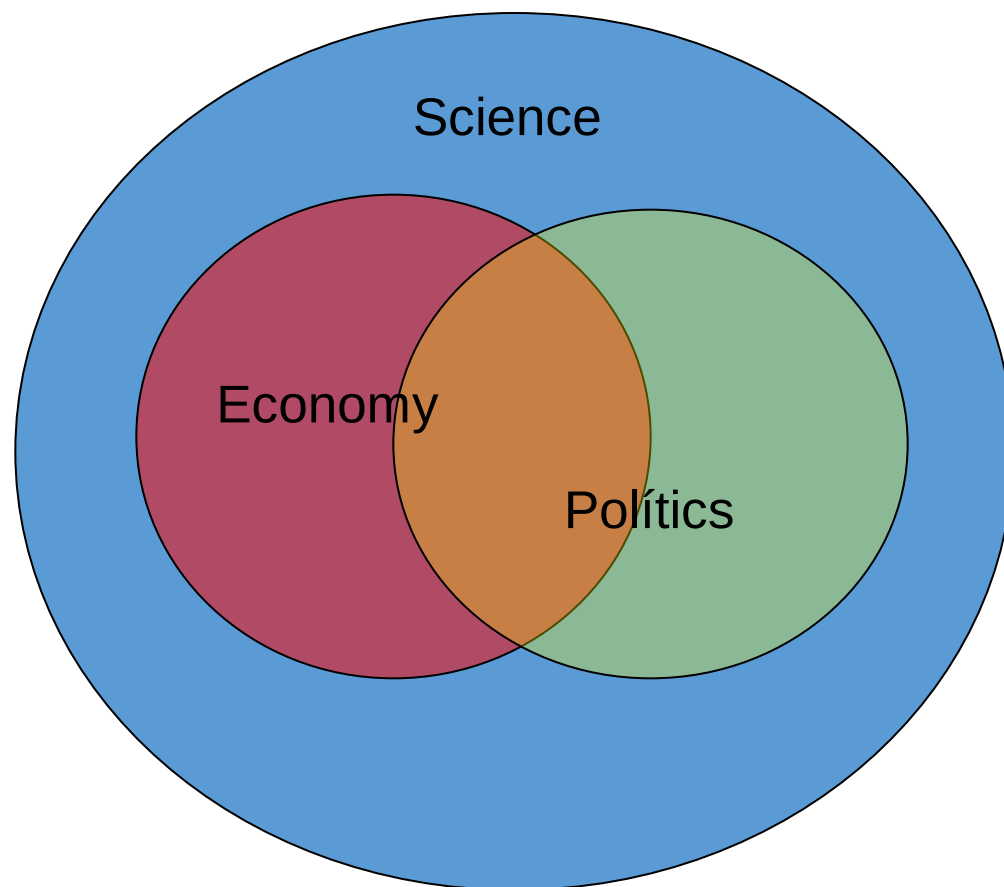
Human Development Index

- 0.30 - 0.40
- 0.41 - 0.50
- 0.51 - 0.59
- 0.60 - 0.68
- 0.69 - 0.75
- 0.76 - 0.81
- 0.82 - 0.86
- 0.87 - 0.96

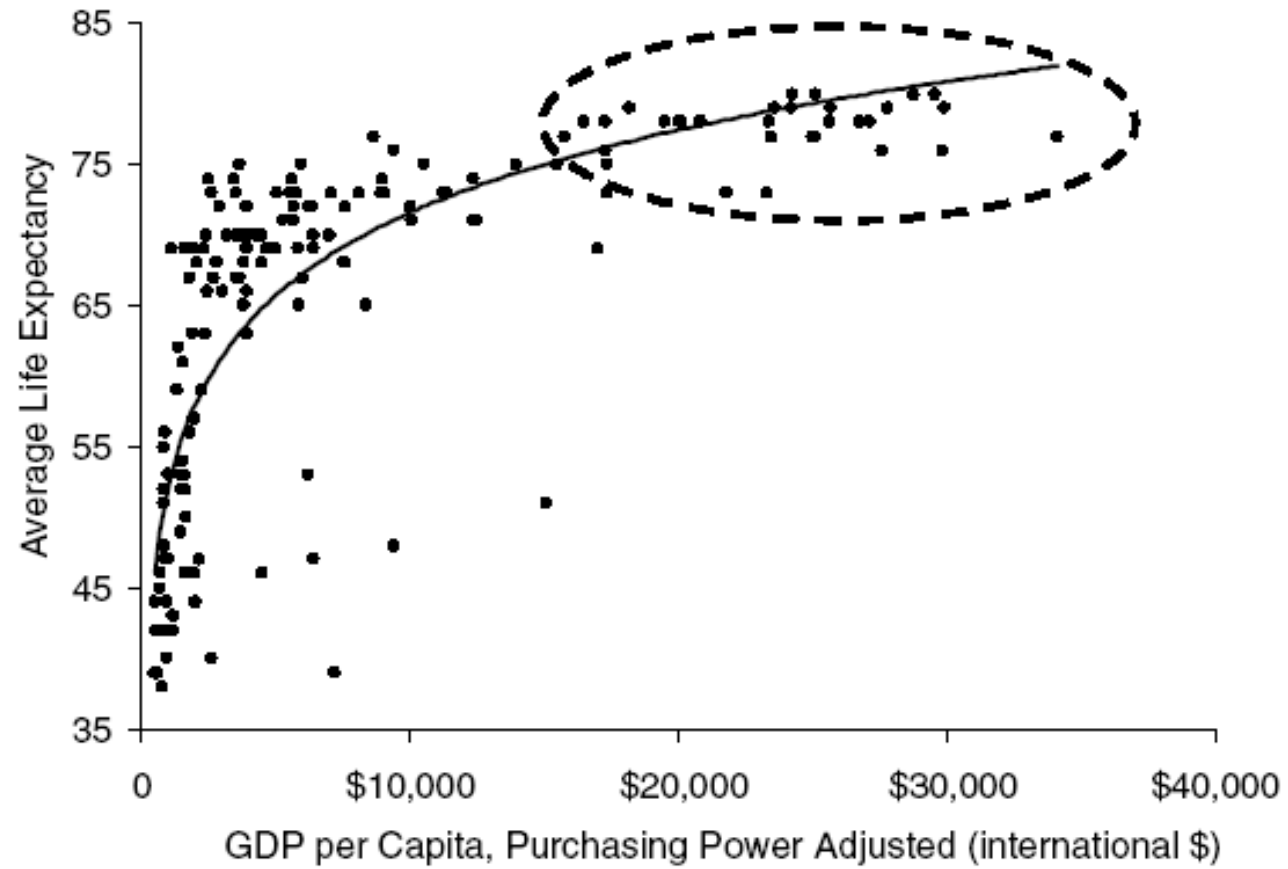
Energetic inefficiency index : 2010 data , source: the World Bank

