Trends in mortality in the (West of) Scotland and other parts of post-industrial Europe

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Glasgow Centre for Population Health

NHS SCOTLAND

a.k.a…

- "The Aftershock of Deindustrialisation…"
- Collaborative project between Glasgow Centre for Population Health and NHS Health Scotland
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2. Twenty post-industrial regions in Europe
3. In-depth mortality analysis of ten post-industrial regions

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4. Some initial hypotheses/explanations
5. Conclusions
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1. Background & aims

Background

- Post-industrial decline (and associated factors) promoted as one of major reasons behind Scotland/WoS's poor health profile
- Begs question: how have other similarly deindustrialised regions fared?

Project aims

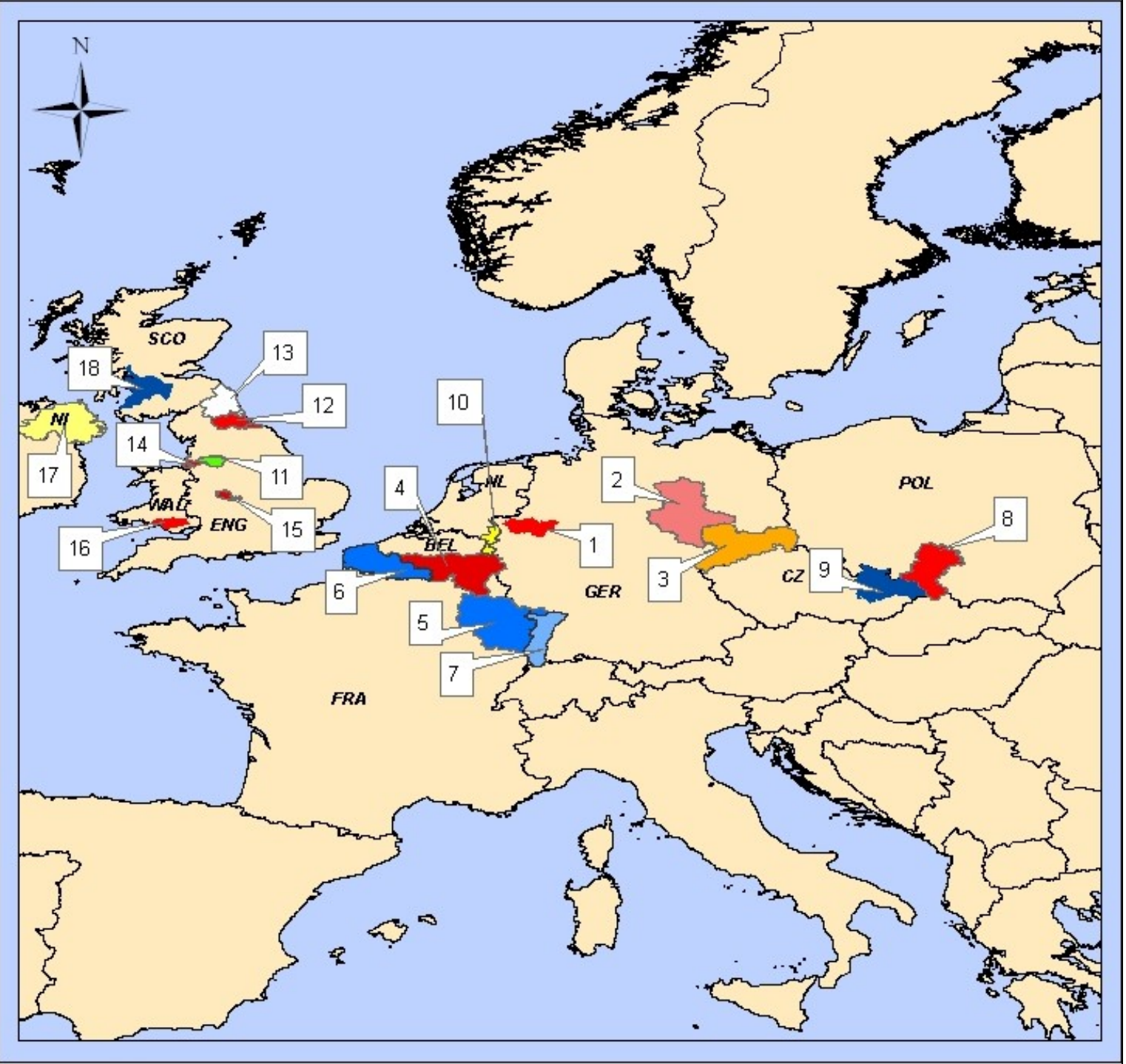
- Identify regions which have undergone similar processes of deindustrialisation
- Compare long-term trends in mortality (as *first* step…)

2. Twenty post-industrial regions in Europe

Identification of areas

- Selection of areas based on combination of:
  - extensive consultation with experts in European public health and European history
  - analysis of regional industrial employment loss

European post-industrial regions



1. Ruhr (D)
2. Saxony-Anhalt (D)
3. Saxony (incl. Chemnitz and Leipzig regions) (D)
4. Wallonia (B)
5. Lorraine (incl. Moselle) (F)
6. Nord-Pas-de-Calais (F)
7. Alsace (F)
8. Silesia (incl. Katowice) (P)
9. N. Moravia (Cz)
10. Limburg (NL)
11. Greater Manchester
12. Tees Valley & Durham
13. Northumb'd, Tyne & Wear
14. Merseyside
15. West Midlands
16. Swansea & S. Wales coalfields
17. N. Ireland
18. West of Scotland

Deindustrialisation in Scotland/the West of Scotland

- 44% decrease ir
  employment* b
  Scotland
- Represents a los
- Not just a West
- But more marke
  (from 500,000 t

*‘Industrial employment’: includes m

Merseyside

- 63% decrease in industrial employment between 1971 and 2005
- Represents loss of 200,000 industrial jobs

Ruhr area

- 55% decrease in industrial employment between 1970 and 2005
- Represents loss of 700,000 industrial jobs

Nord-Pas-de-Calais

- 43% decrease in industrial employment between 1970 and 2005
- Represents loss of >300,000 industrial jobs

N. Moravia

- 20% decrease in industrial employment between 1993 and 2005
- Represents loss of 80,000 industrial jobs

Katowice (Silesia)

- 55% decrease in industrial employment between 1980 and 2005
- Represents loss of 475,000 industrial jobs

Mortality: how do these regions fare within their own countries?

- We already know that areas within the West of Scotland have the worst health (highest mortality) in the country
- Is this also true of the other post-industrial regions in relation to their parent countries?

All cause mortality EASRs 2001-03 by English counties (NUTS2), males

Source: Eurostat

All cause mortality EASRs 2001-03 by Netherlands Province (NUTS2), males

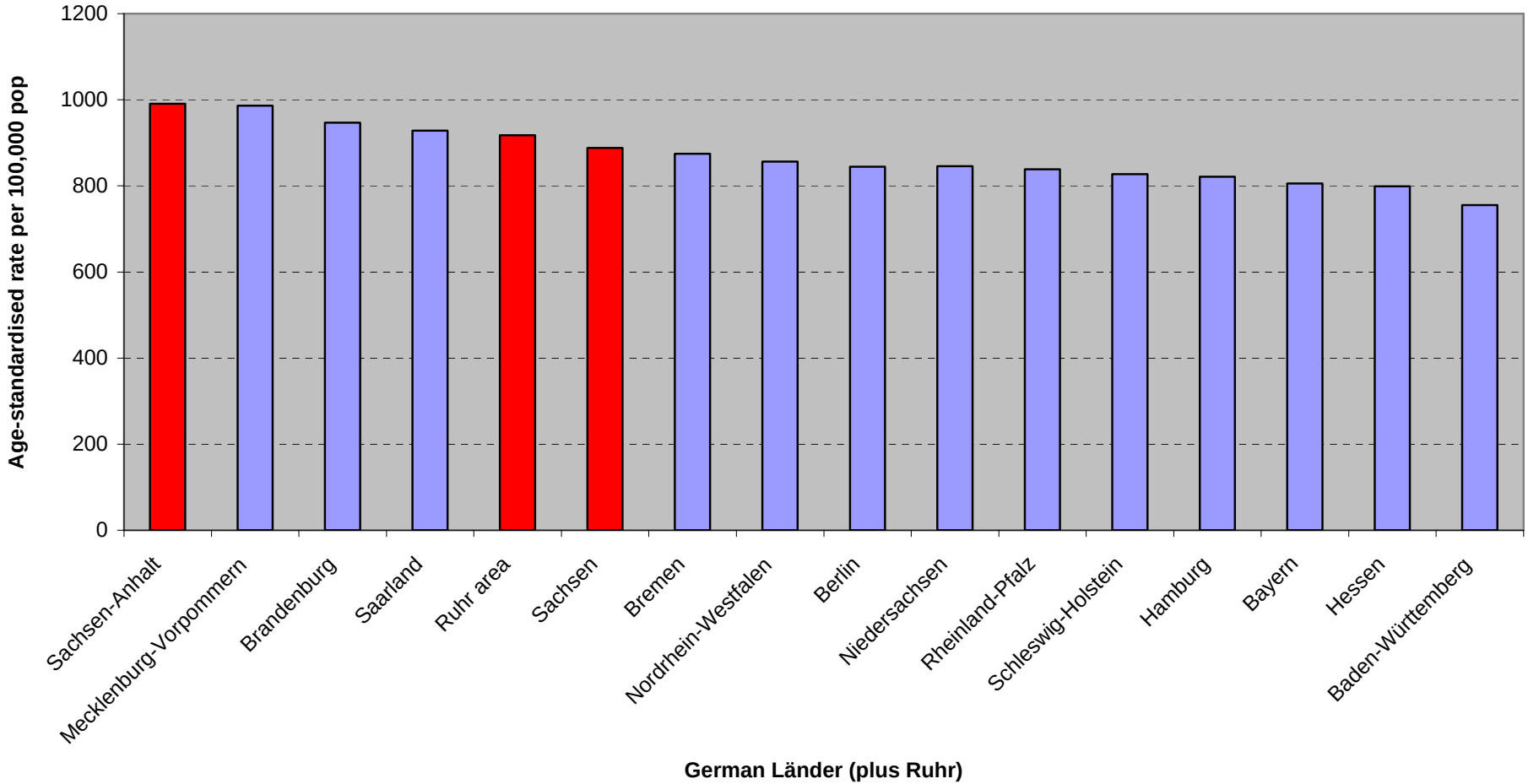
Source: Eurostat

All-cause mortality, EASRs 2001-2003 by French région (NUTS2), males

Source: Eurostat

All-cause mortality, EASRs 2001-2003 by German Länder (NUTS1), males

Source: Eurostat; North Rhine-Westphalia Institute for Health and Work (LIGA)



GDP - Purchasing Power Parities Per Inhabitant (2004)

Unemployment rate, 2005

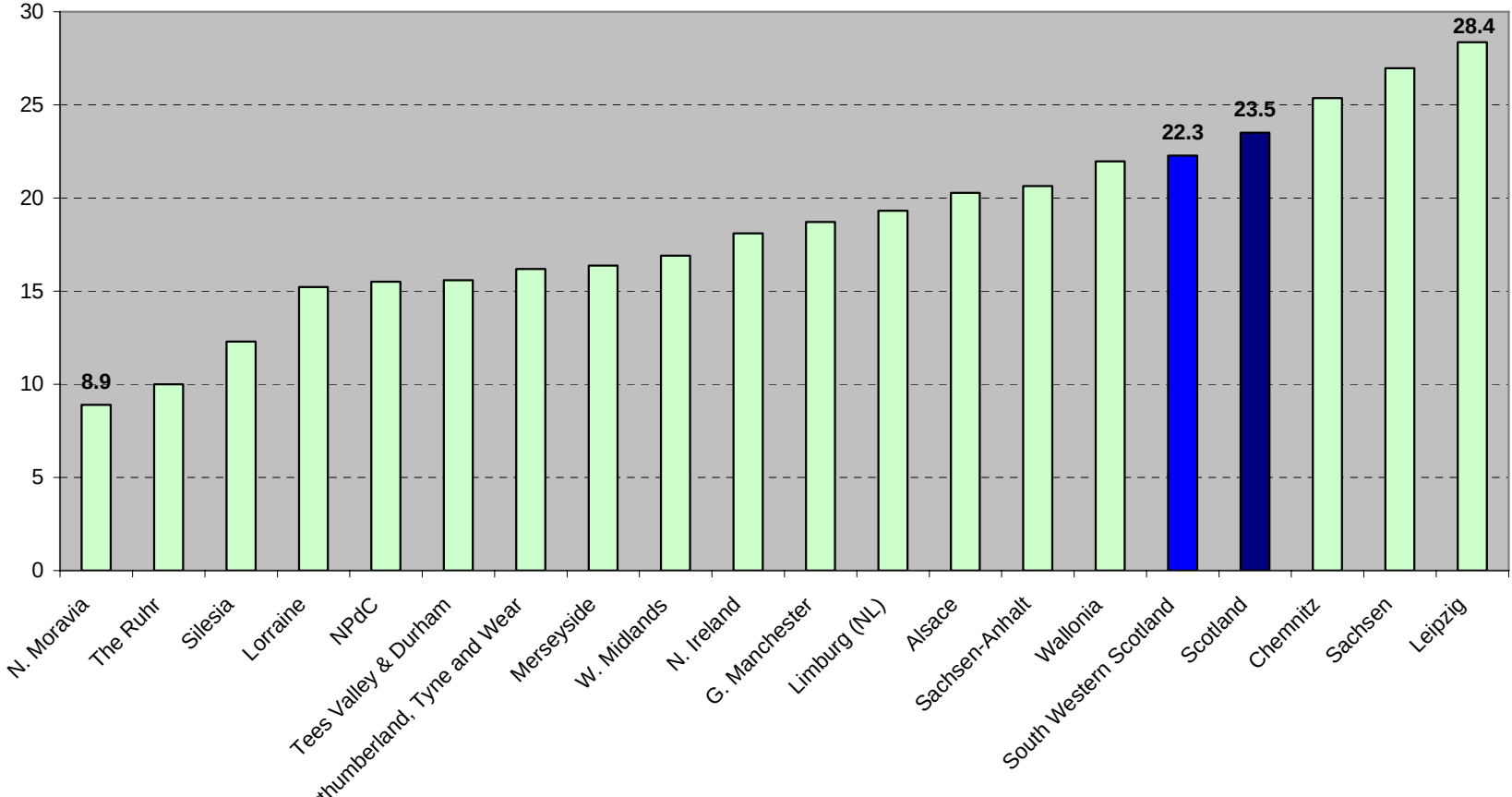
Long-term unemployment: % unemployed for 12 months or more

Not in employment: male (25+) non-employment rate, 2005

Economic activity rate, 2005

% of adult population (15+) with tertiary level qualifications: 2005

Source: Eurostat; Urban Audit data for Ruhr (2001)



Mortality analysis

- ‘Raw’ mortality data requested from national and regional statistical agencies
- Requested by age, sex, year (25 years if possible) for 17 causes including:
  - Various cancers (all; breast; lung; oesophageal; colorectal; stomach; prostate)
  - Circulatory system diseases (incl. IHD and stroke)
  - COPD and related causes
  - External causes (incl. suicide and MVTAs)
  - Chronic liver disease and cirrhosis
- Data received for all regions, although for more limited time periods in some areas

Results

Two sets of results:

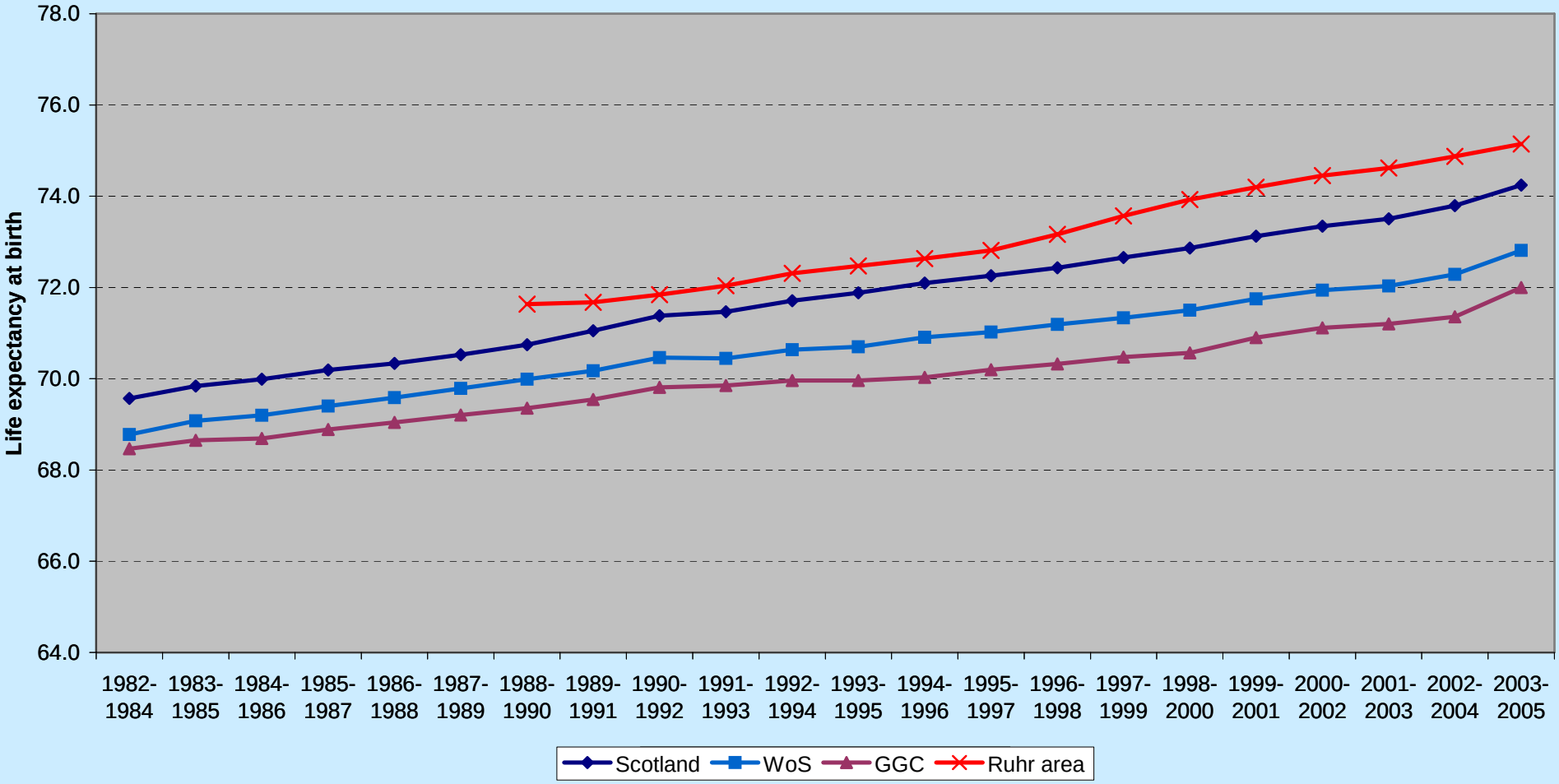
A. Life expectancy (all twenty regions)
B. Detailed age/sex/cause specific mortality analysis (ten regions)

A. Life expectancy

Life expectancy - Ruhr

Estimates of male life expectancy at birth: Ruhr area compared to Scotland, West of Scotland and GGC, 1982-2005 (3-year averages)

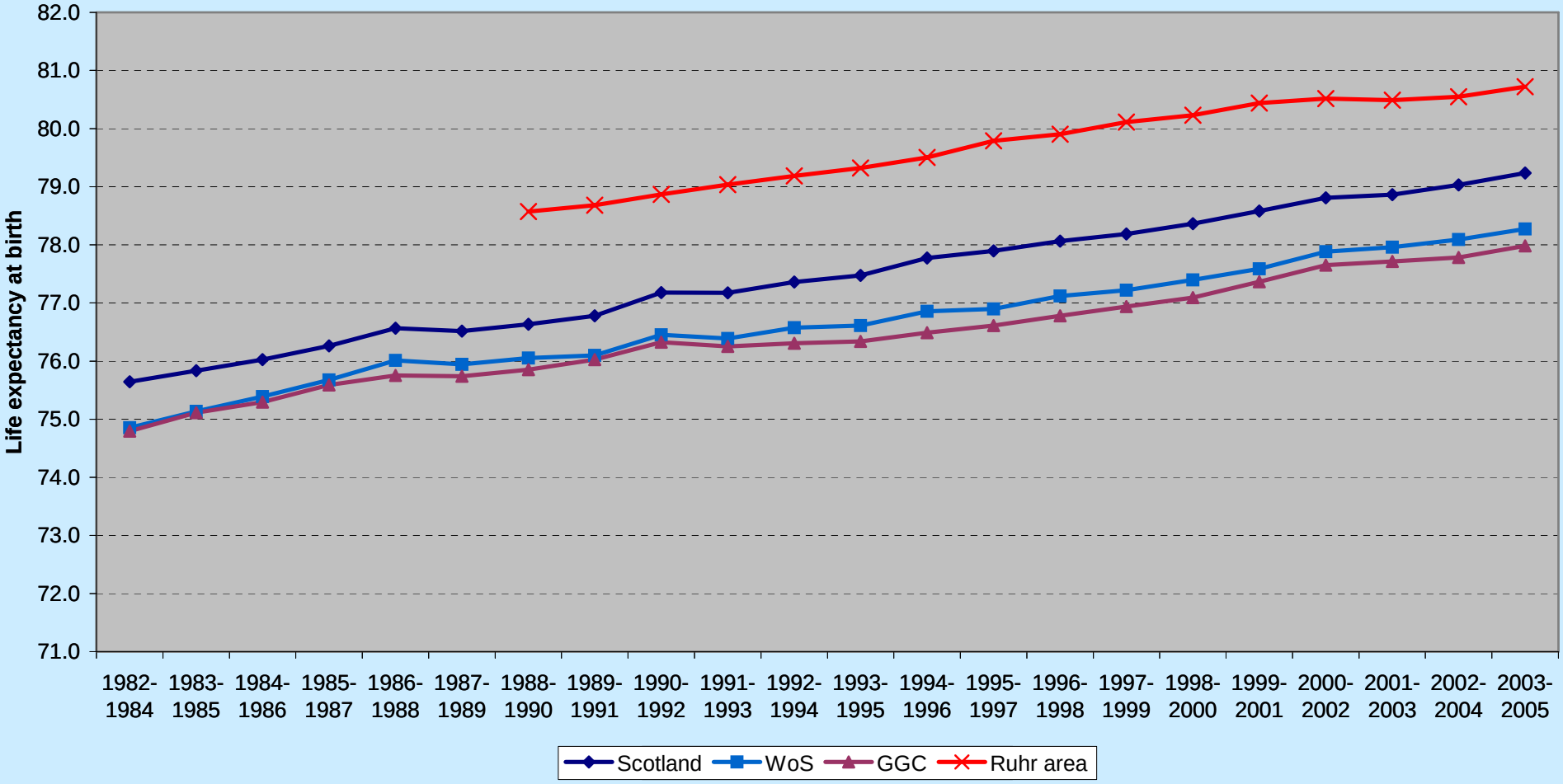
Source: GRO(S) mortality & population data (Scotland); NRW lögd mortality & population data (Ruhr)



Life expectancy - Ruhr

Estimates of female life expectancy at birth: Ruhr area compared to Scotland, West of Scotland and GGC, 1982-2005 (3-year averages)