Human Development Index (HDI): 2012 data, source : United Nations Development Program UNDP



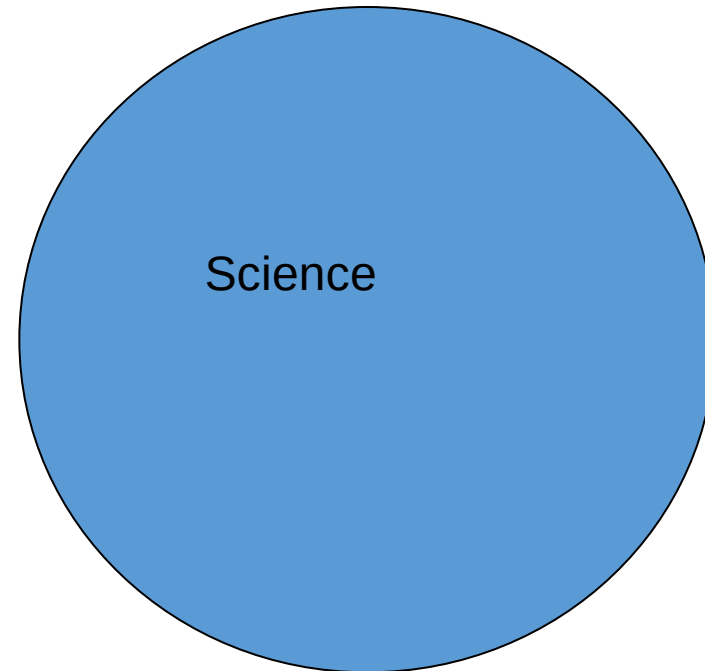
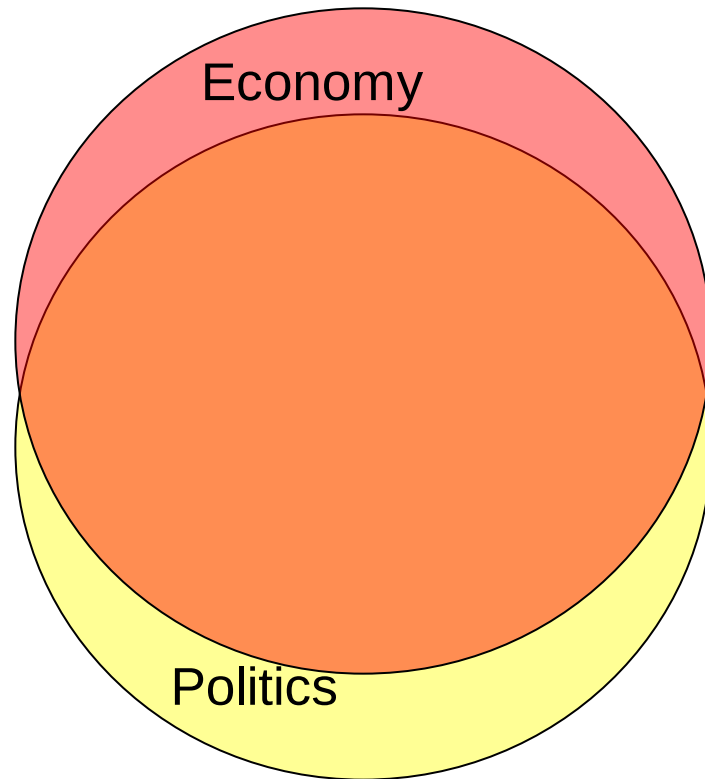


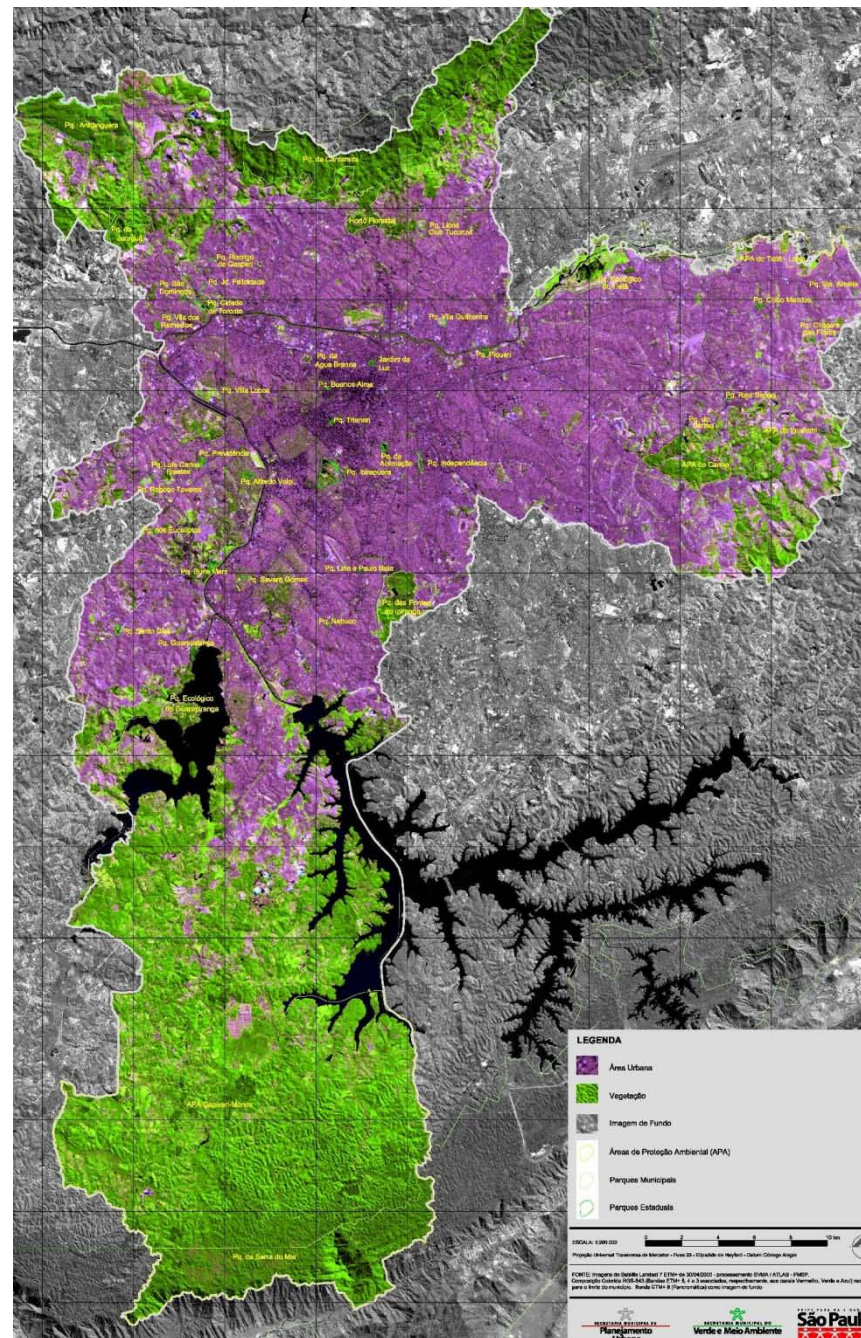




Note: Because of its very high GDP, Luxembourg was excluded to simplify the visual presentation (life expectancy = 77, GDP = \$50,061).

Source: World Bank 2002.

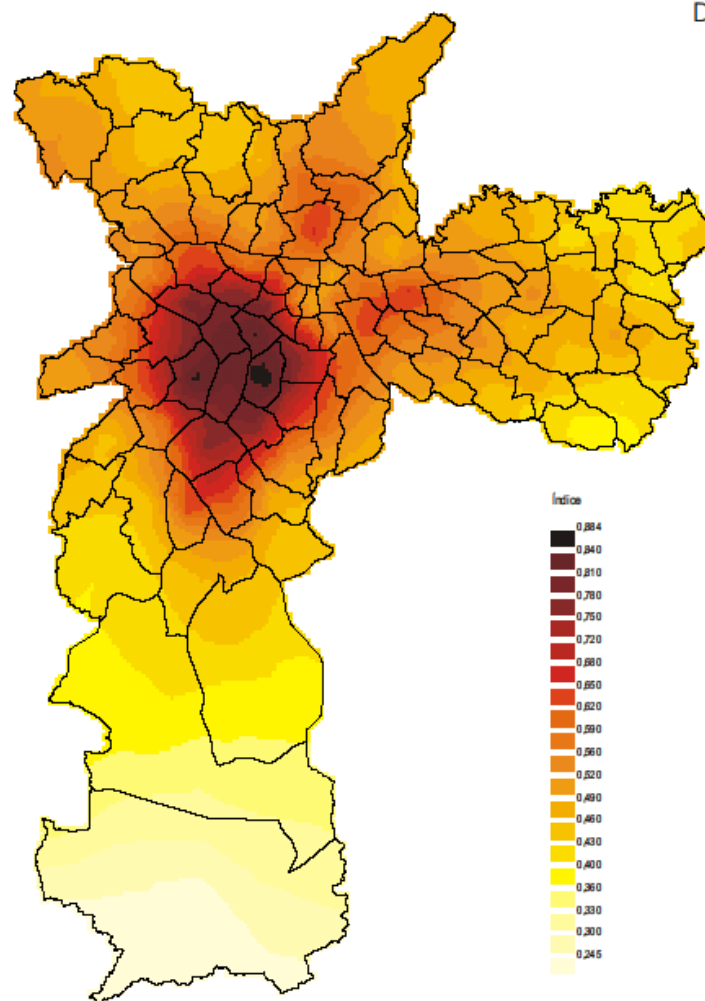




Índice de Desenvolvimento Humano – IDH

Distritos do Município de São Paulo
2000

**MUNICÍPIO
EM MAPAS**
SÉRIE TEMÁTICA
ÍNDICES SOCIAIS



0 6 12 18
Quilômetros



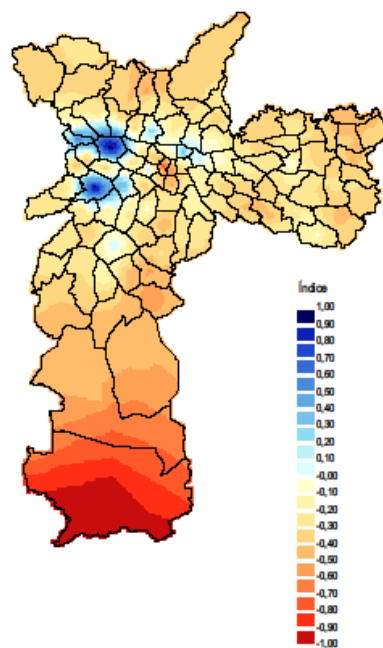
O IDH é um índice amplamente utilizado para aferir o nível de desenvolvimento econômico e social de diferentes países e permitir comparações entre eles. É construído a partir de três componentes básicos: renda, longevidade e educação. As instituições encarregadas de calcular o IDH para diferentes unidades territoriais, sejam elas países, estados ou municípios, usualmente lançam mão de adaptações nas variáveis que integram aqueles componentes básicos, em função da disponibilidade de dados com maior ou menor grau de agregação.

No caso da cidade de São Paulo, o cálculo do IDH intramunicipal levou em consideração as seguintes variáveis para cada um de seus 96 distritos:

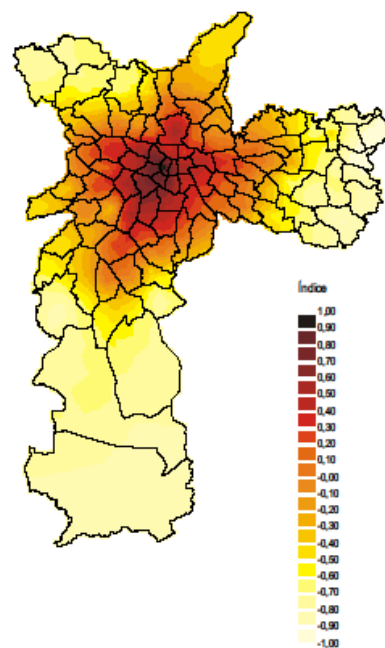
- rendimento do chefe da família, em face da ausência de base segura para o cálculo do PIB *per capita* por distrito municipal;
- taxa de mortalidade infantil, em substituição à esperança de vida ao nascer;
- taxa de alfabetização combinada com a média de anos de estudos, ambas referentes ao chefe da família, em lugar de matrículas por nível de ensino e taxa de alfabetização de adultos.