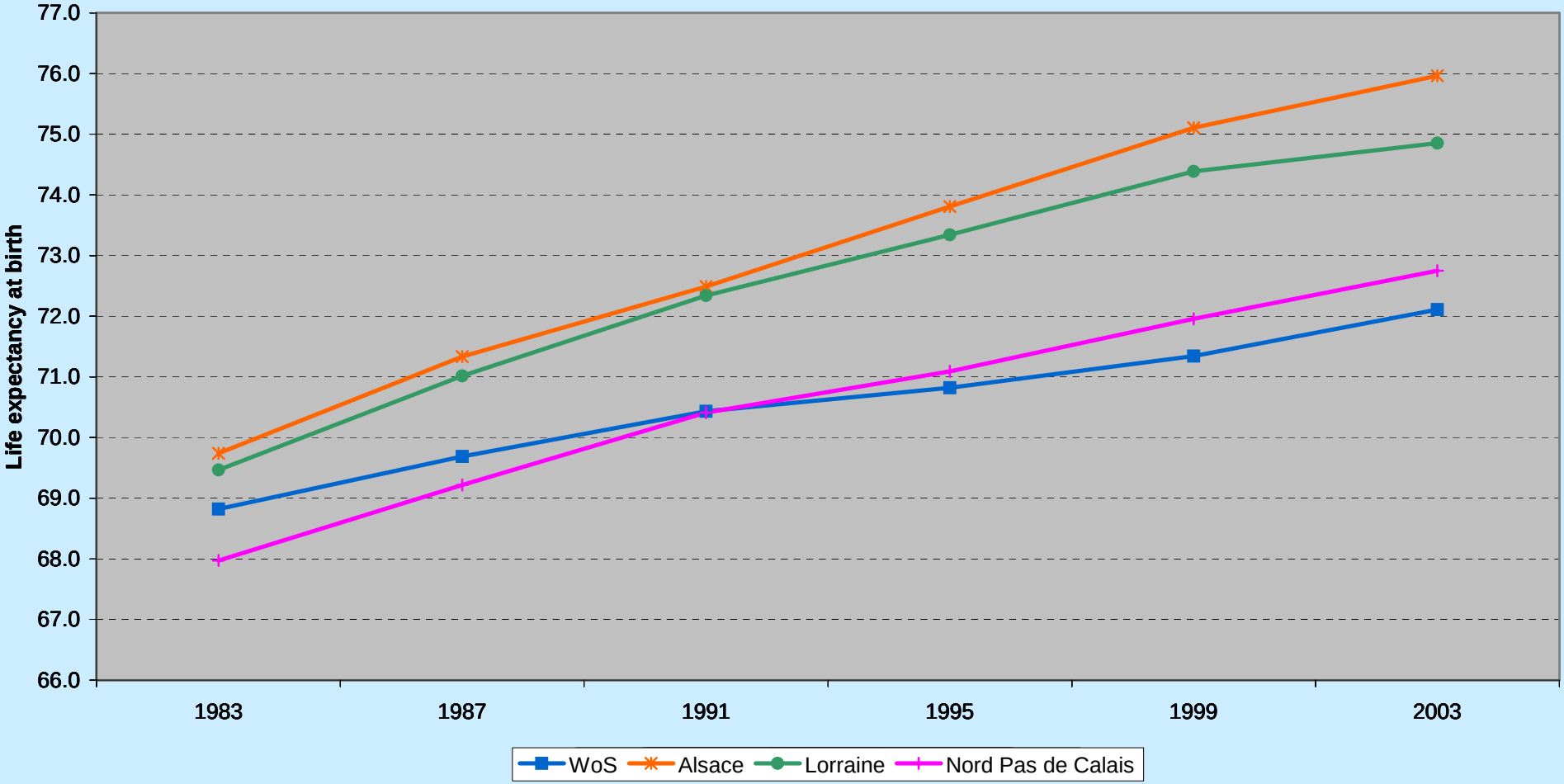
Source: GRO(S) mortality & population data (Scotland); NRW lögd mortality & population data (Ruhr)



Life expectancy - French regions

Estimates of male life expectancy at birth: Nord Pas de Calais, Lorraine and Alsace compared to Scotland, West of Scotland and GG&C, 1983-2003

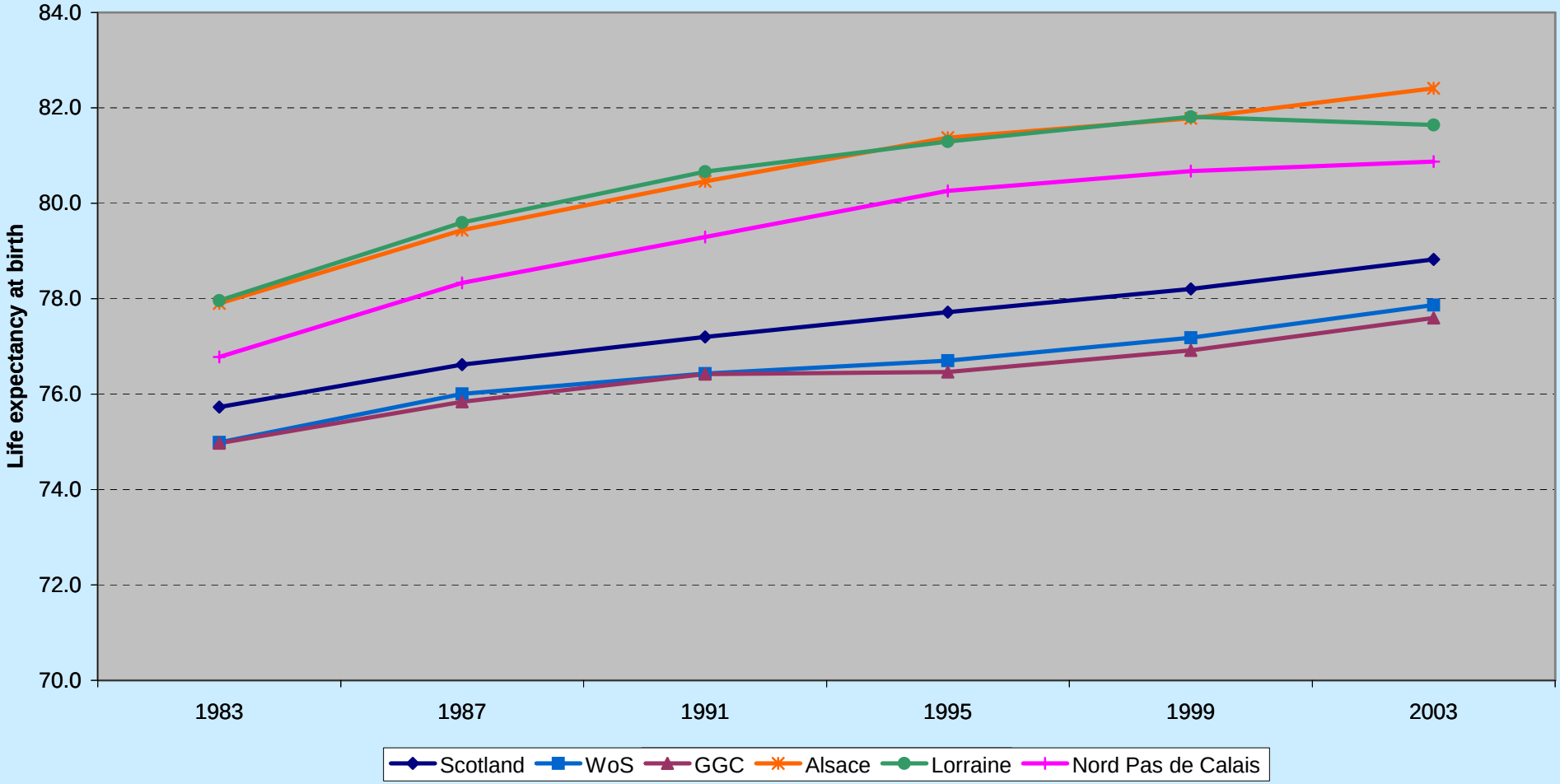
Source: GRO(S) death reg'ns/population estimates (Scotland); INSERM deaths/population data (France)



Life expectancy - French regions

Estimates of female life expectancy at birth: France, Nord Pas de Calais, Lorraine and Alsace compared to Scotland, West of Scotland and GG&C, 1983-2003

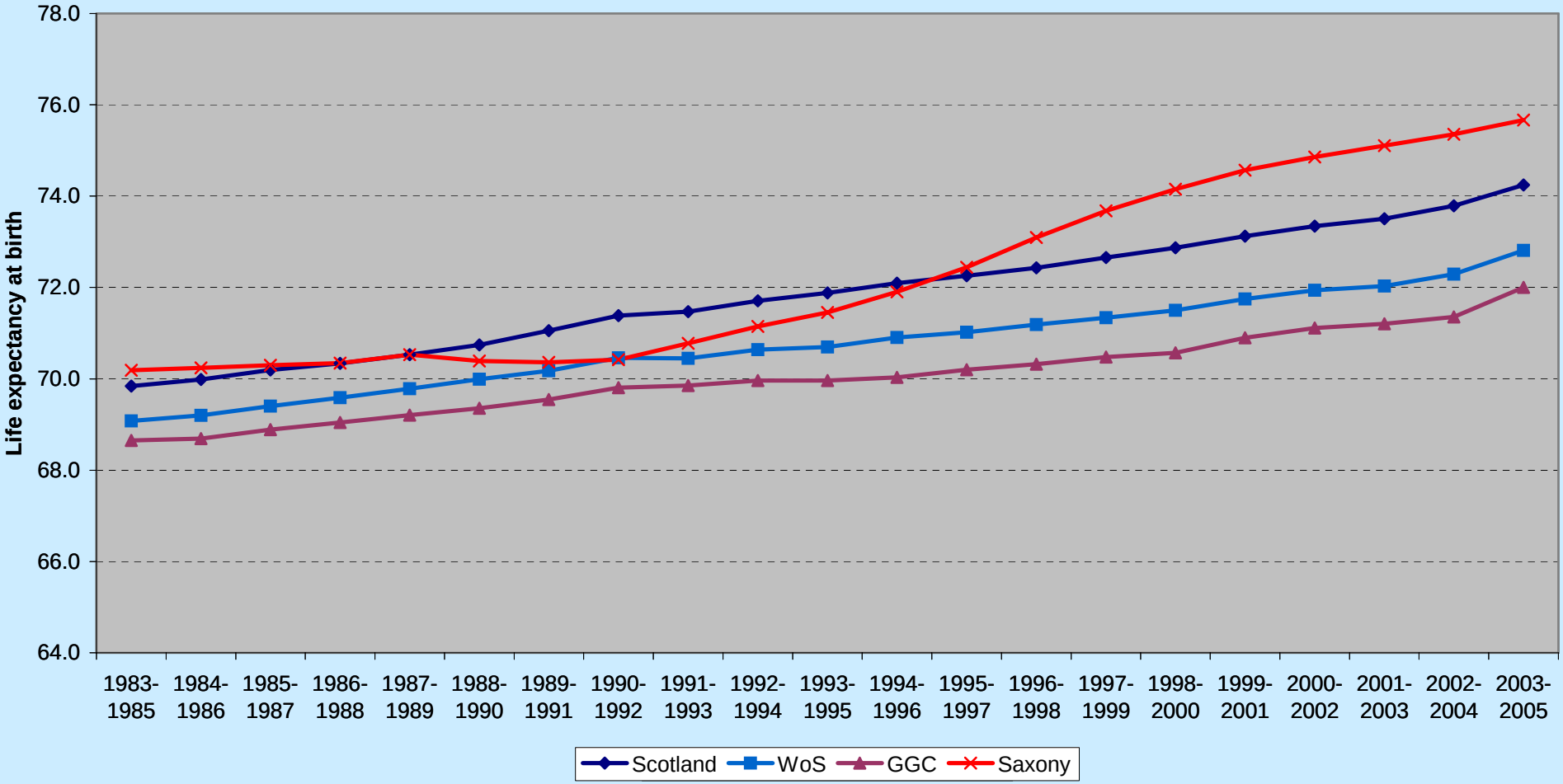
Source: GRO(S) death reg'ns/population estimates (Scotland); INSERM deaths/population data (France)



Saxony – life expectancy

Estimates of male life expectancy at birth: Saxony compared to Scotland, West of Scotland and GGC, 1983-2005 (3-year averages)

Source: Calculated from data from GRO(S) (Scotland) and the Statistical Office of Free State of Saxony



Saxony – life expectancy

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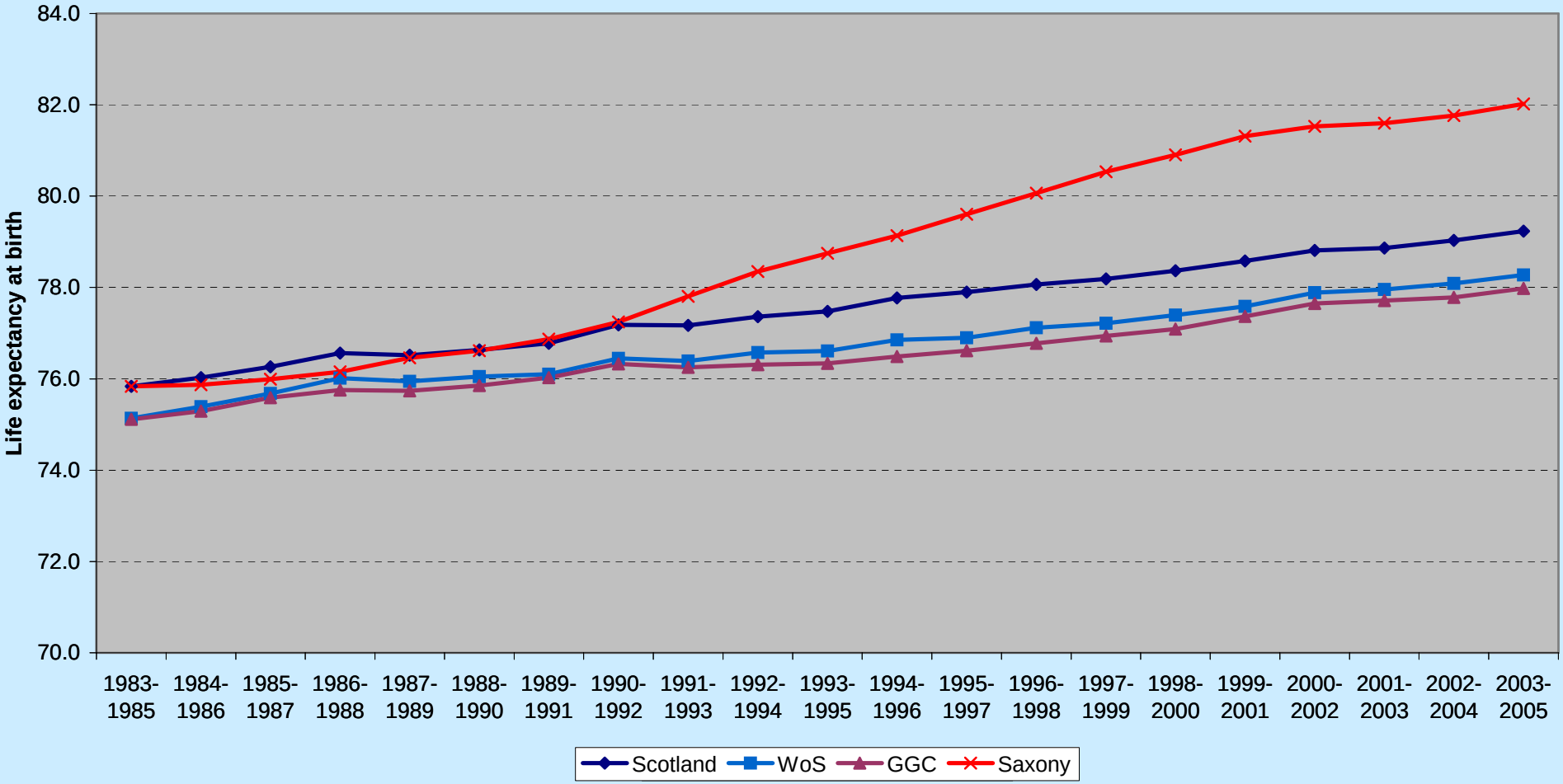
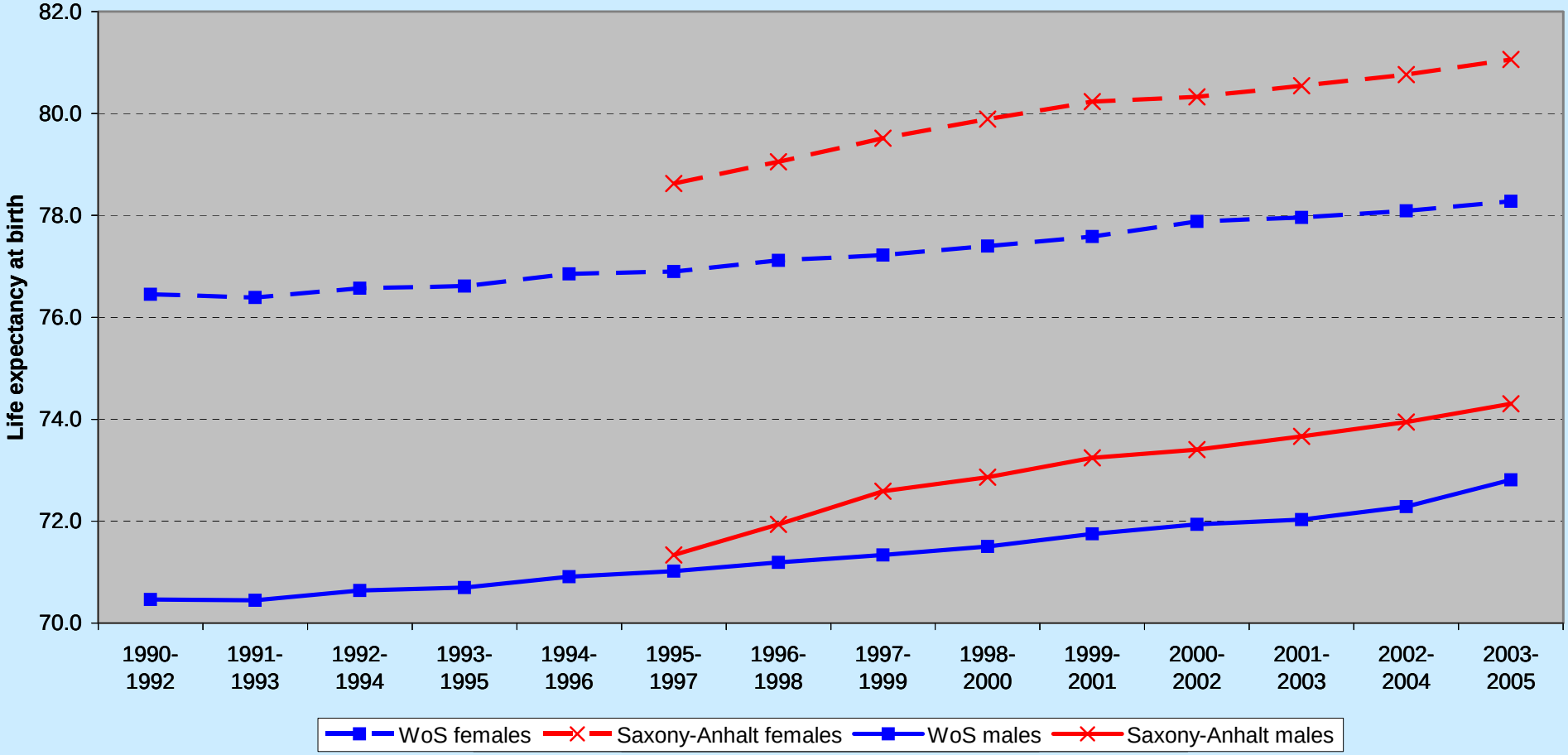


Saxony-Anhalt

Estimates of male and female life expectancy at birth:
Saxony-Anhalt compared to West of Scotland, 1995-2005 (3-year averages)

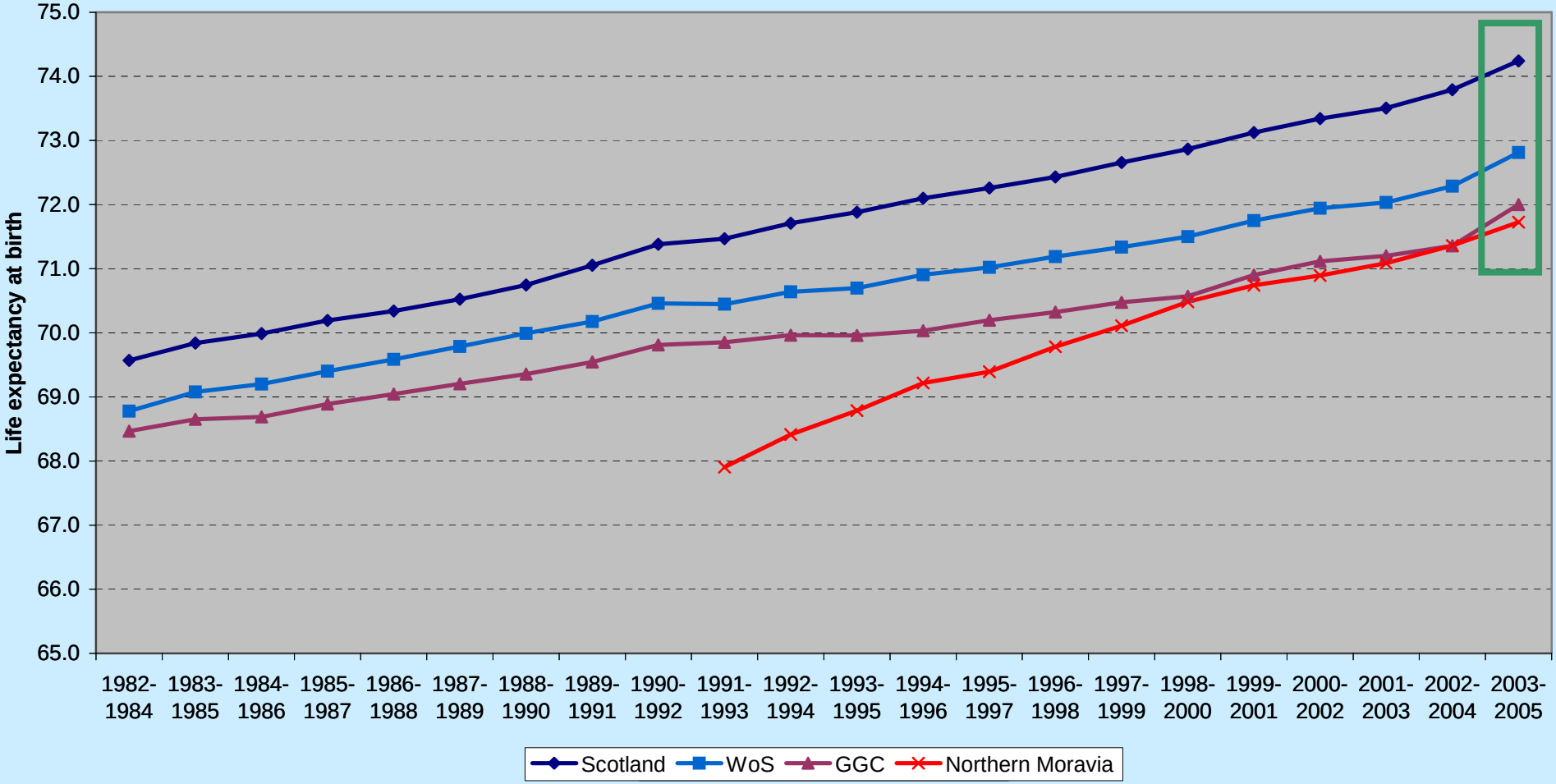
Source: Calculated from data from GRO(S) (Scotland) and Landesamt für Verbraucherschutz Sachsen-Anhalt



Life expectancy – N. Moravia

Estimates of male life expectancy at birth, Northern Moravia compared to Scotland, West of Scotland and Greater Glasgow & Clyde, 1982-2005 (3-year averages)

Source: Calculated from GRO(S) and Institute of Health Information & Statistics (CZ) data



Life expectancy – N. Moravia

Estimates of female life expectancy at birth, Northern Moravia compared to Scotland, West of Scotland and Greater Glasgow & Clyde, 1982-2005 (3-year averages)

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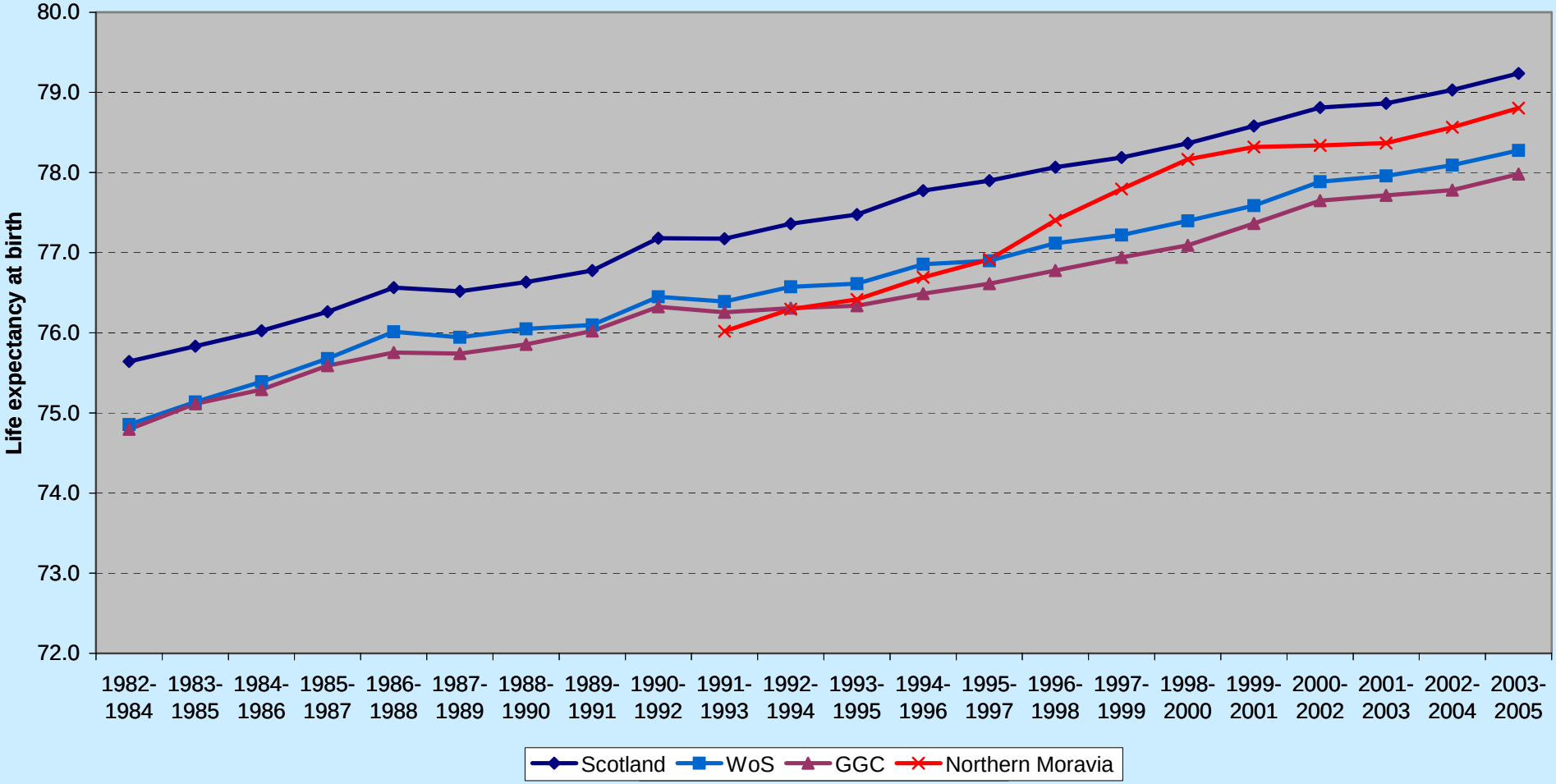
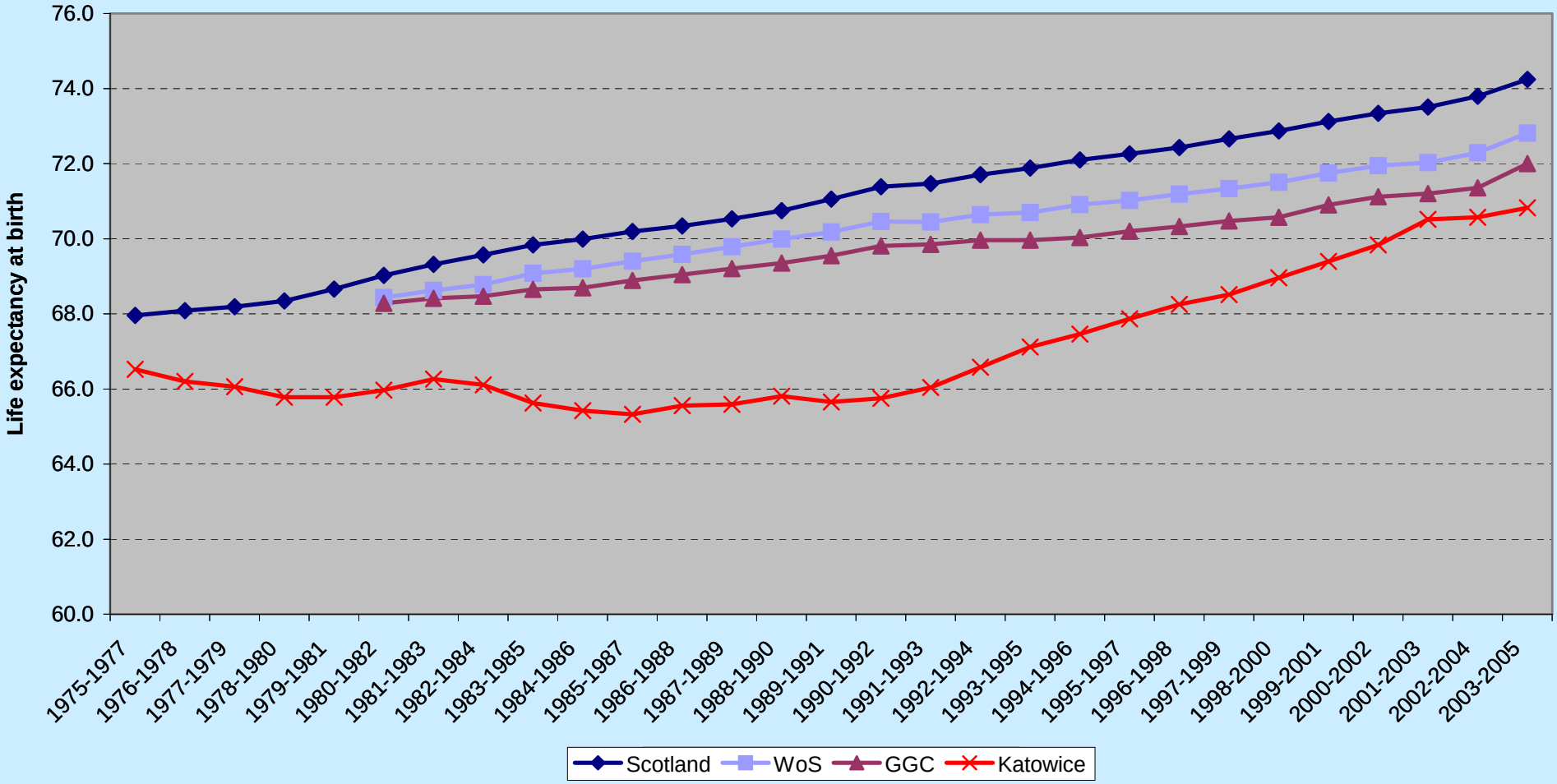


Katowice (Silesia)

Estimates of male life expectancy at birth: Katowice compared to Scotland, West of Scotland and GGC, 1975-2005 (3-year averages)

Source: Calculated from data from GRO(S) (Scotland) and Cancer Center & Institute of Oncology, Warsaw



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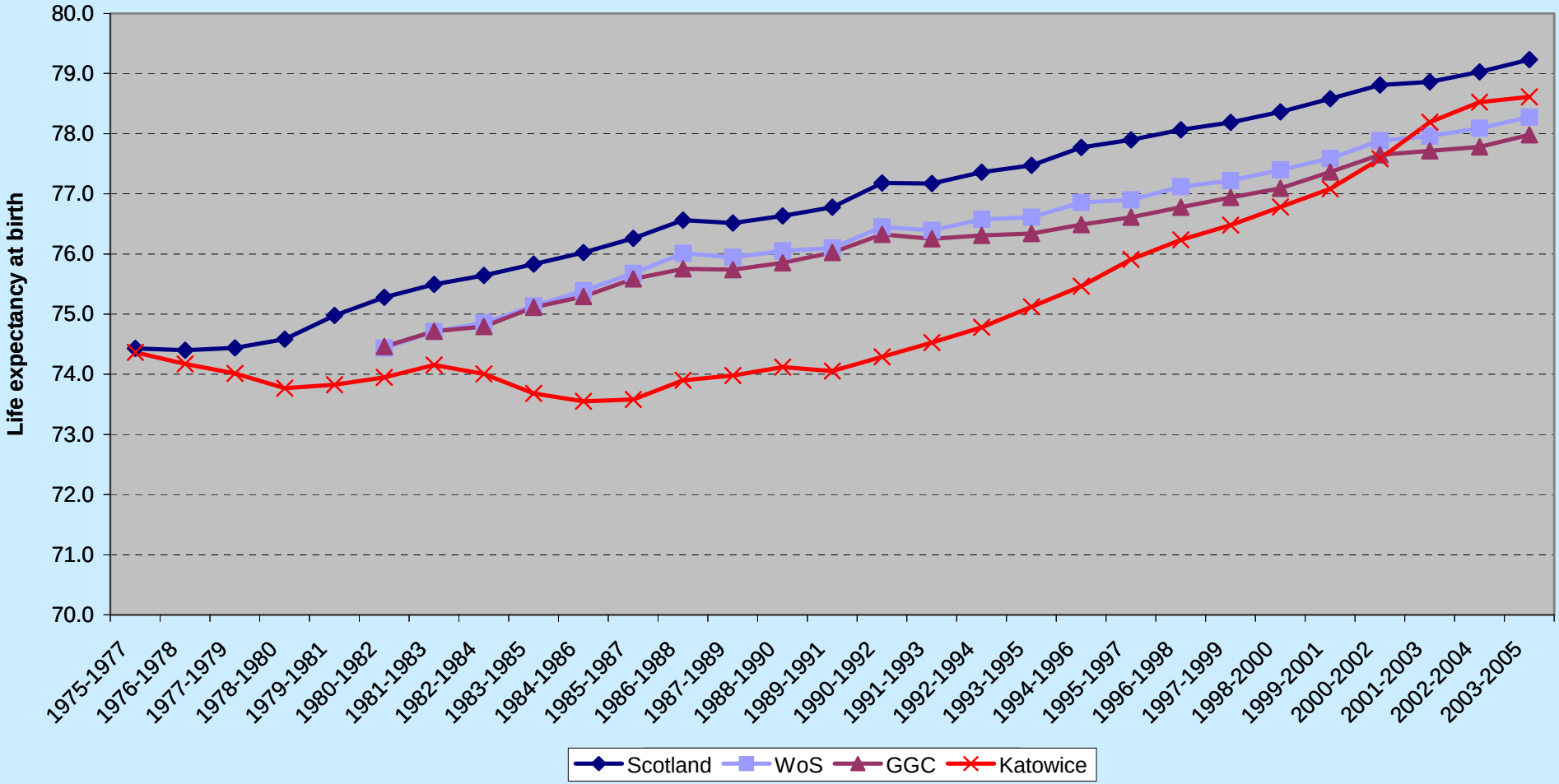
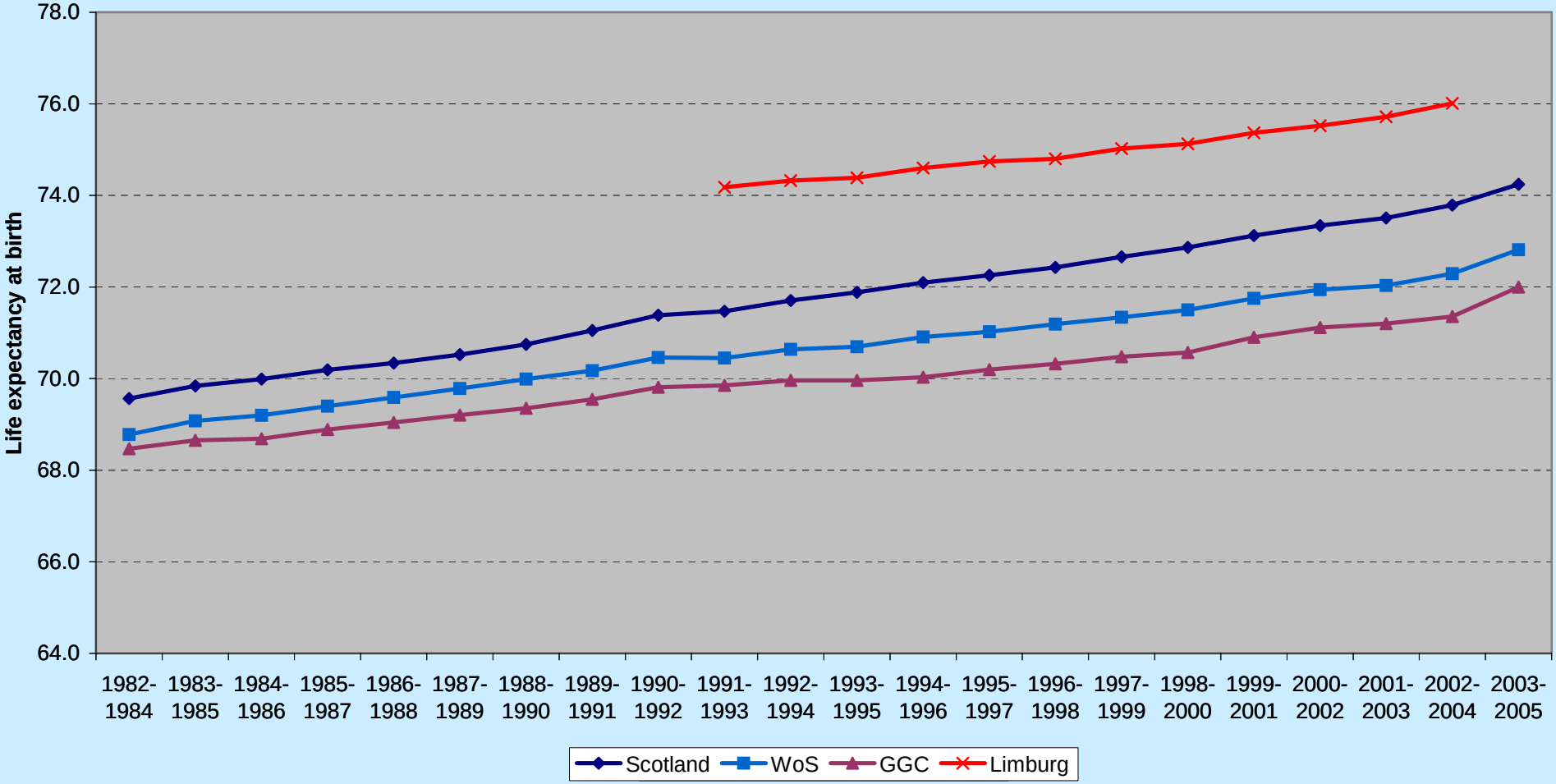


Life expectancy - Limburg

Estimates of male life expectancy at birth, Limburg compared to Scotland, West of Scotland and Greater Glasgow & Clyde, 1982-2005 (3-year averages)

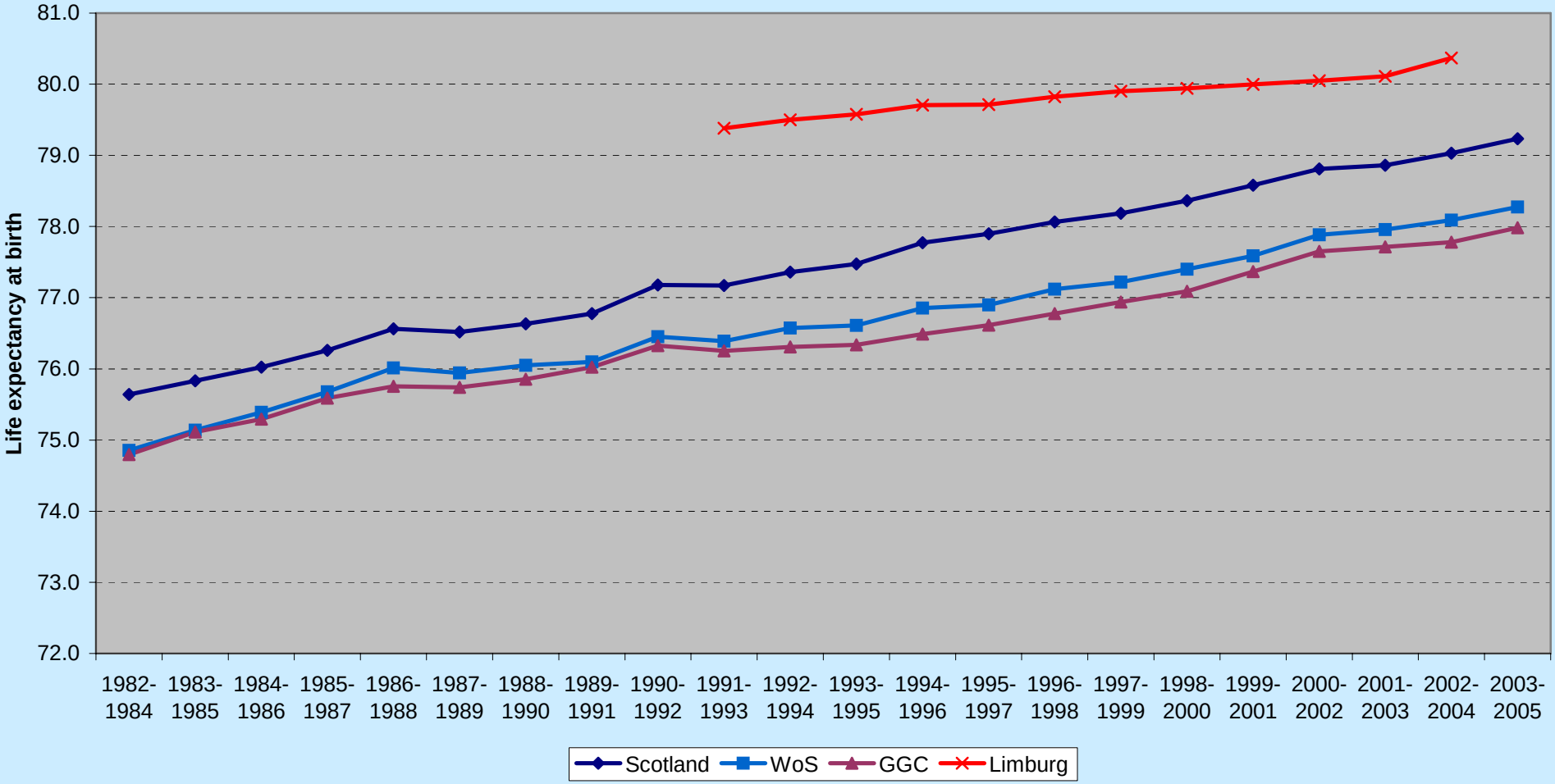
Source: calculated from mortality & population data from GRO(S) (Scotland) and CBS Statsline (NL)



Life expectancy - Limburg

Estimates of female life expectancy at birth, Limberg compared to Scotland, West of Scotland and Greater Glasgow & Clyde, 1982-2005 (3-year averages)

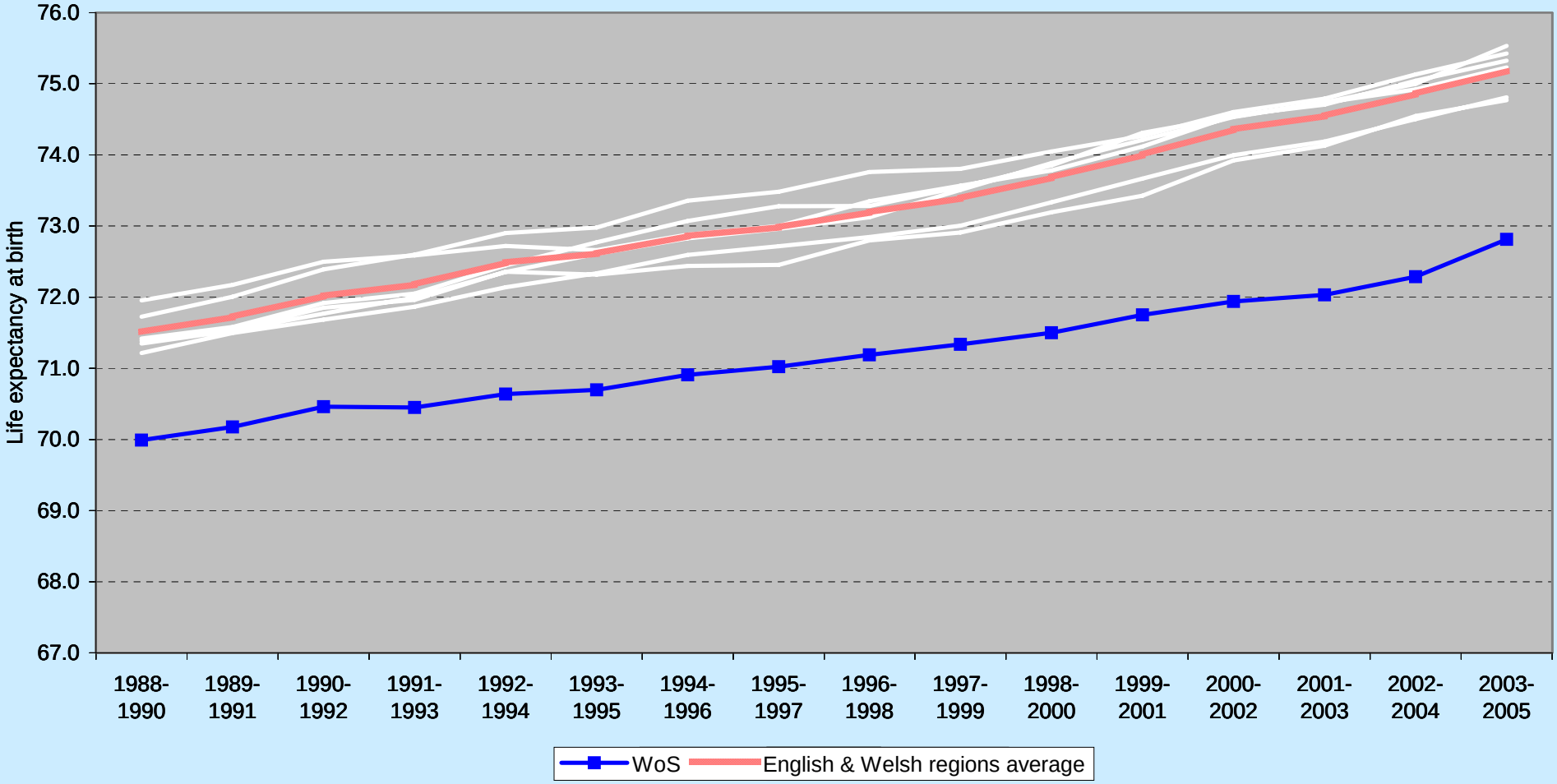
Source: calculated from mortality & population data from GRO(S) (Scotland) and CBS Statsline (NL)



English & Welsh regions (male)

Estimates of male life expectancy at birth: selected English and Welsh regions compared to West of Scotland, 1988-2005 (3-year averages)