**Mapa da Exclusão/Inclusão Social,
segundo Variáveis Analisadas na Dimensão Qualidade de Vida**
Distritos do Município de São Paulo
2002

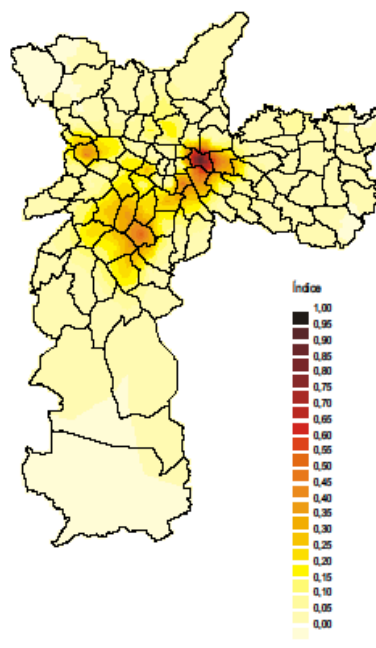
Serviços Básicos
Atendimento básico de saúde
Cobertura da rede de ensino fundamental
Acesso aos serviços de água, esgoto e coleta de lixo



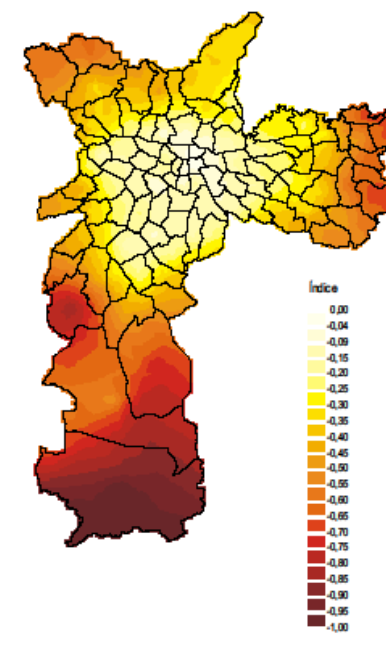
Densidade Habitacional
Redução do número de pessoas
por domicílio entre 1991 e 2000



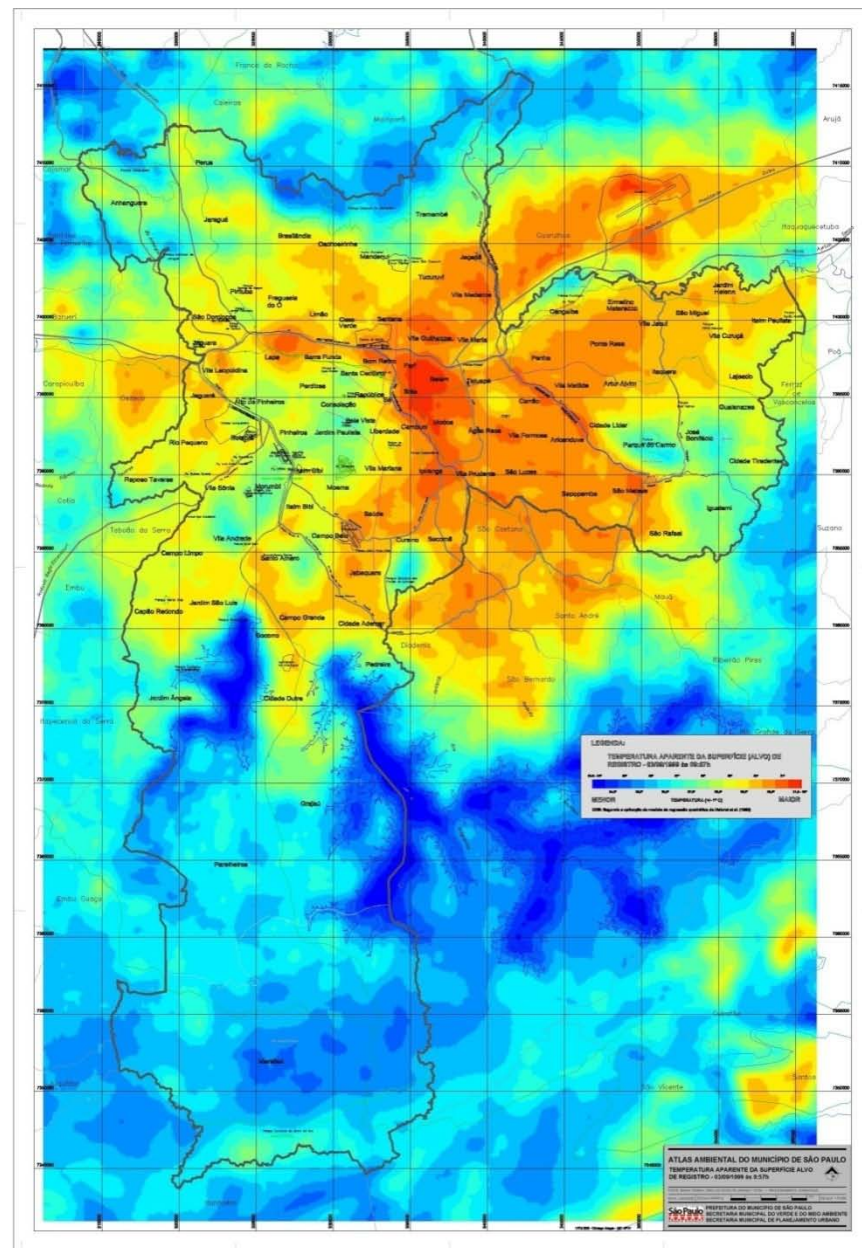
Lançamentos Imobiliários
Total de lançamentos imobiliários verticalizados