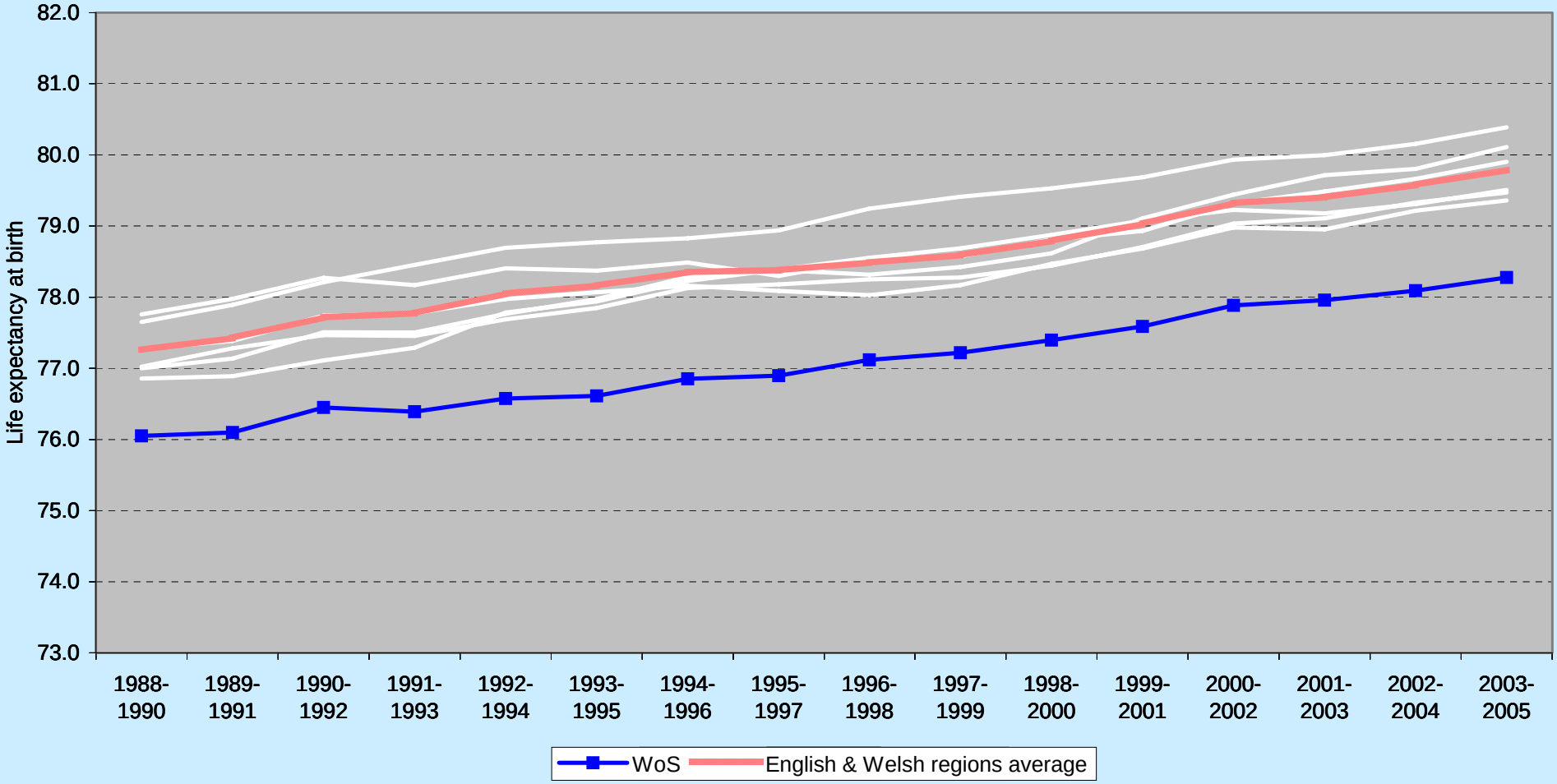
Source: Calculated from data from GRO(S) (Scotland) and ONS (England & Wales)



English & Welsh regions (female)

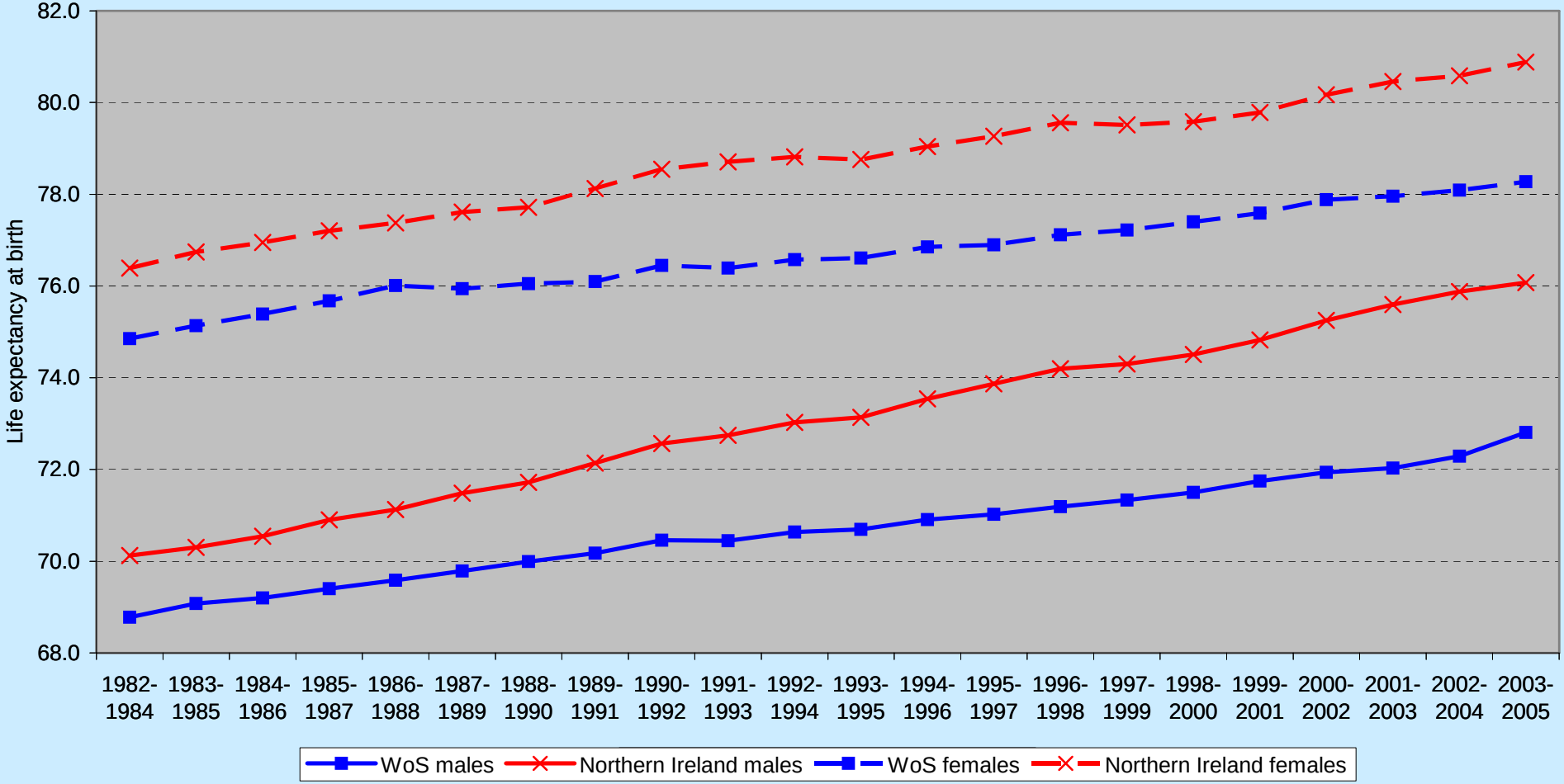
Estimates of female life expectancy at birth: selected English and Welsh regions compared to West of Scotland, 1988-2005 (3-year averages)

Source: Calculated from data from GRO(S) (Scotland) and ONS (England & Wales)



Northern Ireland

Estimates of male and female life expectancy at birth,
Northern Ireland compared with West of Scotland , 1982-2005 (3-year averages)
Source: calculated from mortality & population data from GRO(S) and NISRA



3. In-depth mortality analysis of ten post-industrial regions

B. Age/sex/cause-specific mortality analysis

- Comparator areas reduced from 20 to 10
- One region per country basis (except Germany)
- Each region has worst/among worst mortality rates in their respective countries

10 post-industrial regions

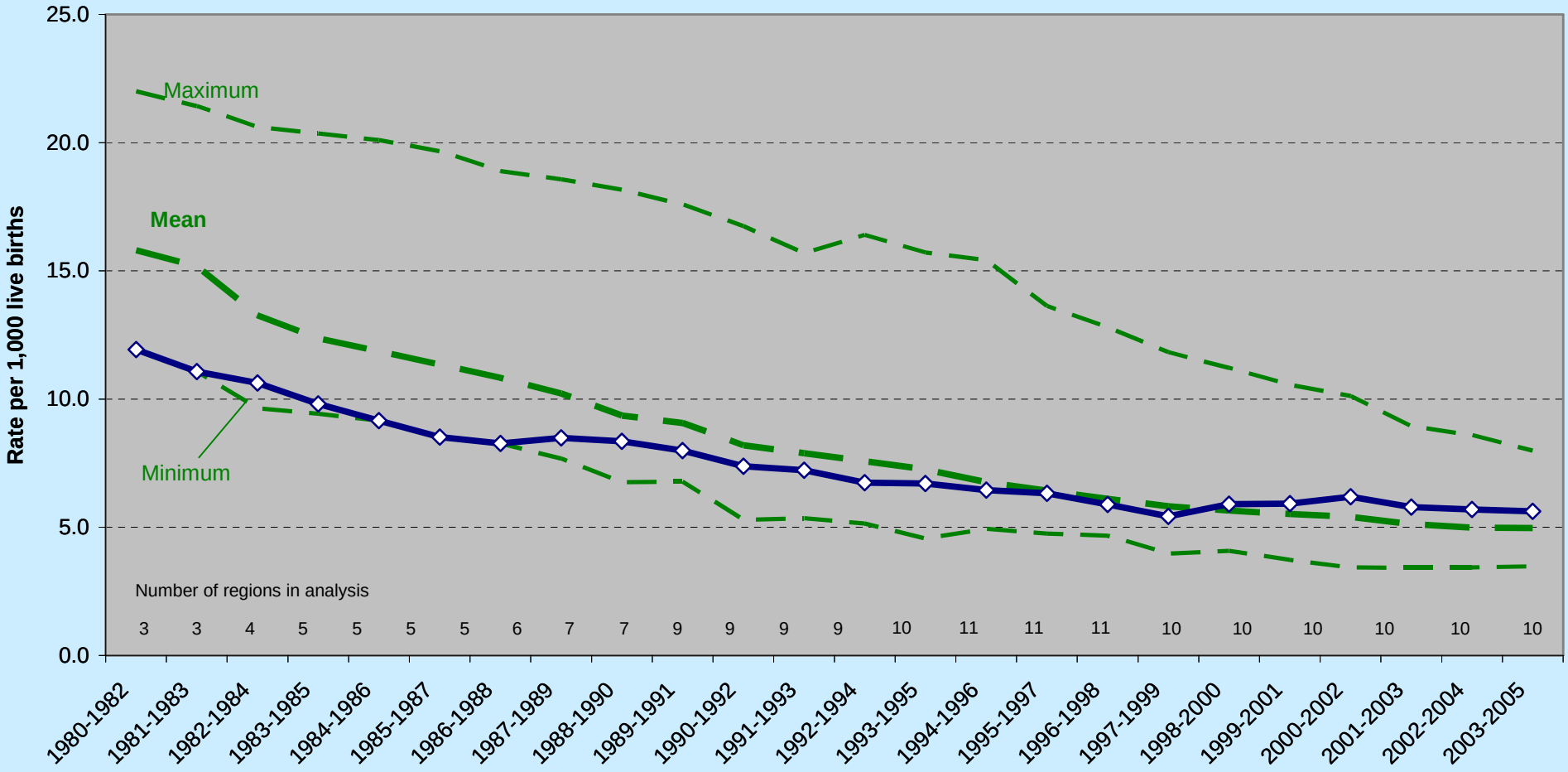
- Ruhr (West Germany)
- Saxony (East Germany)
- Katowice
- Northern Moravia
- Nord Pas de Calais
- Wallonia
- Limburg
- Northern Ireland
- Swansea & the South Wales Coalfields
- Merseyside

Analysis

- Age standardised rates, 3-year rolling averages
  - here compared to West of Scotland only
- Five age groups:
  - Infants (<1)
  - Children (1-14)
  - Younger working age (15-44)
  - Older working age (45-64)
  - Elderly (65+)
- Presented here in summarised format…

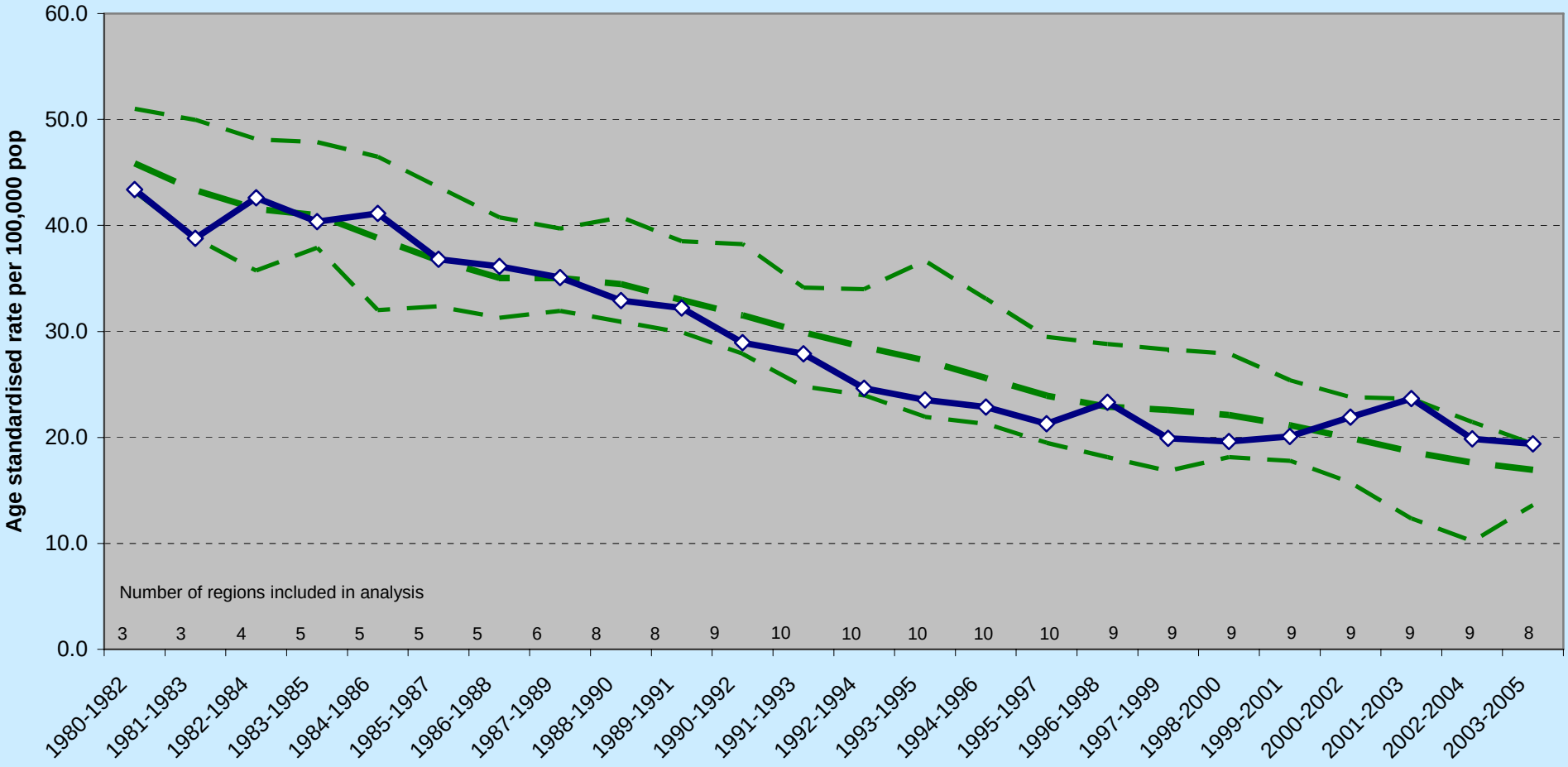
Infant mortality

Infant mortality: infant deaths per 1,000 live births (three year rolling averages)
West of Scotland in context of maximum, minimum & mean rates for selected European regions



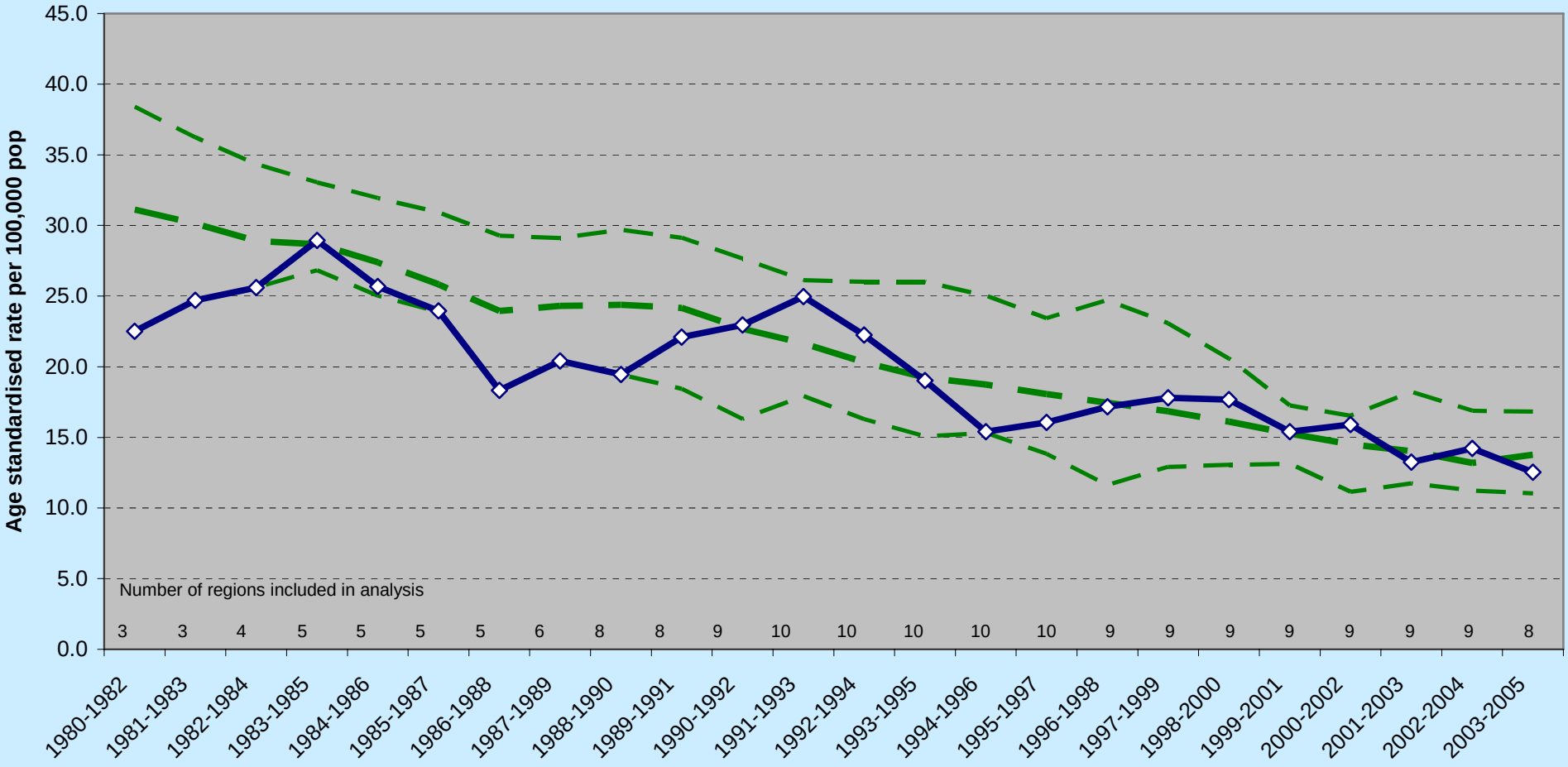
Children (1-14)

Children (1-14): all-cause EASRs (3 year rolling averages), 1980-2005, males
West of Scotland in context of maximum, minimum & mean rates for selected European regions



Children (1-14)

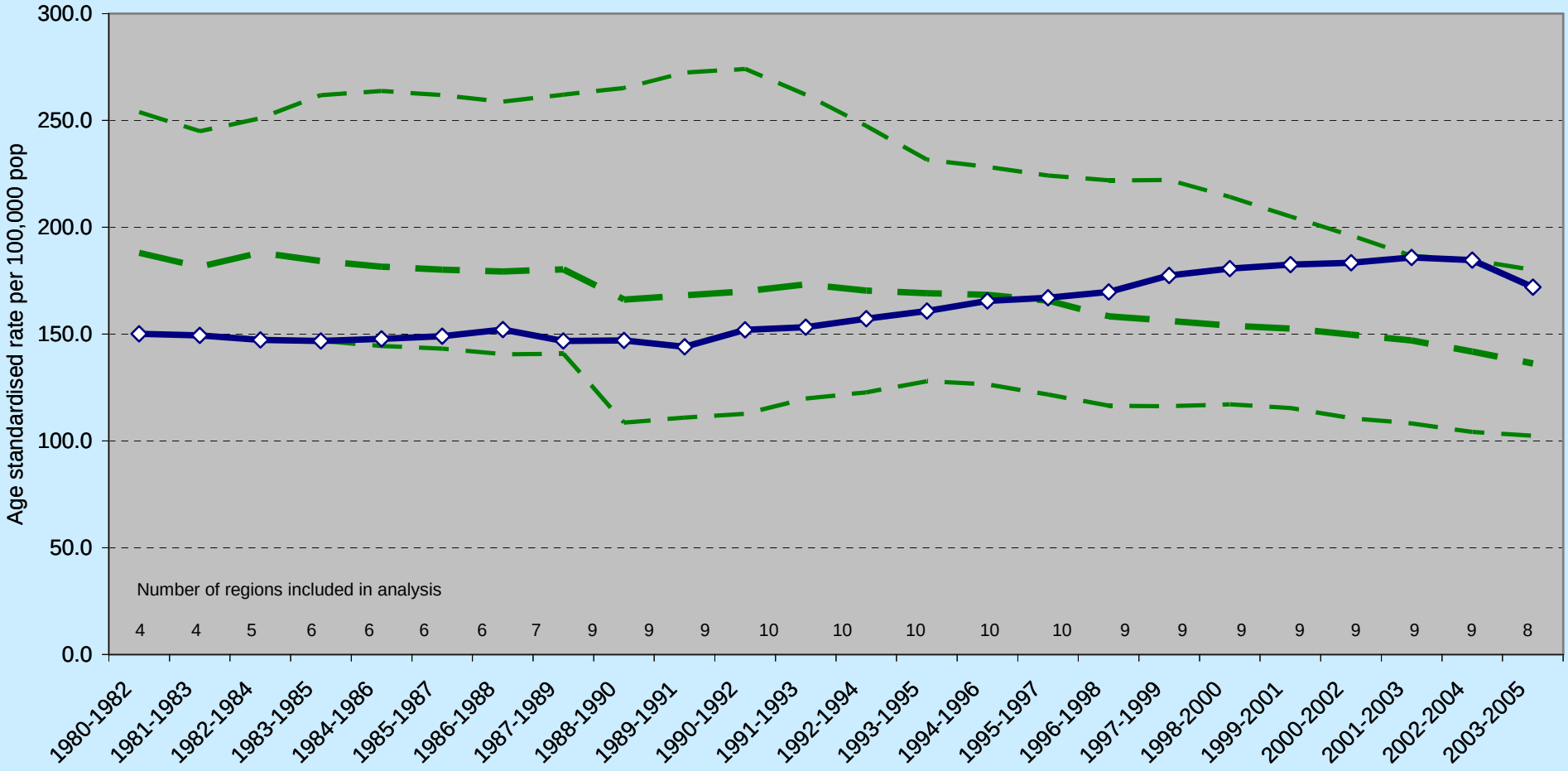
Children (1-14): all-cause EASRs (3 year rolling averages), 1980-2005, females
West of Scotland in context of maximum, minimum & mean rates for selected European regions



Working age 15-44

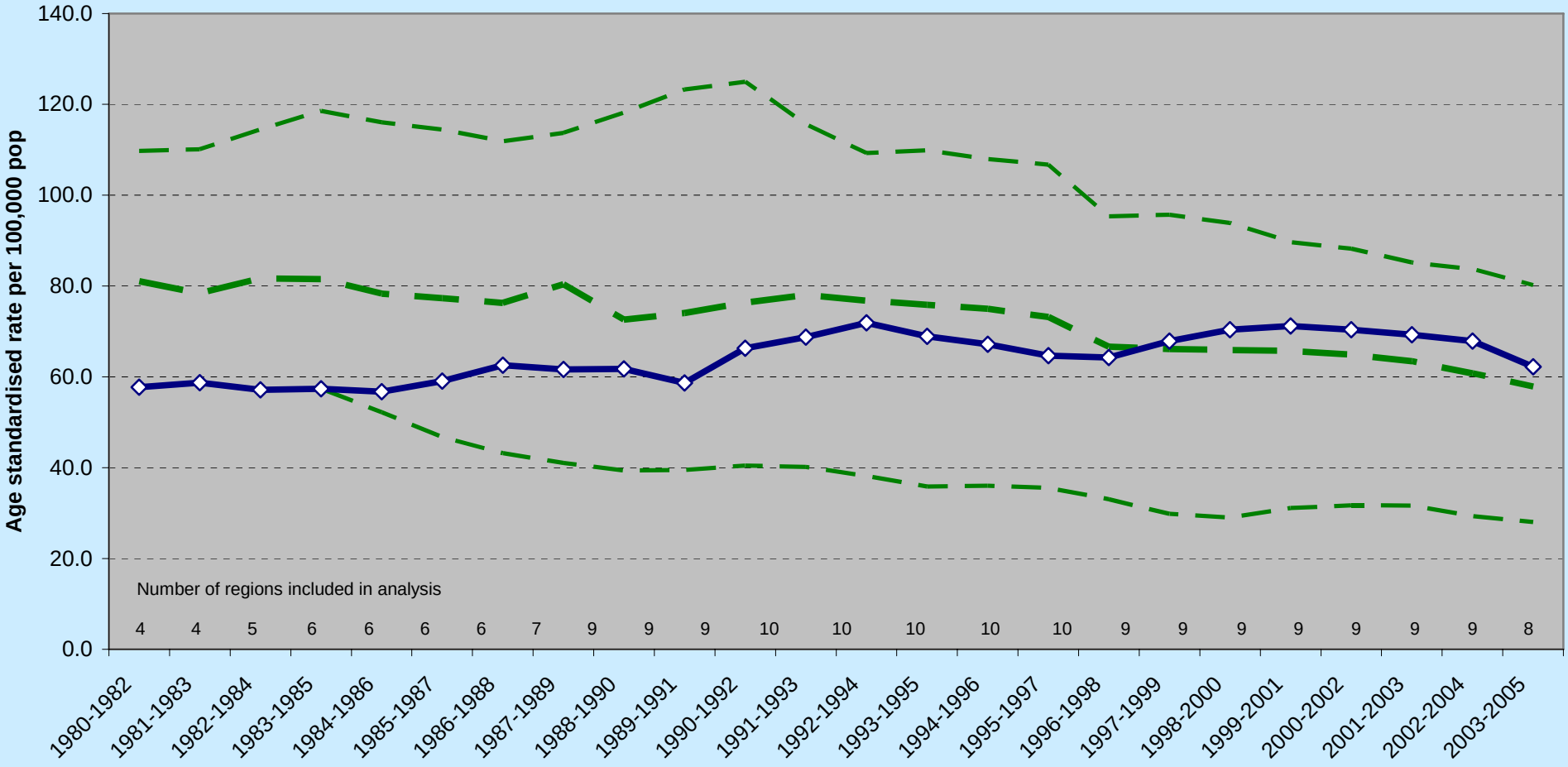
All cause, male

Working age 15-44: all-cause EASRs (3 year rolling averages), 1980-2005, males
West of Scotland in context of maximum, minimum & mean rates for selected European regions



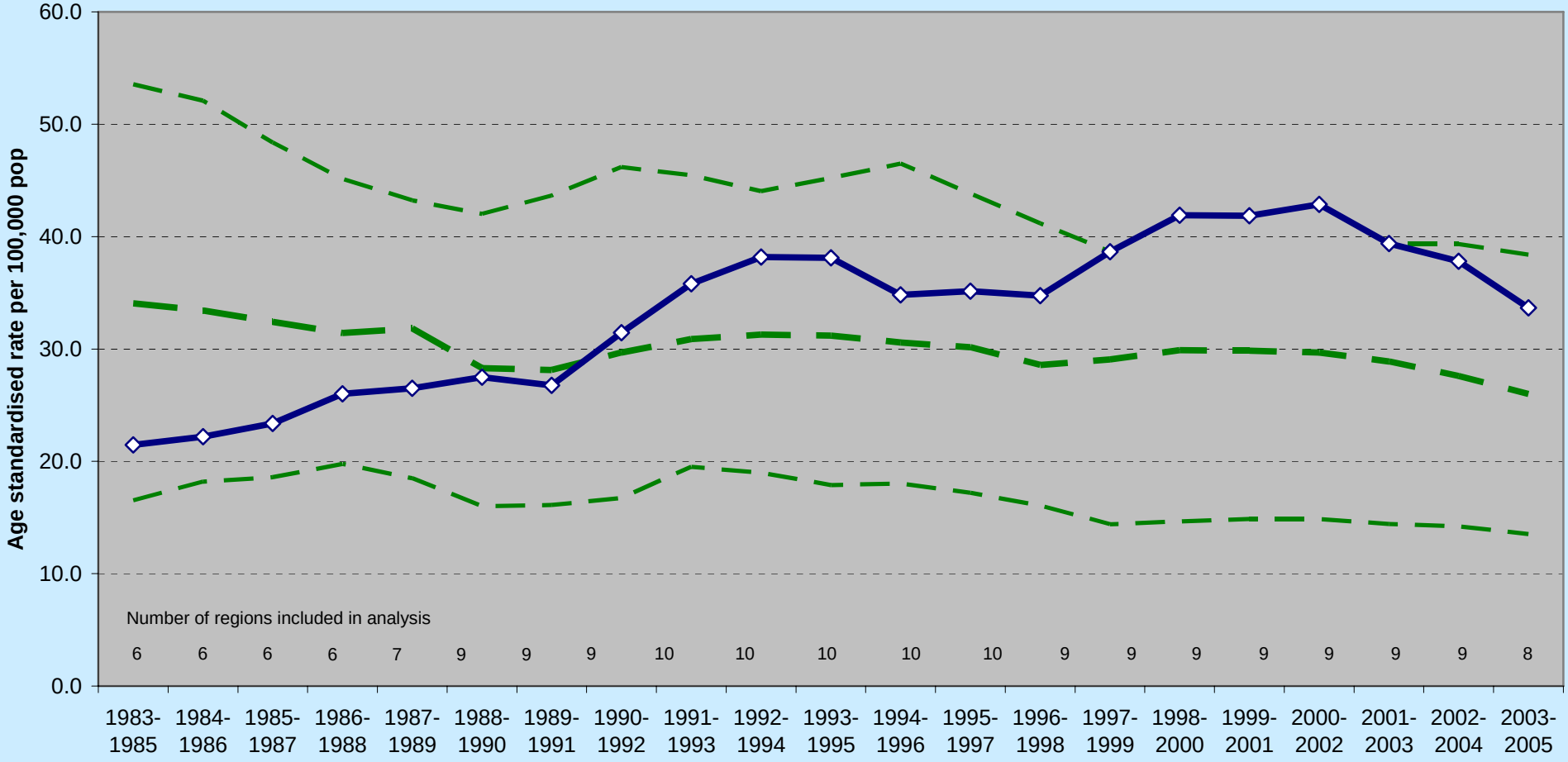
External causes, male

External causes mortality: male working age 15-44 EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions



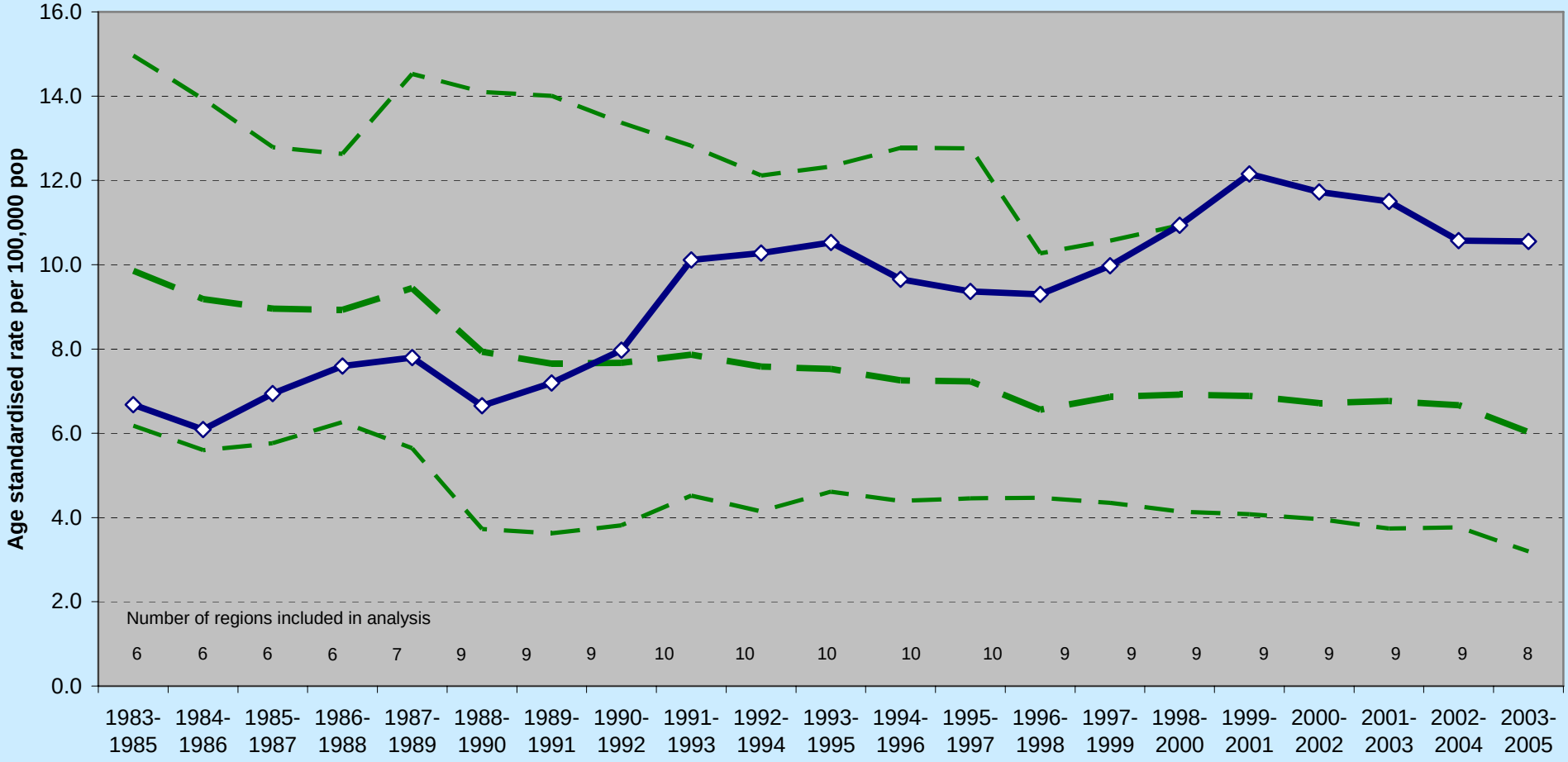
Suicide & undetermined intent, male

Suicide (incl. deaths from undetermined intent): male working age 15-44 EASRs (3 year rolling averages), 1983-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions



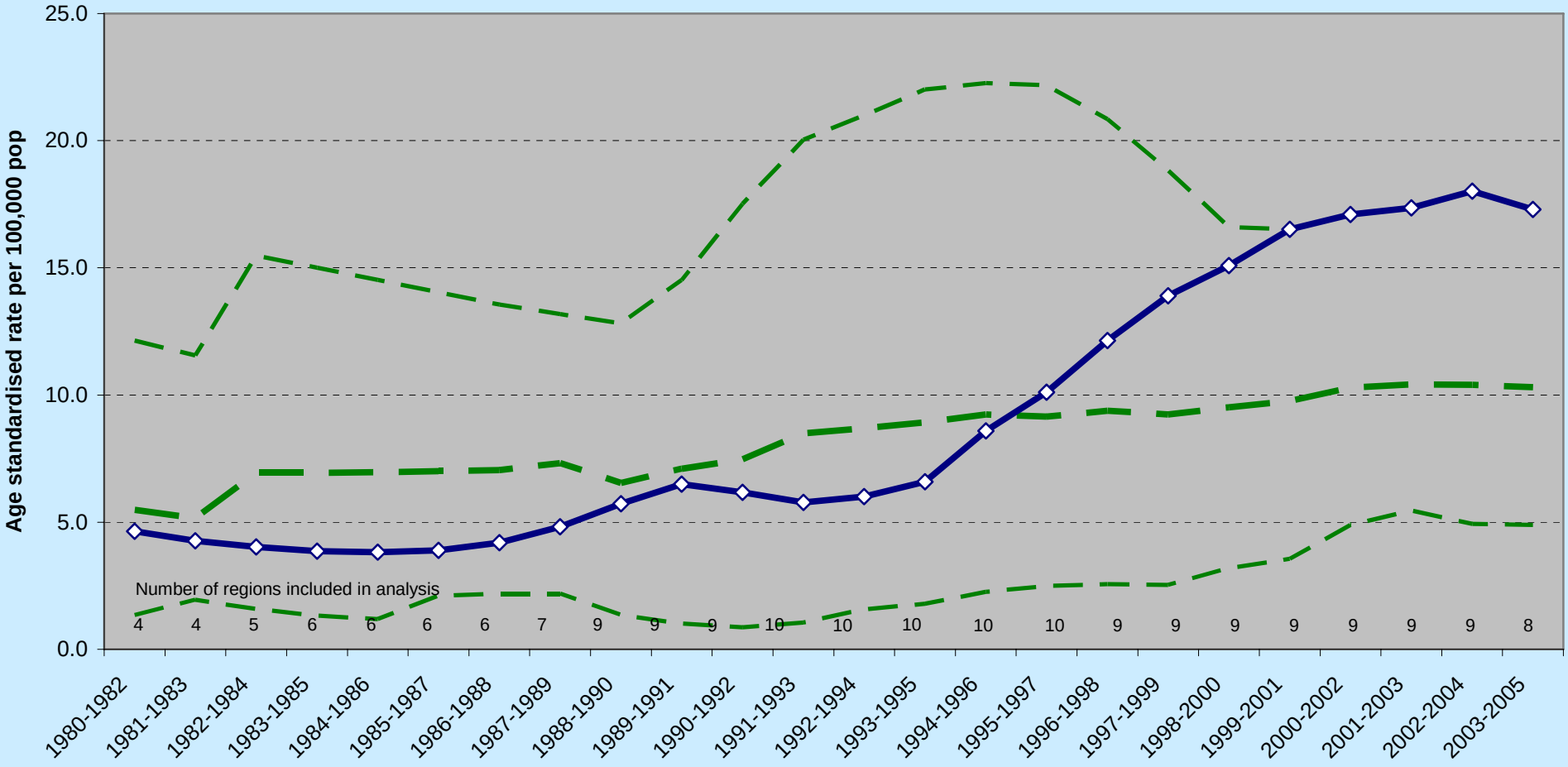
Suicide & undetermined intent, female

Suicide (incl. deaths from undetermined intent): female working age 15-44 EASRs (3 year rolling averages), 1983-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions



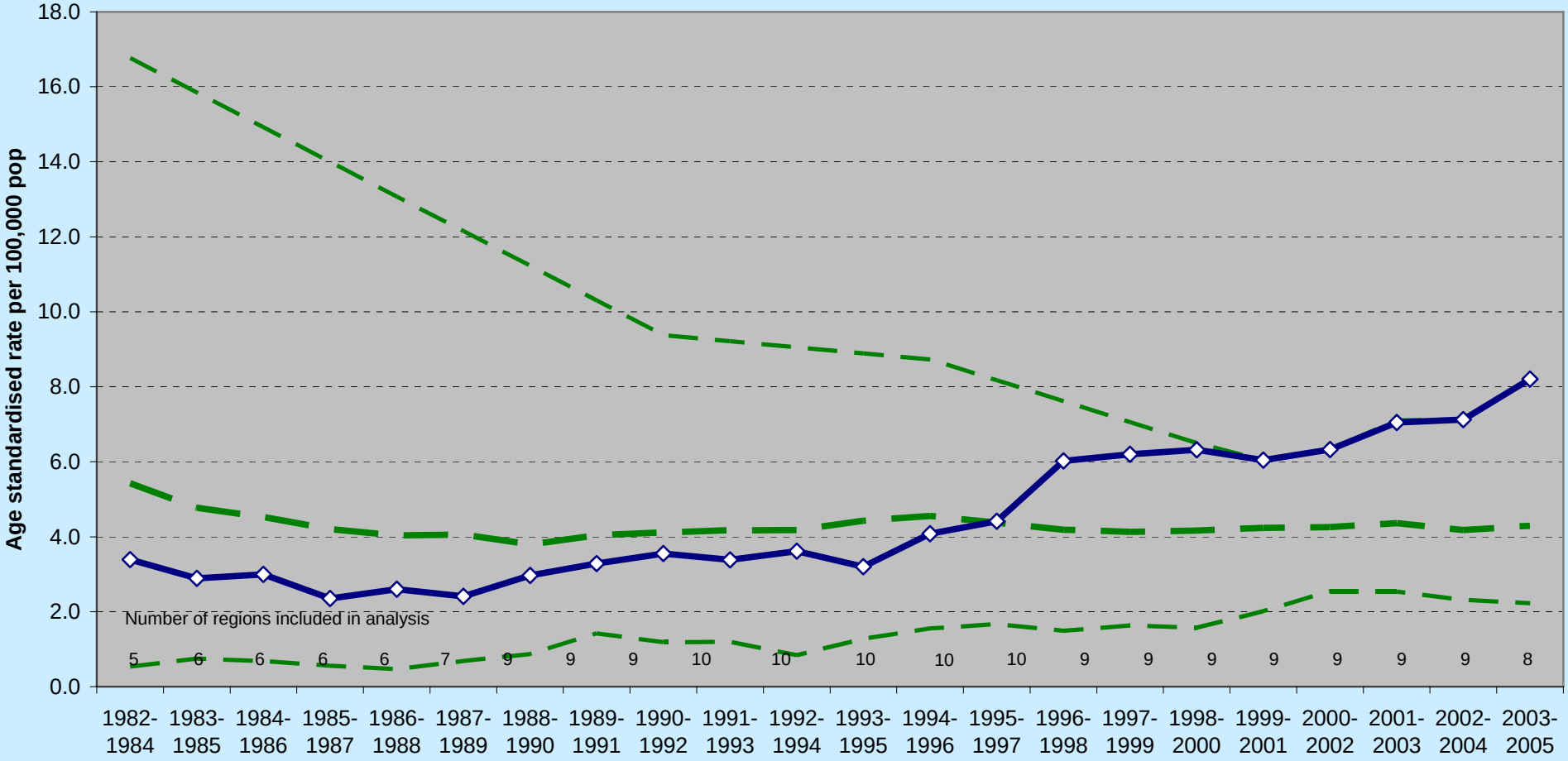
Chronic liver disease & cirrhosis, male

Chronic liver disease & cirrhosis mortality: male working age 15-44 EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions



Chronic liver disease & cirrhosis, female

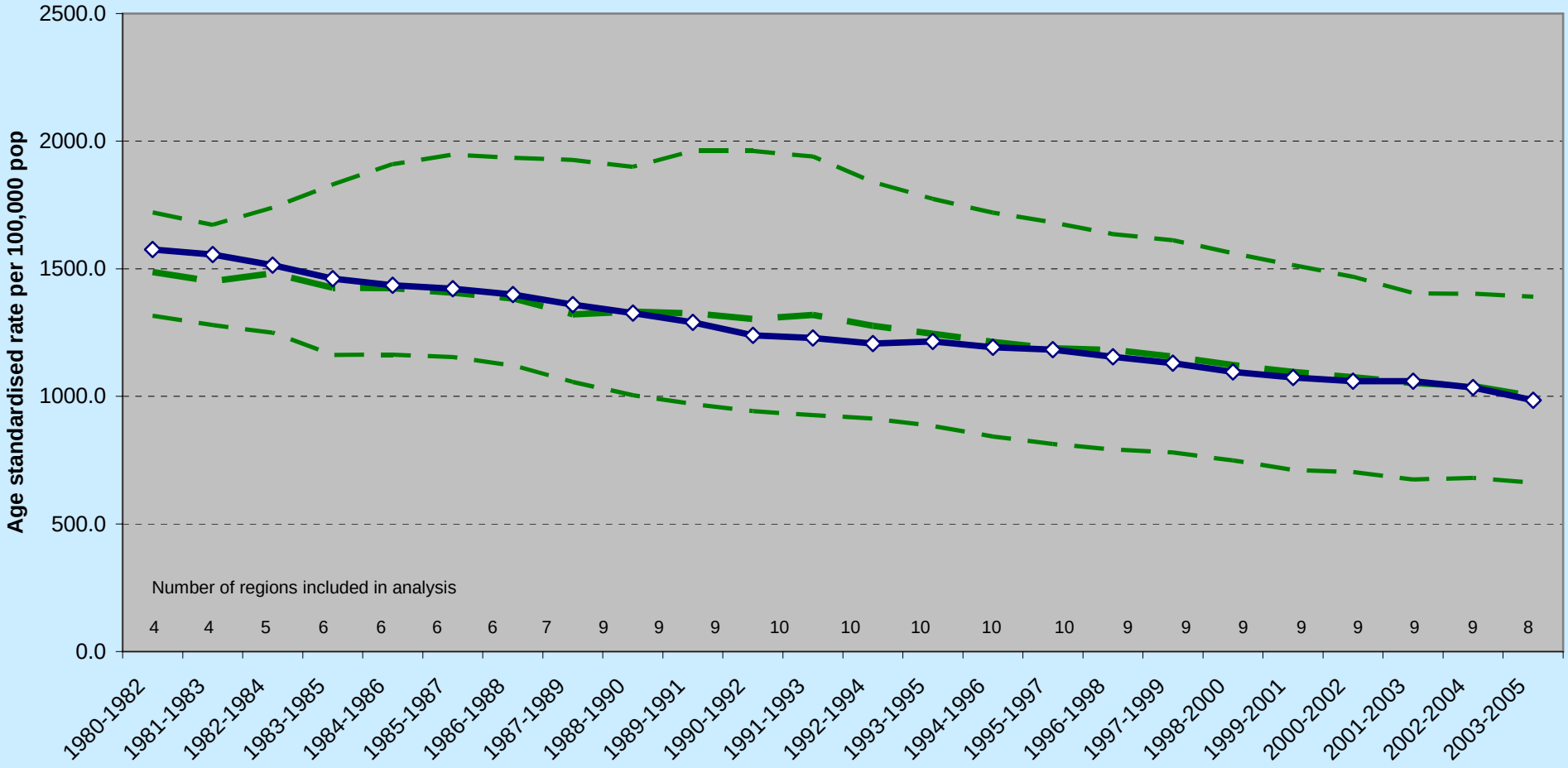
Chronic liver disease & cirrhosis mortality: female working age 15-44 EASRs (3 year rolling averages), 1982-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions