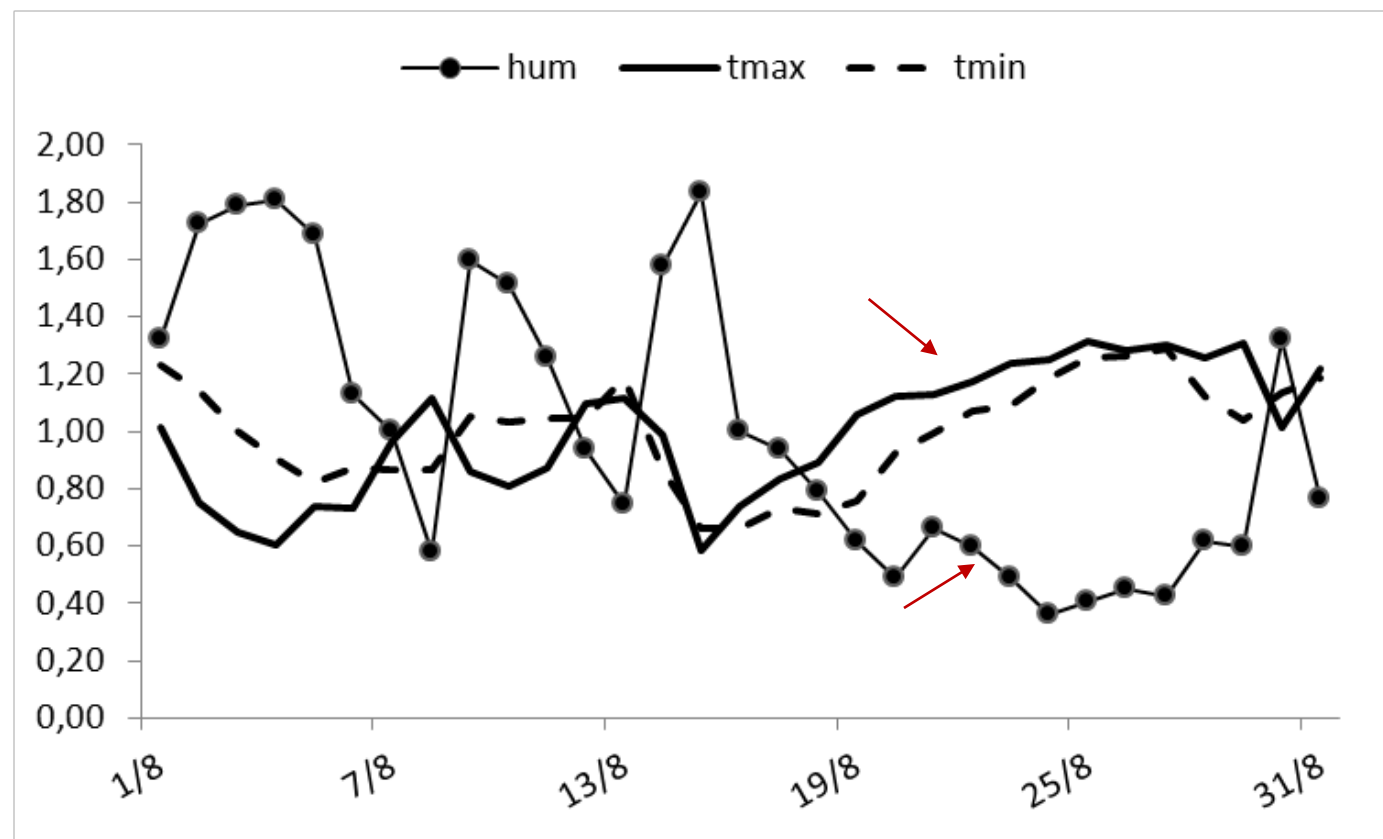


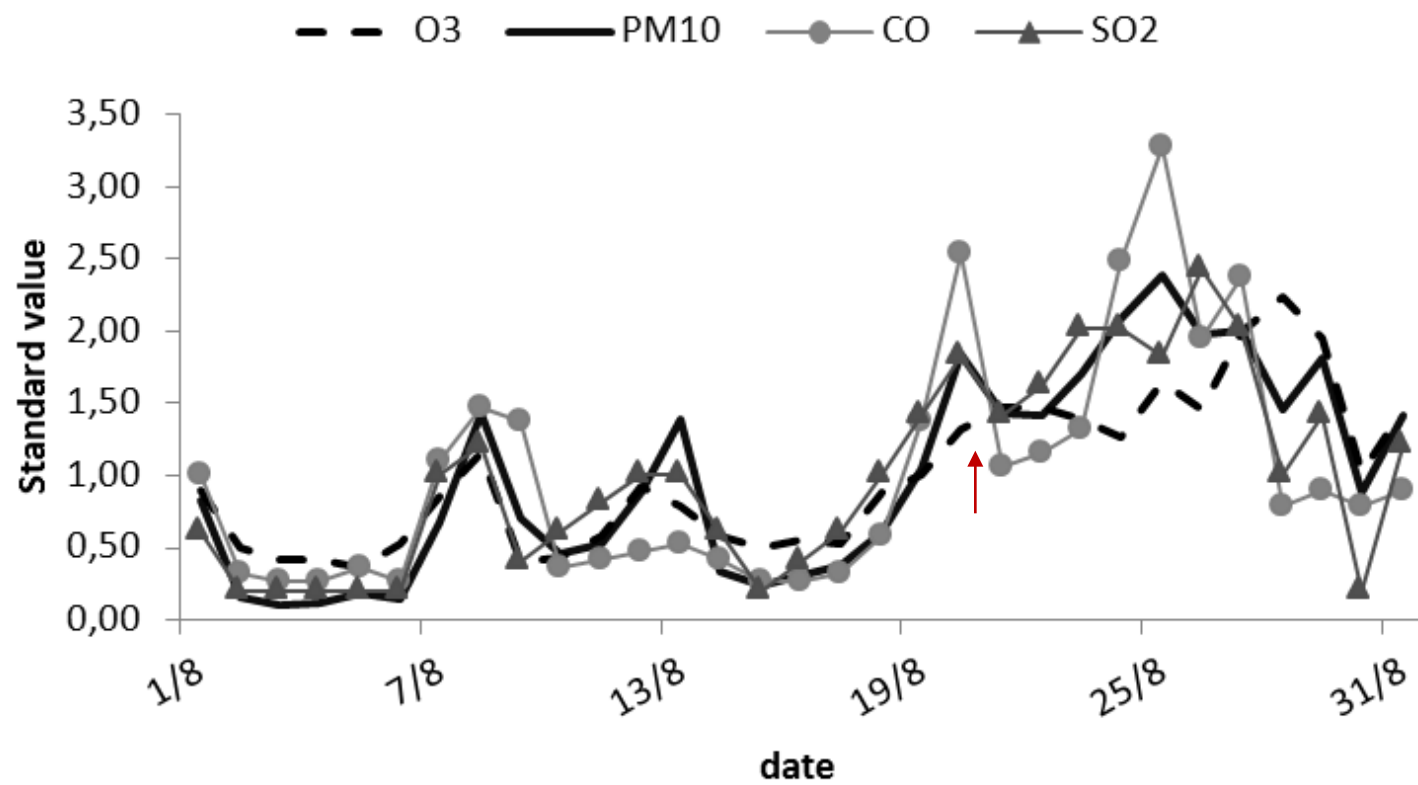
Viagens
Tempo médio de deslocamento
por qualquer motivo de viagem