Working age 45-64

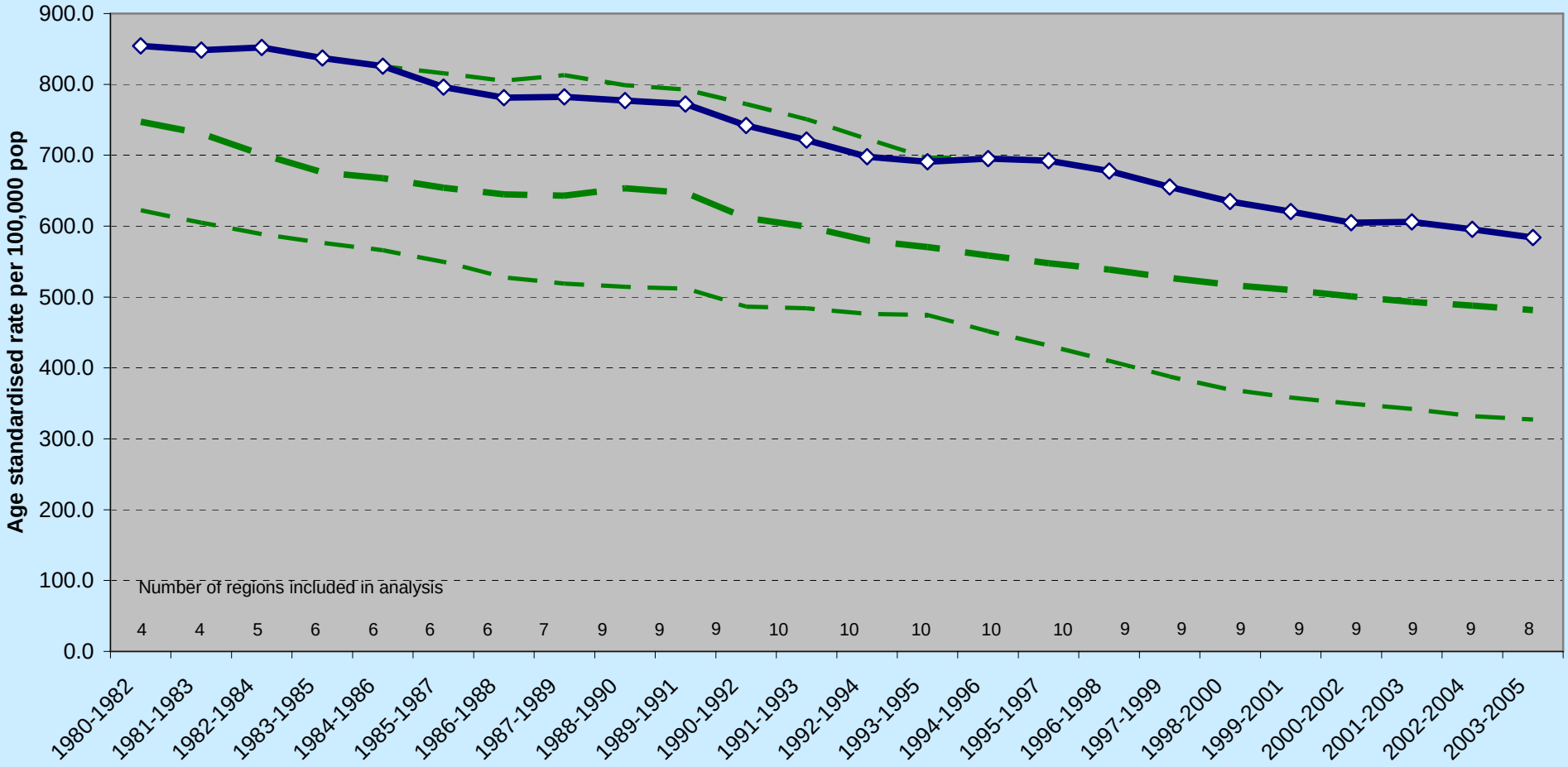
All cause - male

Working age 45-64: all-cause EASRs (3 year rolling averages), 1980-2005, <u>males</u>
West of Scotland in context of maximum, minimum & mean rates for selected European regions



All cause - female

Working age 45-64: all-cause EASRs (3 year rolling averages), 1980-2005, females
West of Scotland in context of maximum, minimum & mean rates for selected European regions

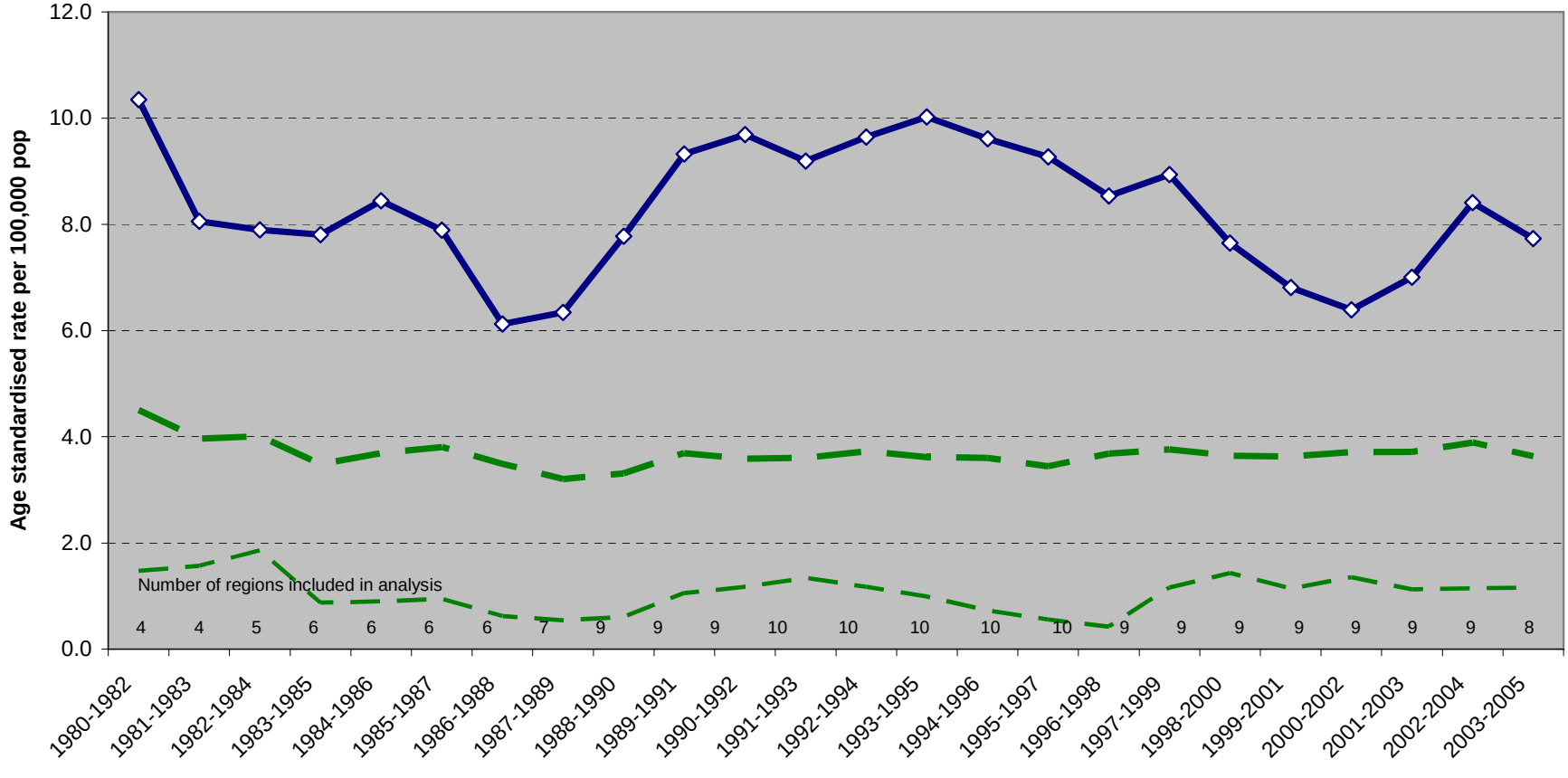


All malignant neoplasms mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum &

Lung cancer mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean

Breast cancer mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2004; West of Scotland in context of maximum, minimum & mean

Oesophageal cancer mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions

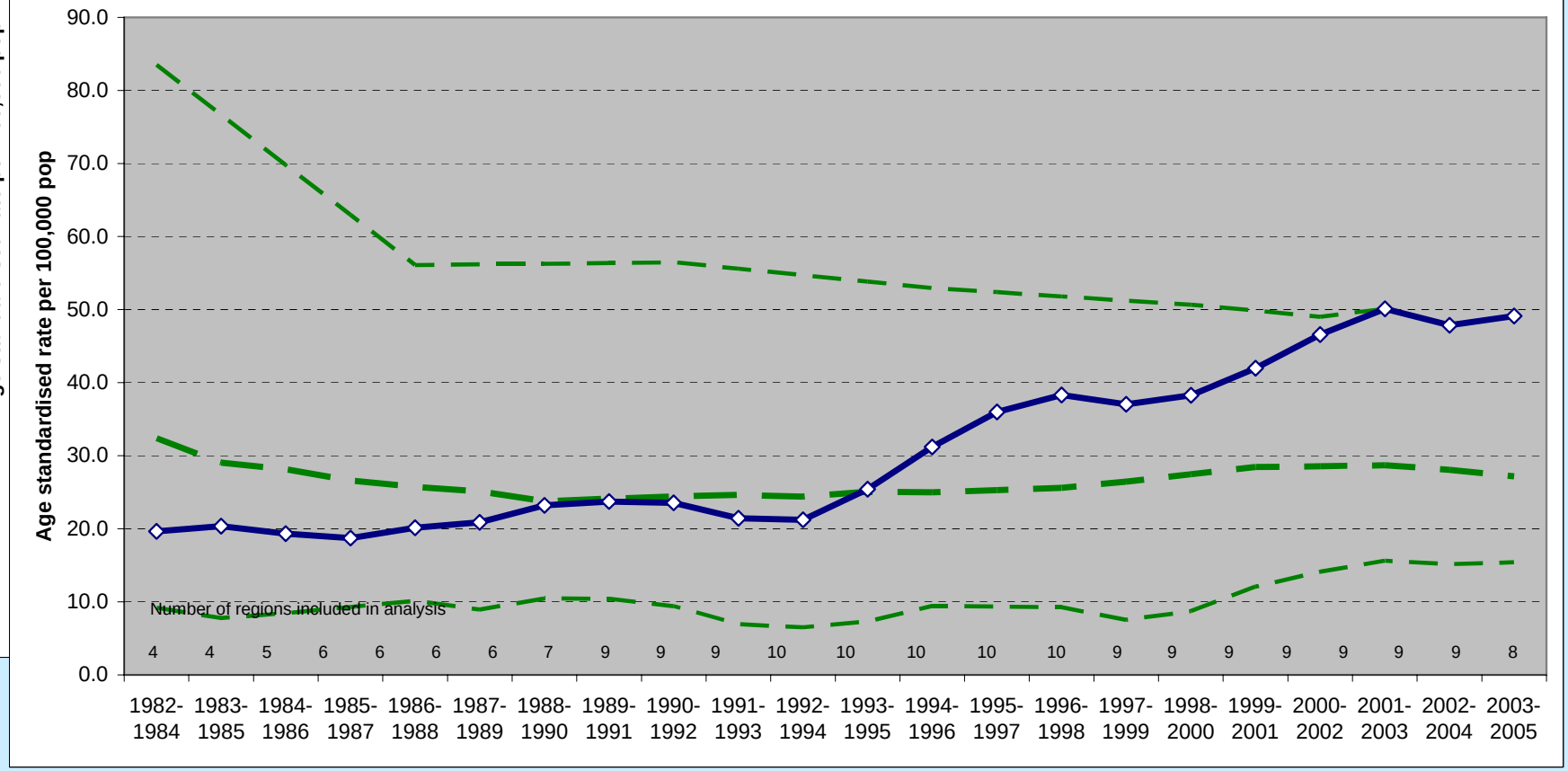


IHD mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for

Cerebrovascular disease mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum &

COPD mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for

Chronic liver disease & cirrhosis mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1982-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions

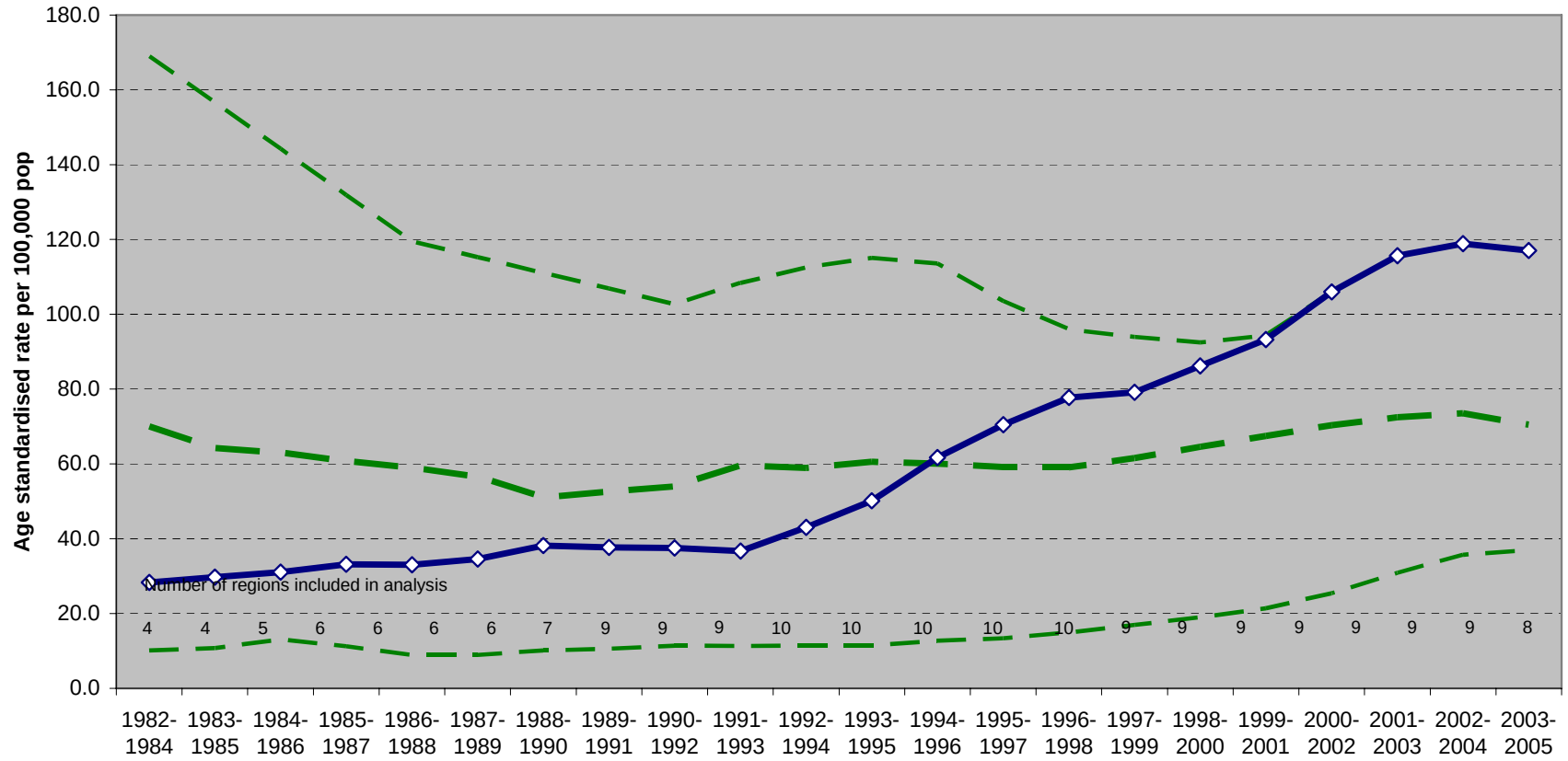


IHD mortality: male working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected

COPD mortality: male working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for

Suicide mortality: male working age 45-64 all-cause EASRs (3 year rolling averages), 1983-2005; West of Scotland in context of maximum, minimum & mean rates for

Chronic liver disease & cirrhosis mortality: male working age 45-64 all-cause EASRs (3 year rolling averages), 1982-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions



Mortality analysis

- Worth remembering:
  - Each region has the highest, or among the highest, level of mortality in their parent country
  - Thus, being “average” isn’t good
  - Had we included the other 10 regions, WoS’s relative position would be even worse

4. Some initial hypotheses/explanations

- NB This is first and foremost a report on mortality trends
- Detailed exploration of health determinant factors will be undertaken as part of the project's next stage
- Thus, Part Four of the report merely a *tentative* exploration of some relevant issues

4. Some initial hypotheses/explanations

Seven hypotheses briefly examined:

1. Trends affected by data quality issues
2. Trends influenced by an ‘age cohort’ effect
3. Trends influenced by migration
4. WoS has greater income inequalities than other regions
5. Health behaviours are worse in WoS
6. WoS is more deprived
7. WoS has suffered more severe form of deindustrialisation

4. Some initial hypotheses/explanations

Seven hypotheses briefly examined:

1. Trends affected by data quality issues
2. Trends influenced by an ‘age cohort’ effect
3. Trends influenced by **migration**
4. WoS has greater **income inequalities** than other regions
5. **Health behaviours** are worse in WoS
6. WoS is more **deprived**
7. WoS has suffered more severe form of **deindustrialisation**

Migration

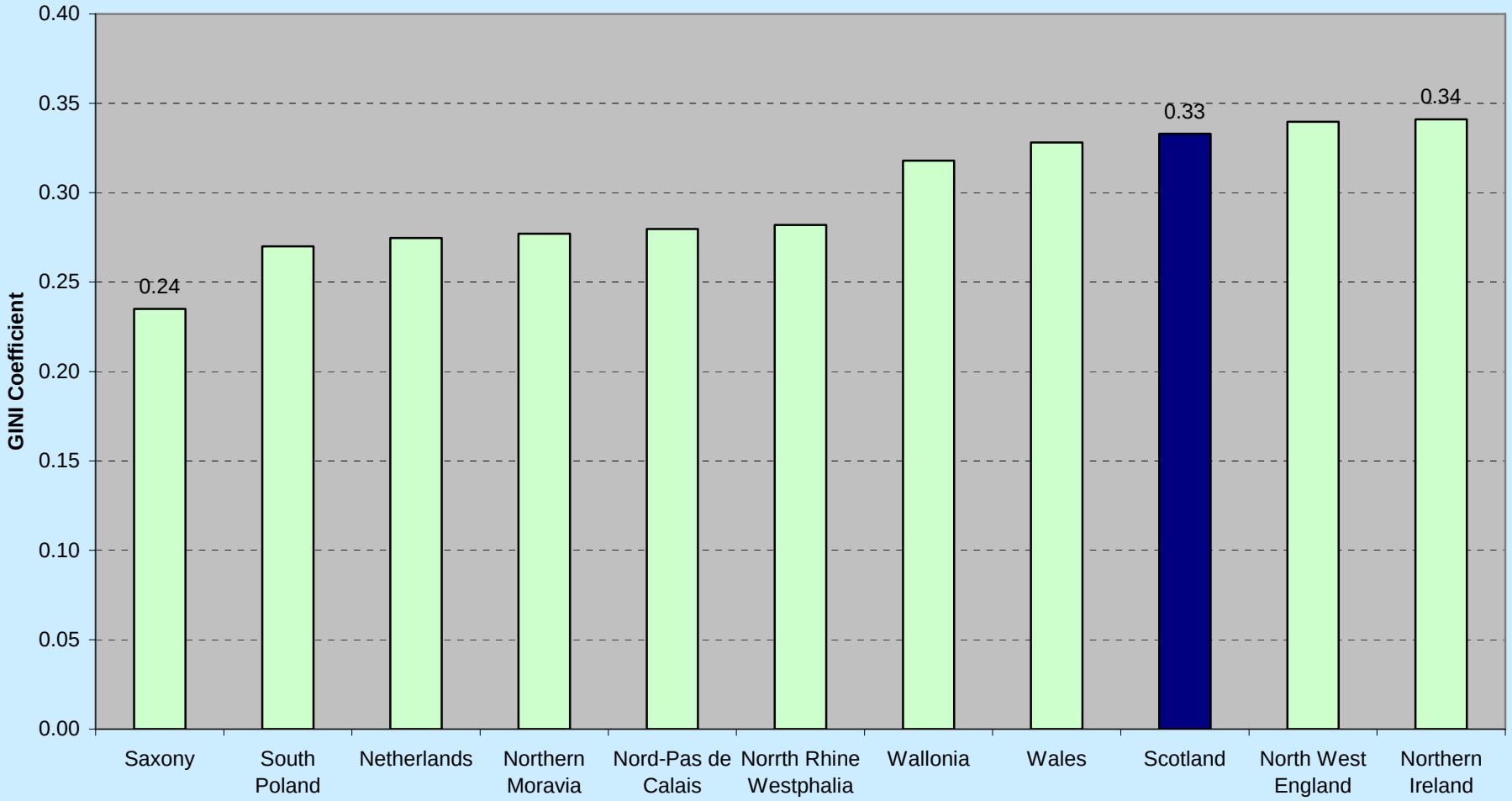
- Trends generally flat in all regions, but some exceptions
- WoS: 11% decrease over 20 years
- Saxony: 17% decrease in females - quite perplexing given:
  - evidence that female migrants better educated
  - ‘healthy migrant’ evidence
  - but still very fast improvement in overall health in Saxony
- **But** more detailed research required to quantify any possible effect

Income inequalities

- Two measures presented in the report, but neither is ideal
- Gini coefficient data not available for all regions of interest (incl. WoS), so country or larger region data used

Income inequalities

Estimated Income Inequality (using the Gini Coefficient),
Selected European Regions: Mid-1990s
Sources: Ezcurra, Pascual and Rapun (2007); Forster, Jesuit and Smeeding (2002)

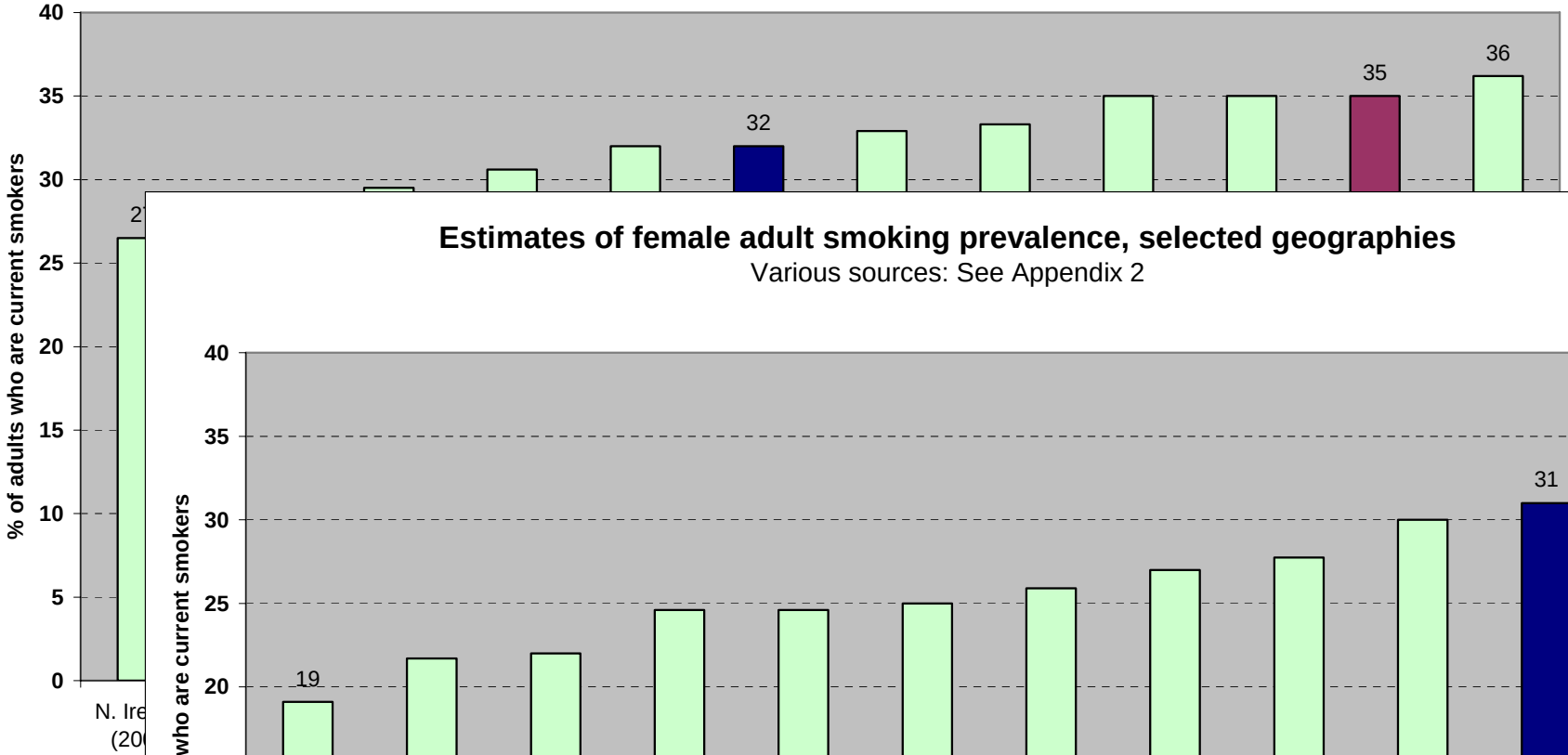


Health behaviours

- As with other possible explanations, our understanding of role of health inequalities hampered by lack of high quality comparable data.
- However:
  - Other relevant work has highlighted that Greater Glasgow has higher levels of obesity compared to some other relevant regions (e.g. parts of Wallonia and Saxony)
  - In the report we show some limited data for smoking and alcohol consumption….

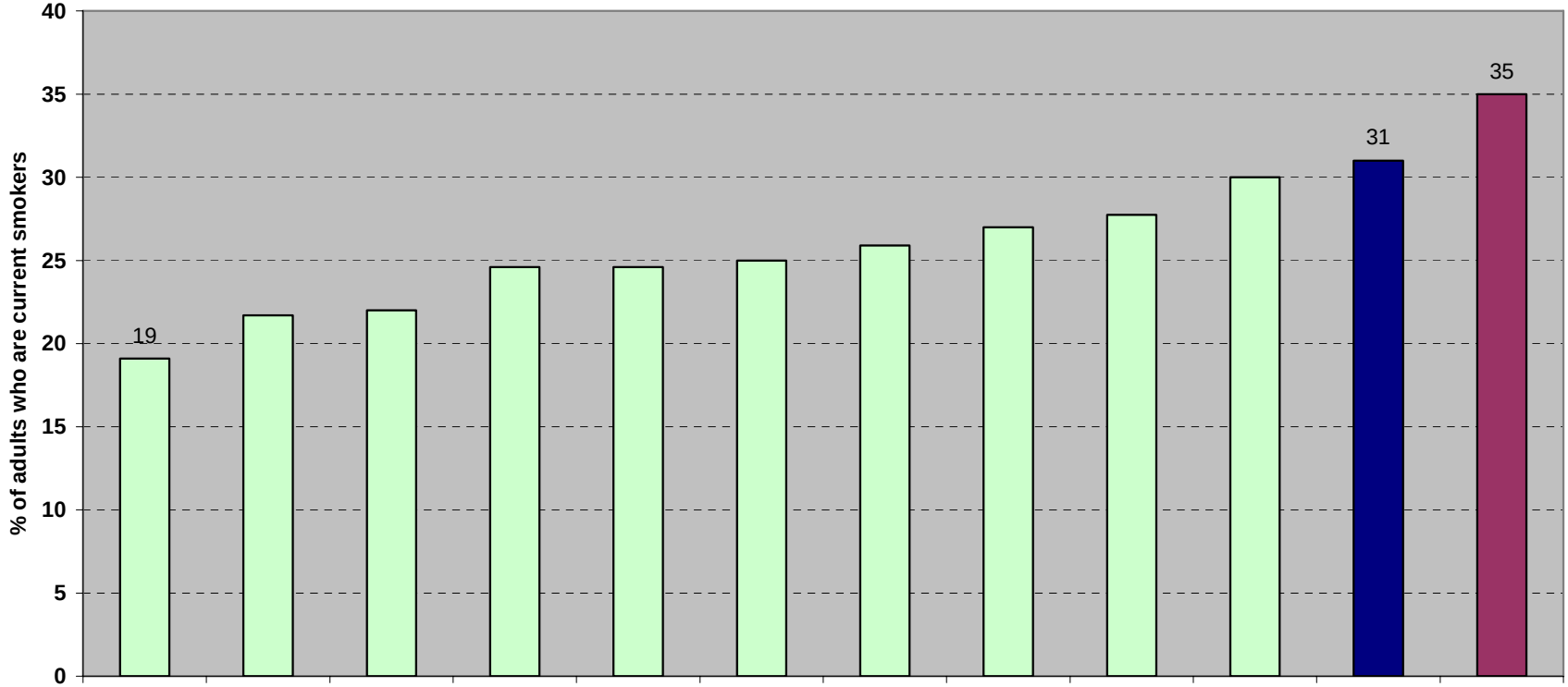
Estimates of male adult smoking prevalence, selected geographies

Various sources: See Appendix 2



Estimates of female adult smoking prevalence, selected geographies

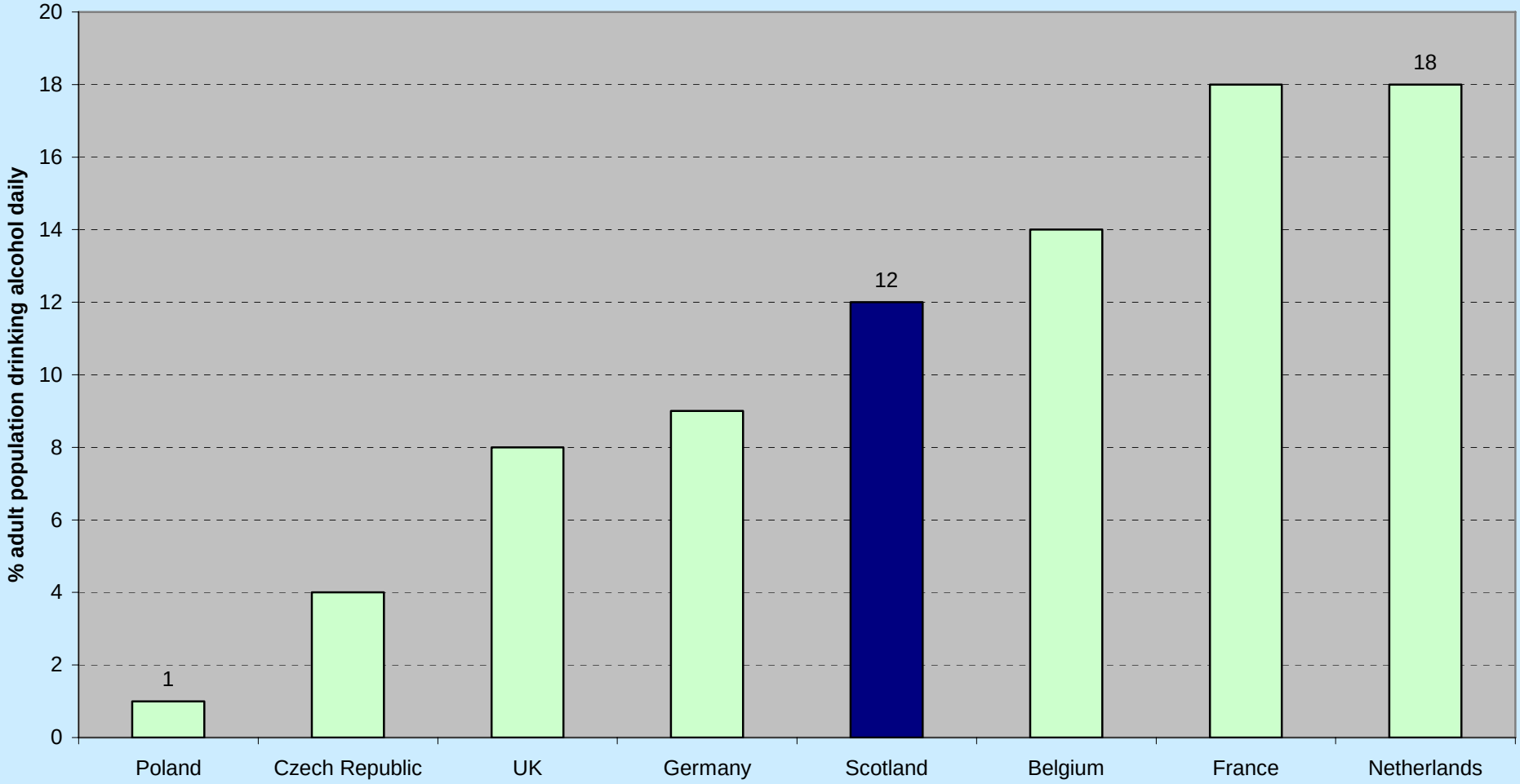
Various sources: See Appendix 2



Health behaviours – alcohol consumption

% adult population drinking alcohol daily, selected European countries: 2003/07

Sources: Eurobarometer 2007; Scottish Health Survey 2003



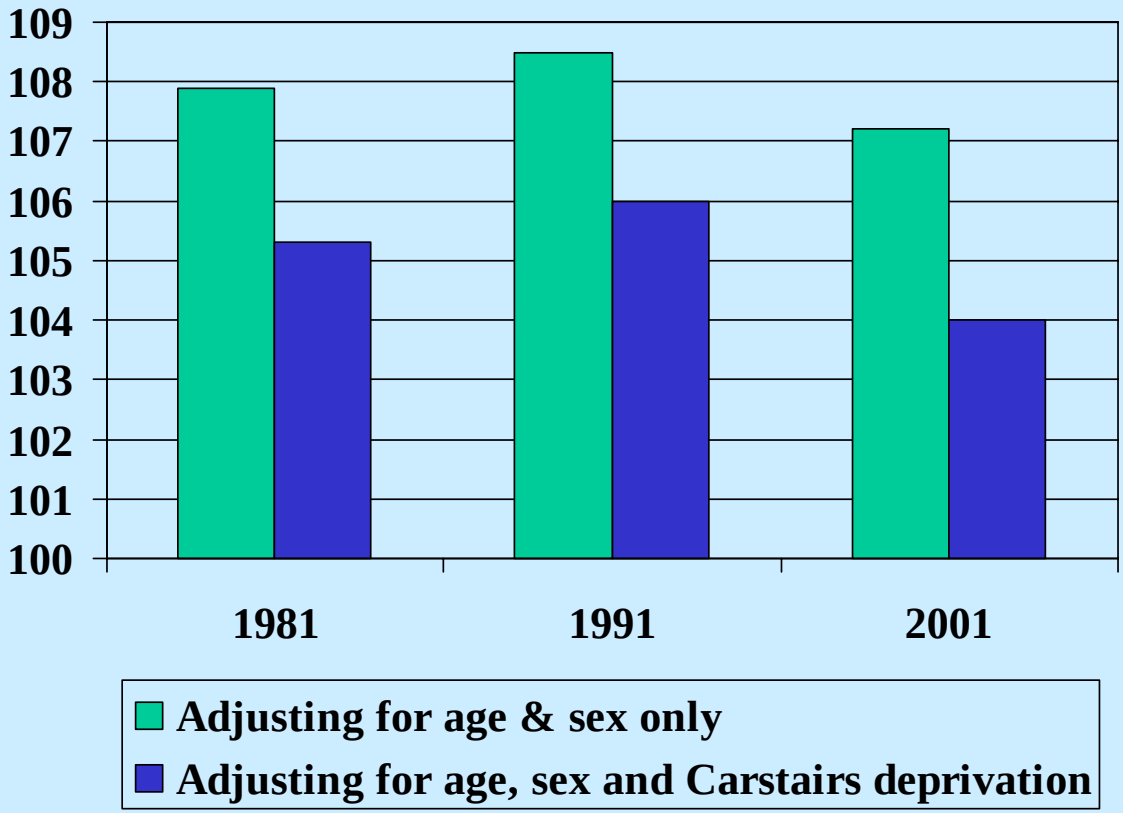
Deprivation

- Clearly an important issue
- Again, hampered by lack of comparable data across all regions
- But, on balance, seems unlikely that deprivation *per se* explains the higher levels of mortality in Scotland/WoS relative to the other post-industrial areas…

Deprivation

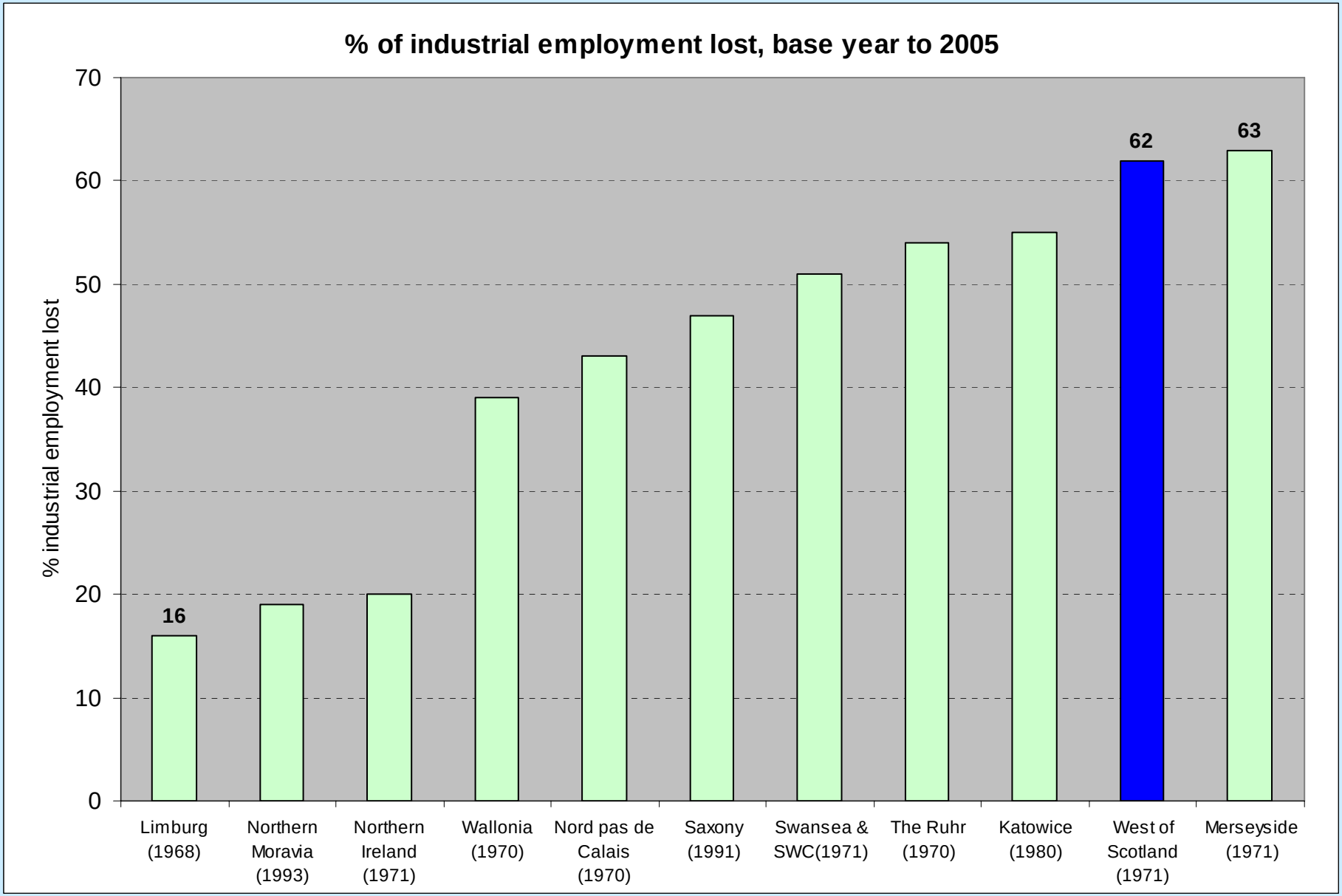
- Regional measures of unemployment and male worklessness show Scotland's/WoS's position is advantageous relative to many regions
- Specific mortality and deprivation (Carstairs) analysis undertaken for WoS and Merseyside…

All age SMRs for Clydeside conurbation relative to Merseyside



Severity of deindustrialisation

- Important hypothesis
- Time series data on industrial employment
- ‘Base year’/2005 comparisons
  - circa. 1970 for West Europe, 1980 for Katowice; circa.1992 for E Germany
- Number of measures of severity shown in report…


% of industrial employment lost, base year to 2005
% industrial employment lost
70
60
50
40
30
20
10
0
16
62
63
Limburg (1968)
Northern Moravia (1993)
Northern Ireland (1971)
Wallonia (1970)
Nord pas de Calais (1970)
Saxony (1991)
Swansea & SWC(1971)
The Ruhr (1970)
Katowice (1980)
West of Scotland (1971)
Merseyside (1971)

Severity of deindustrialisation

- Deindustrialisation ‘dose’ more serious in West of Scotland compared to the majority of the regions
- More research required (esp. timing/speed)

5. Conclusions

- Health of virtually all comparable European post-industrial regions improving faster than Scotland/West of Scotland
- Trends driven especially by younger age groups (15-44) (especially male) and middle-aged (45-64) females
- This despite (apparently) worse socio-economic profiles
- Detailed information on health determinants now needed to understand what is driving the trends
- This is one of the next steps…

Next steps

- Dependent (to varying degrees) on funding/resources etc etc…
- Collaborative research focussing on the four regions discussed today
- Aimed at:
  - Accessing/analysing/understanding broad health determinant data for these regions compared to WoS
  - Helping to understand the trends presented in the report

Further details

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- Email: david.walsh@drs.glasgow.gov.uk
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Martin Taulbut:

- Email: martin.taulbut@health.scot.nhs.uk
- Tel: 0141 354 2946

- Report available from: **www.gcph.co.uk**

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des Landes Nordrhein-Westfalen

Germany: the experience of the Ruhr

Conference

Exploring health in Scotland and other parts of postindustrial Europe

Wednesday June 18th 2008

Dr. Wolfgang Hellmeier

Liga, NRW Institute of Health and Work

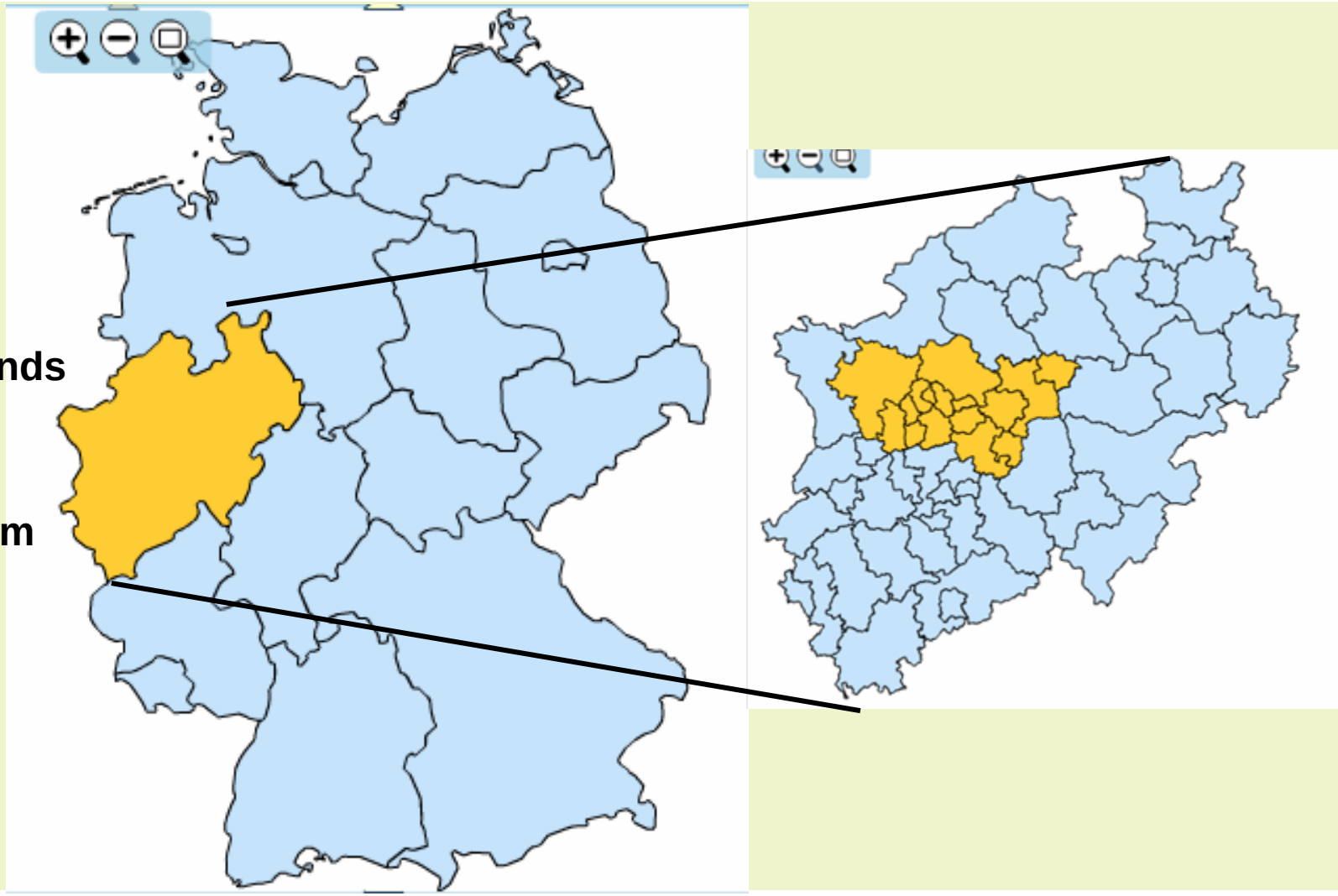
wolfgang.hellmeier@liga.nrw.de

http://www.liga.nrw.de/gesundheit.html

Contents

- The Ruhr area; the institute LIGA
- Employment in the Ruhr area
- Population structure
- Health and health determinants
- Policies in the Ruhr area
- Differences between Glasgow and Ruhr?