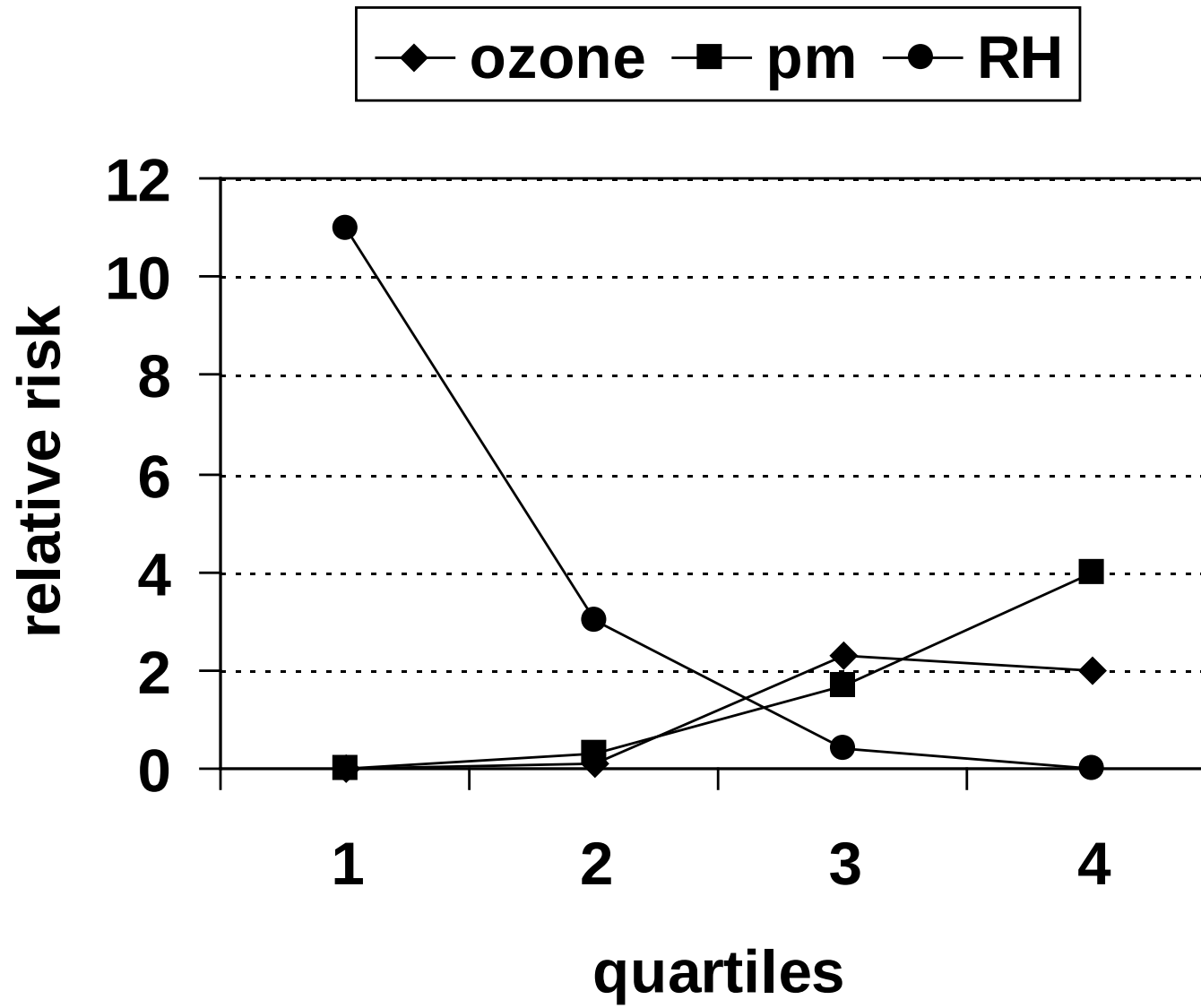








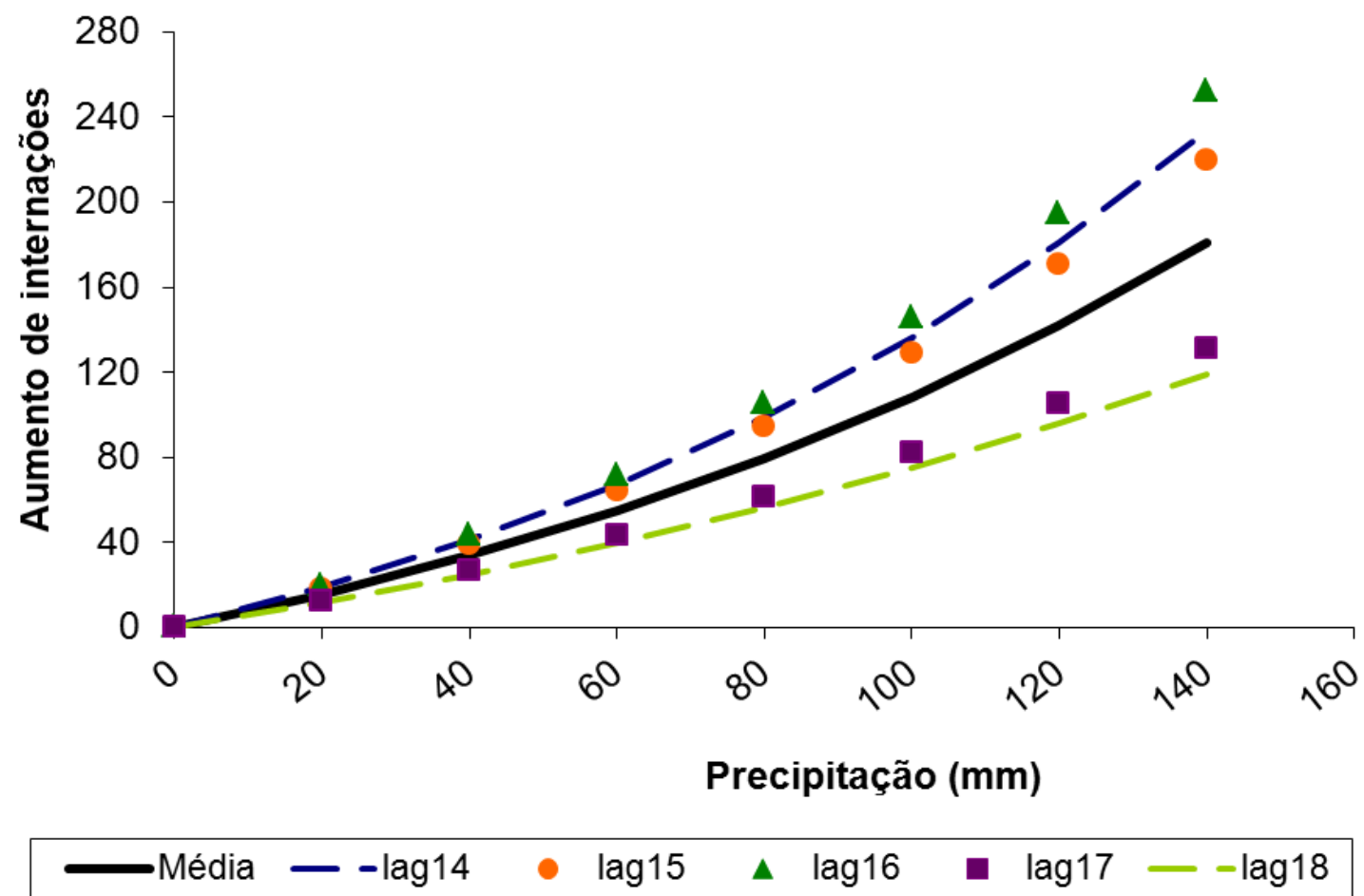




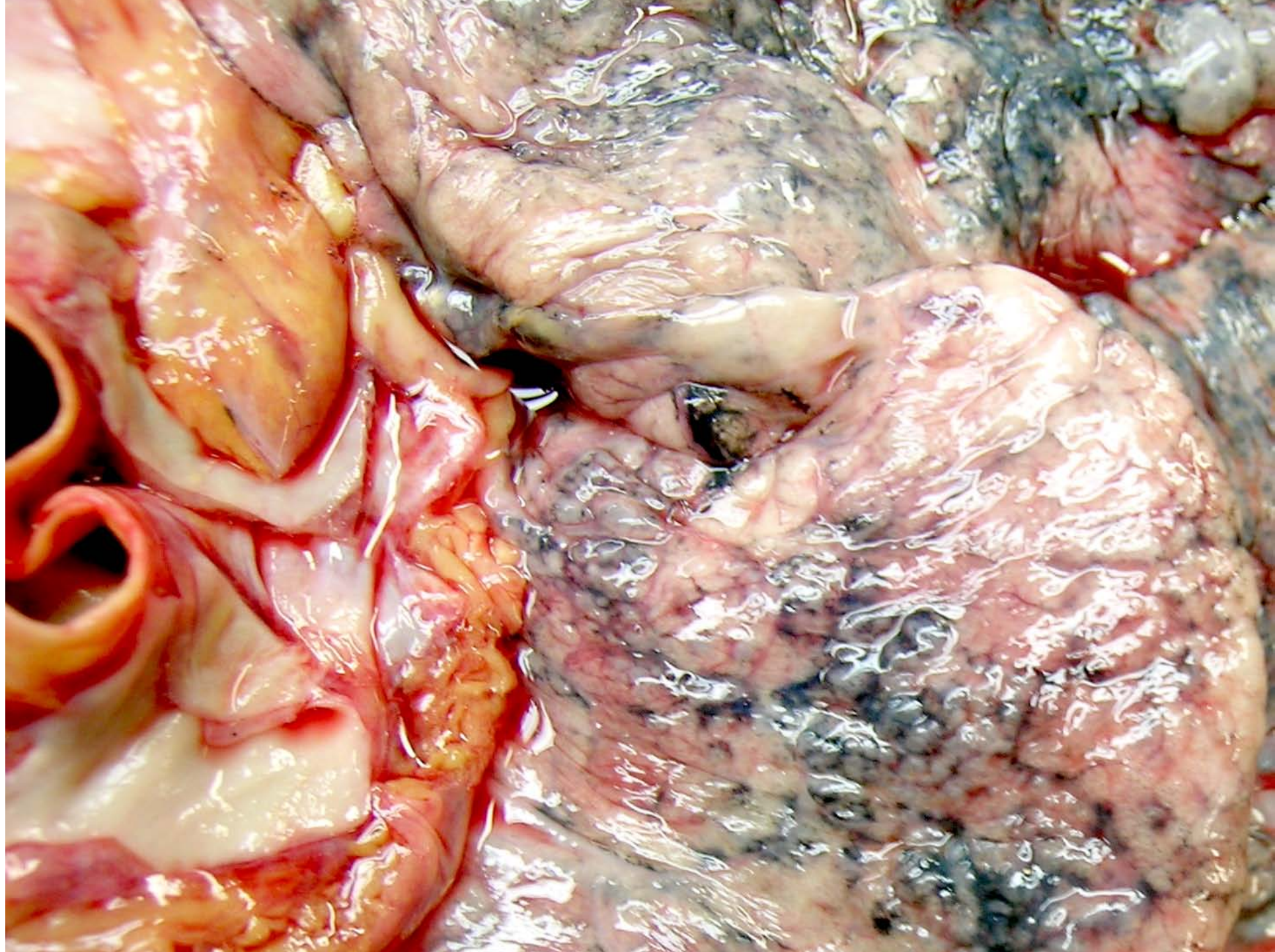






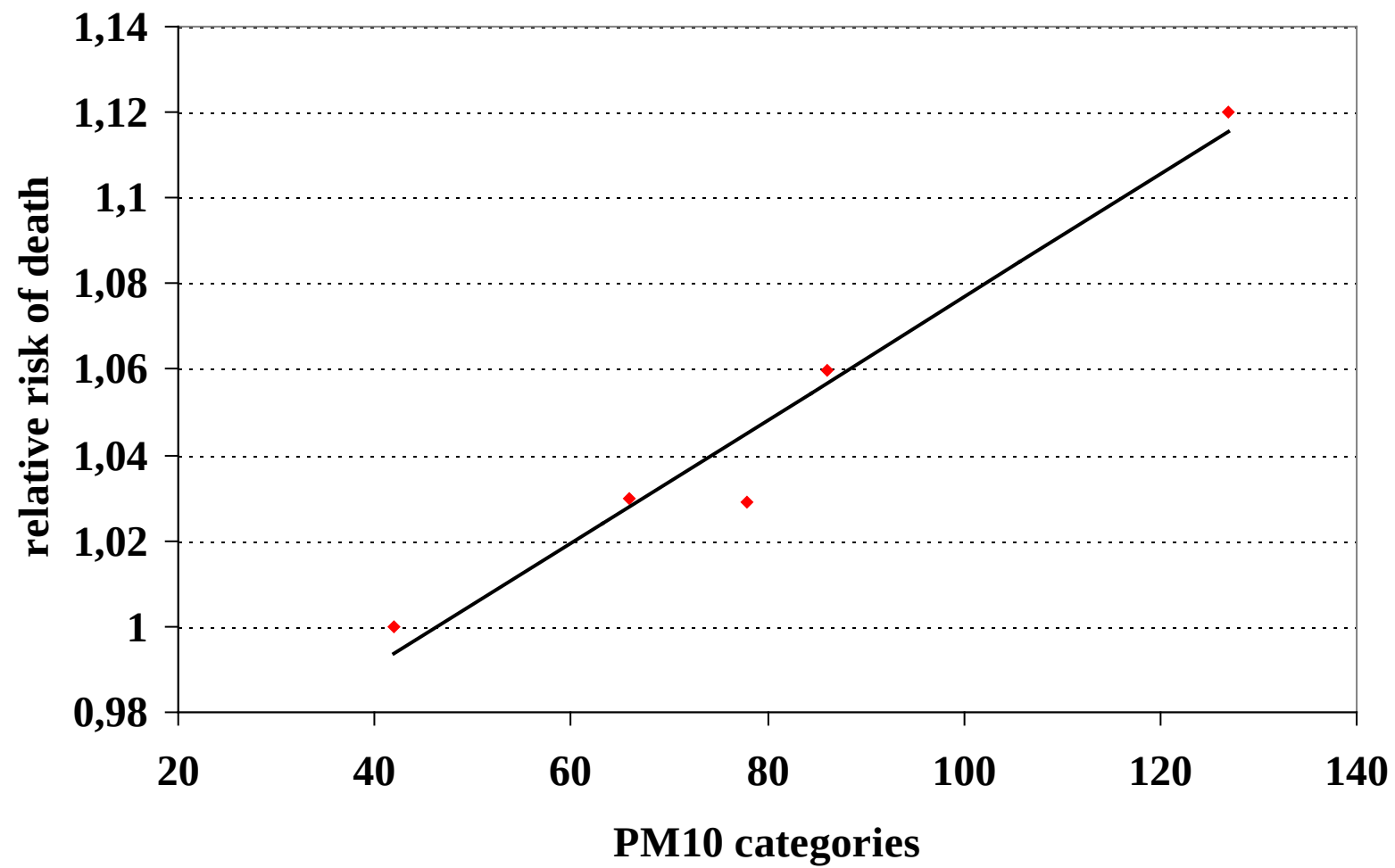


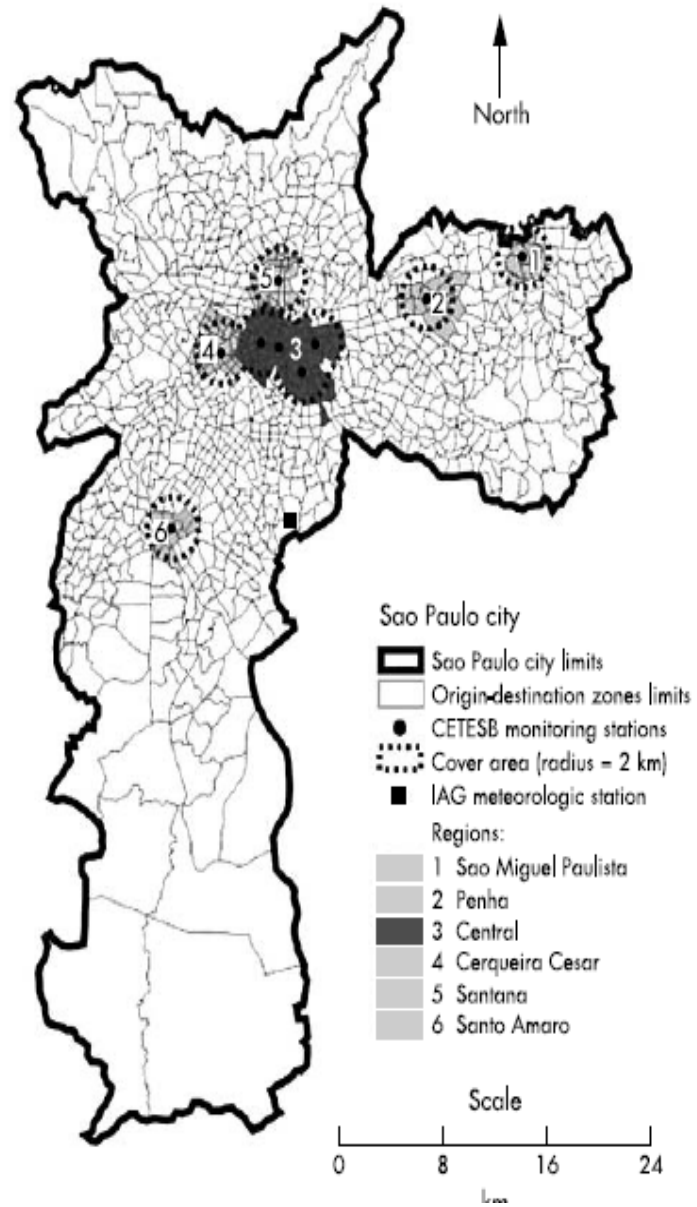




São Paulo – 28 µg/m³

	ug/m3	%	
Fator 1	2.43	8.58	Solo
Fator 2	7.01	24.72	Óleo
Fator 3	3.87	13.66	Leve
Fator 4	10.90	38.45	Pesado





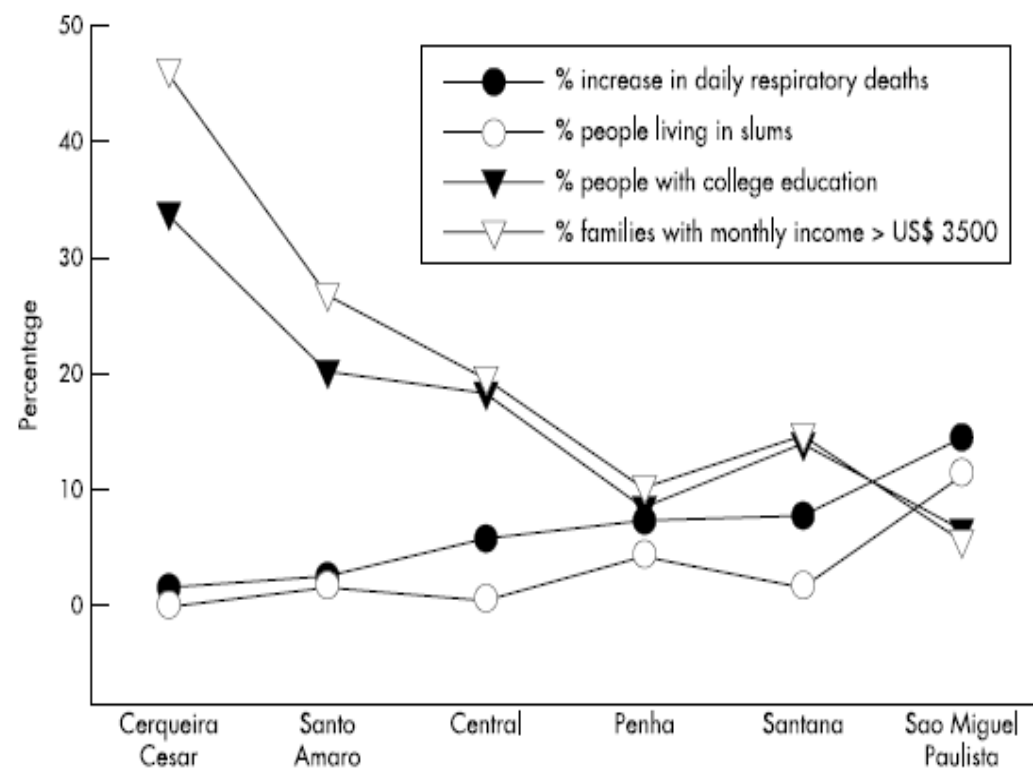


Figure 3 Percentage increase in daily respiratory deaths attributable to a $10 \mu\text{g}/\text{m}^3$ increase in three day moving average of PM_{10} and socioeconomic indicators in each region of the study.