The Ruhr area within Germany



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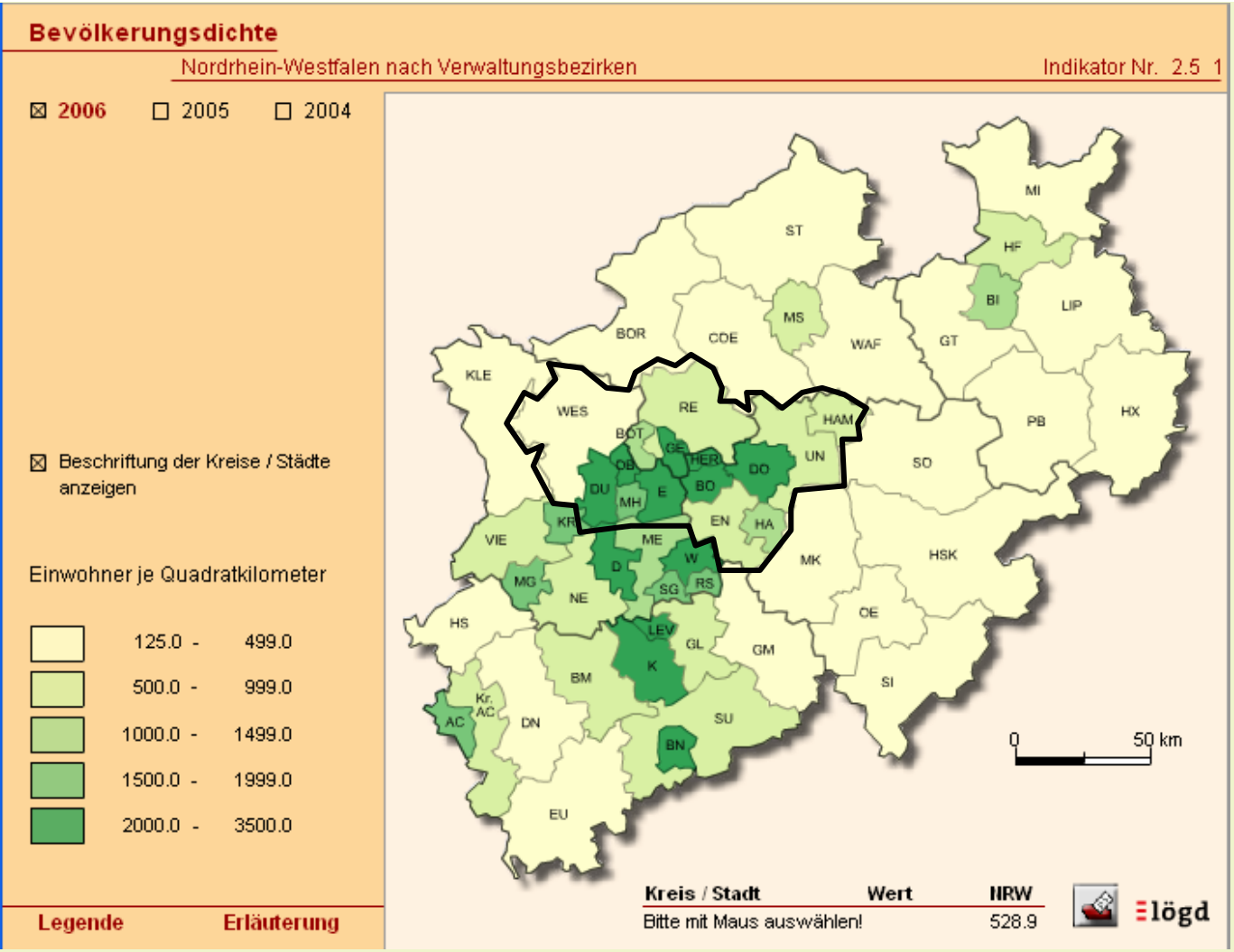
The Ruhr area within North Rhine-Westphalia



NRW

- **54 districts**
  - 23 cities
  - 31 counties

18 mill. inhabitants

Ruhr

- **15 districts**
  - 11 cities
  - 4 counties

5,3 mill. inhabitants

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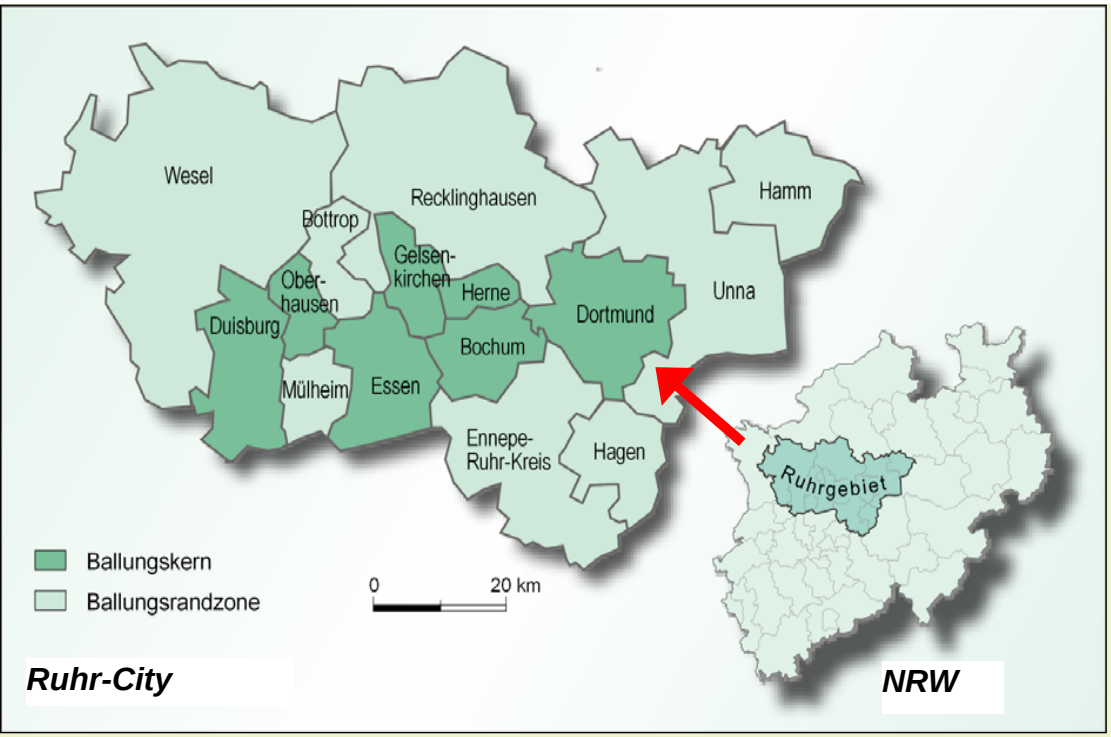
The Ruhr area, internal structure



Ruhr kernel

- **7 cities**

2,7 mill.

Ruhr outer regions

- **4 cities**
- **4counties**

2,6 mill.

inhabitants

No common political authority, but

an association of cities (RVR) since 1920

LIGA, the institute

- **State institute of NRW**
- **Health monitoring; health reporting; health information**
  - If possible data on district level
- **prevention**
- **Consultant of Ministry of Health NRW**

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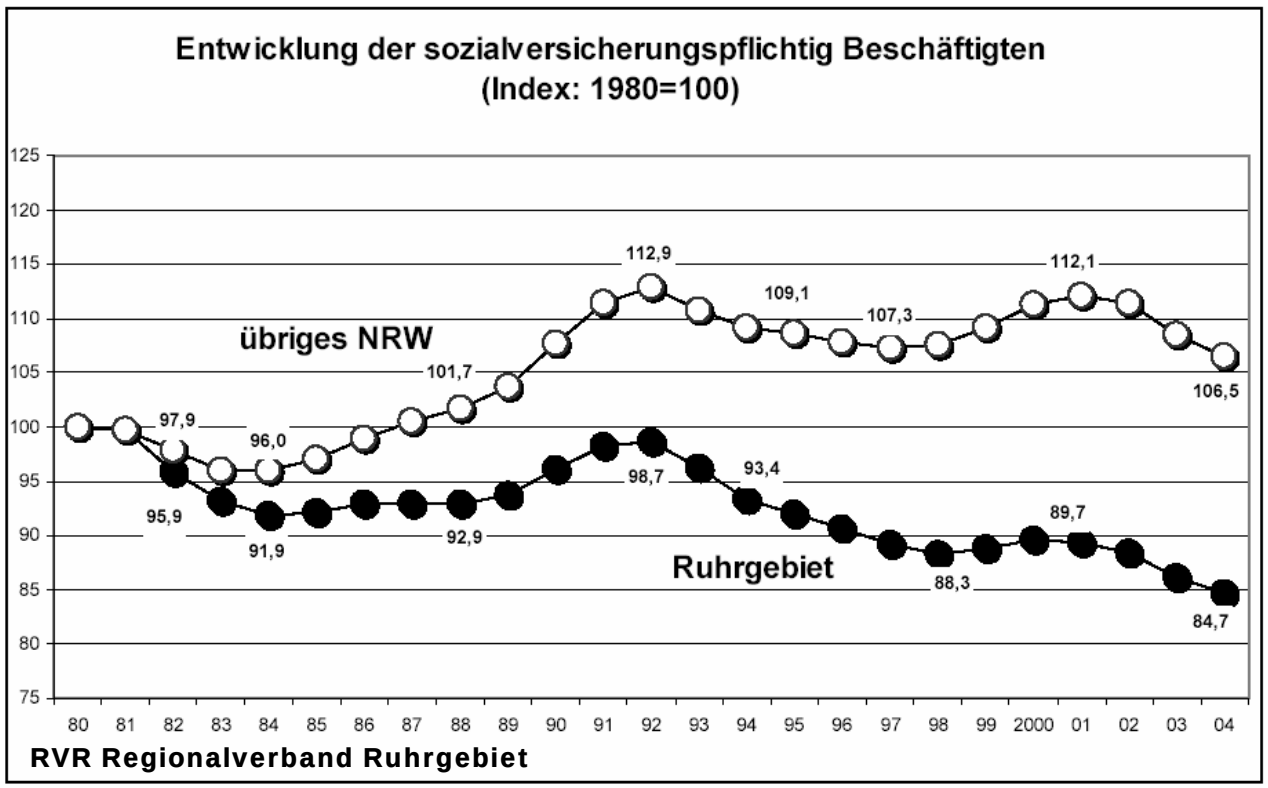
Employment in the Ruhr area

Employed, subject to social security insurance



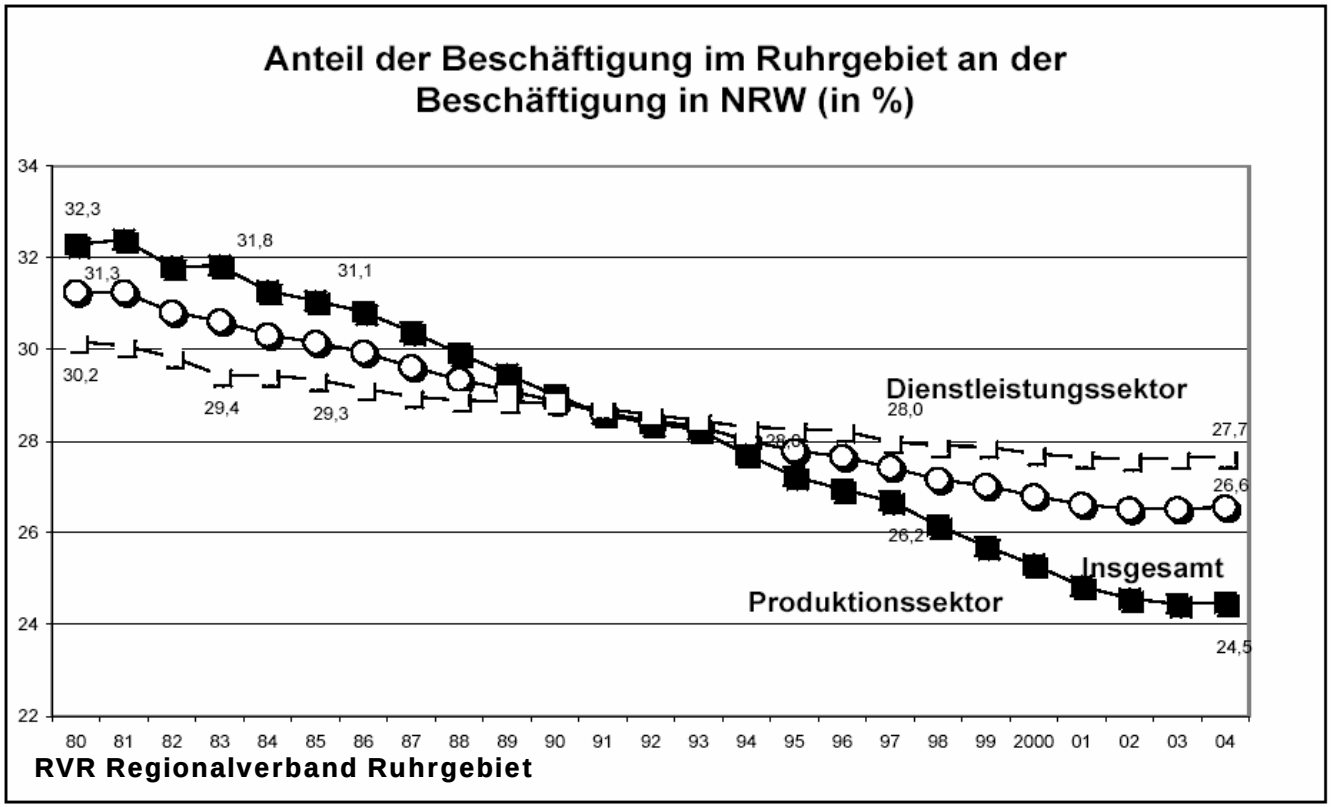
Without self employed and civil servants

Absolute number of employees in the Ruhr area in **2004:** **1.5 mill.**

1980: **1,8 mill.**

Employment in the Ruhr area

Employees in the Ruhr area as percentage of NRW



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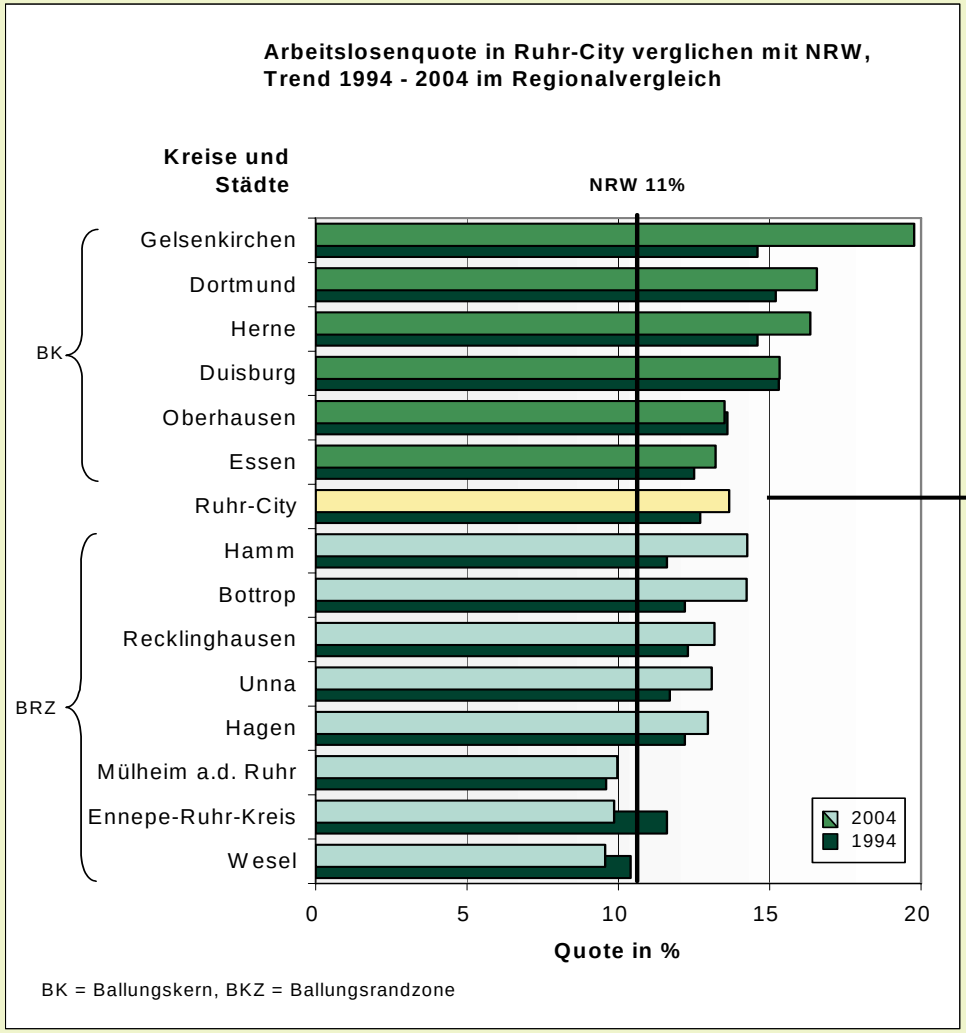
Employment in the Ruhr area

Unemployed persons in the Ruhr region 1994 and 2004



kernel

Ruhr area

Outer regions

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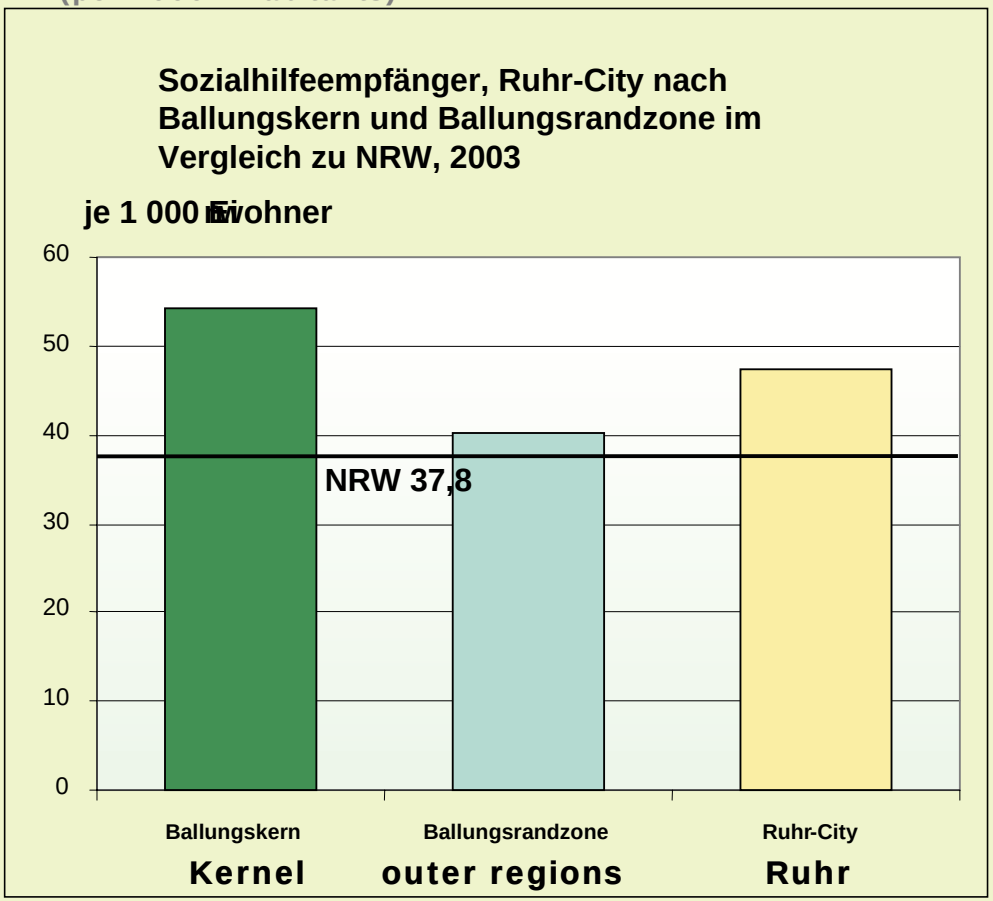
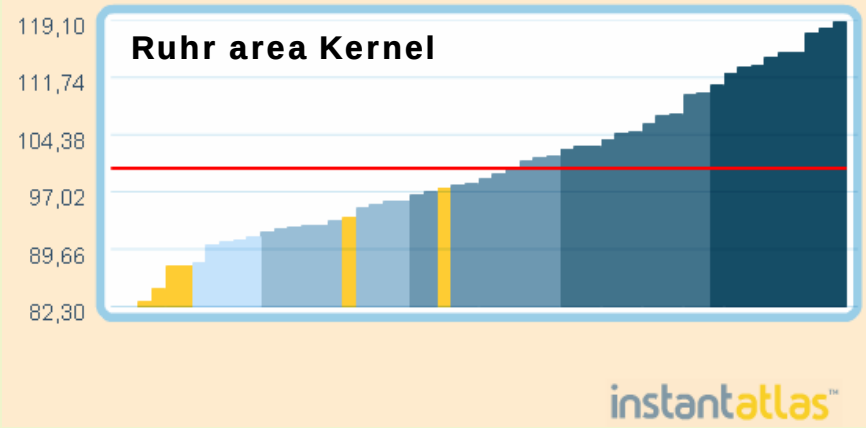
Population structure

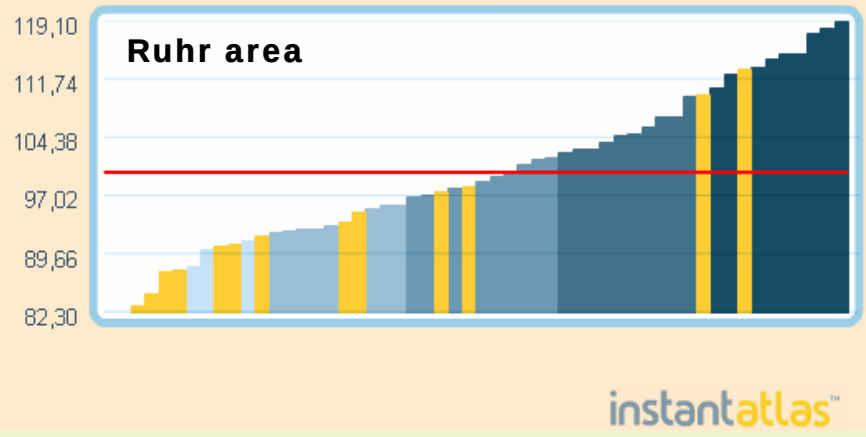
Welfare recipients in the Ruhr area

(per 1000 inhabitants)



Available income in districts





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Population structure

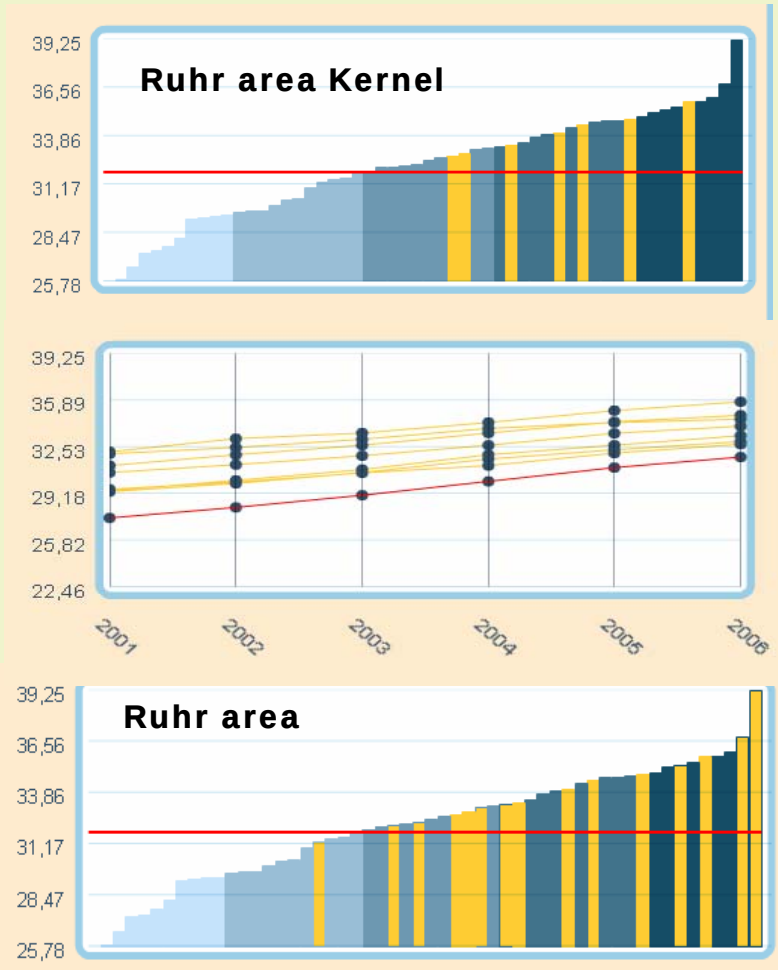
Persons with foreign nationality
in the Ruhr area

Ausländische Bevölkerung nach Geschlecht, Ruhr-City nach Ballungskern und Ballungsrandzone, 2004

Lfd. Nr.	Ballungskern, Ballungsrandzone	Ausländische Bevölk. am 31.12.d. J.					
		weiblich	je 1000 Frauen	männlich	je 1000 Männer	insgesamt	je 1000 Einwohner
1	Ballungskern	179 869	**127,92**	200 060	**151,05**	379 929	**139,14**
2	Ballungsrandzone	117 945	**89,15**	124 728	**99,89**	242 673	**94,37**
3	Ruhr-City	297 814	**109,13**	324 788	**126,23**	622 602	**117,42**
4	NRW ohne Ruhr-City	641 111	**97,98**	680 843	**109,28**	1321 954	**103,49**
5	Nordrhein-Westfalen	938 925	**101,26**	1005 631	**114,23**	1944 556	**107,58**

Datenquelle:
Landesinstitut für den öffentlichen Gesundheitsdienst NRW (lögd):
Indikator (L) 2.6, 2004

Old age dependency ratio



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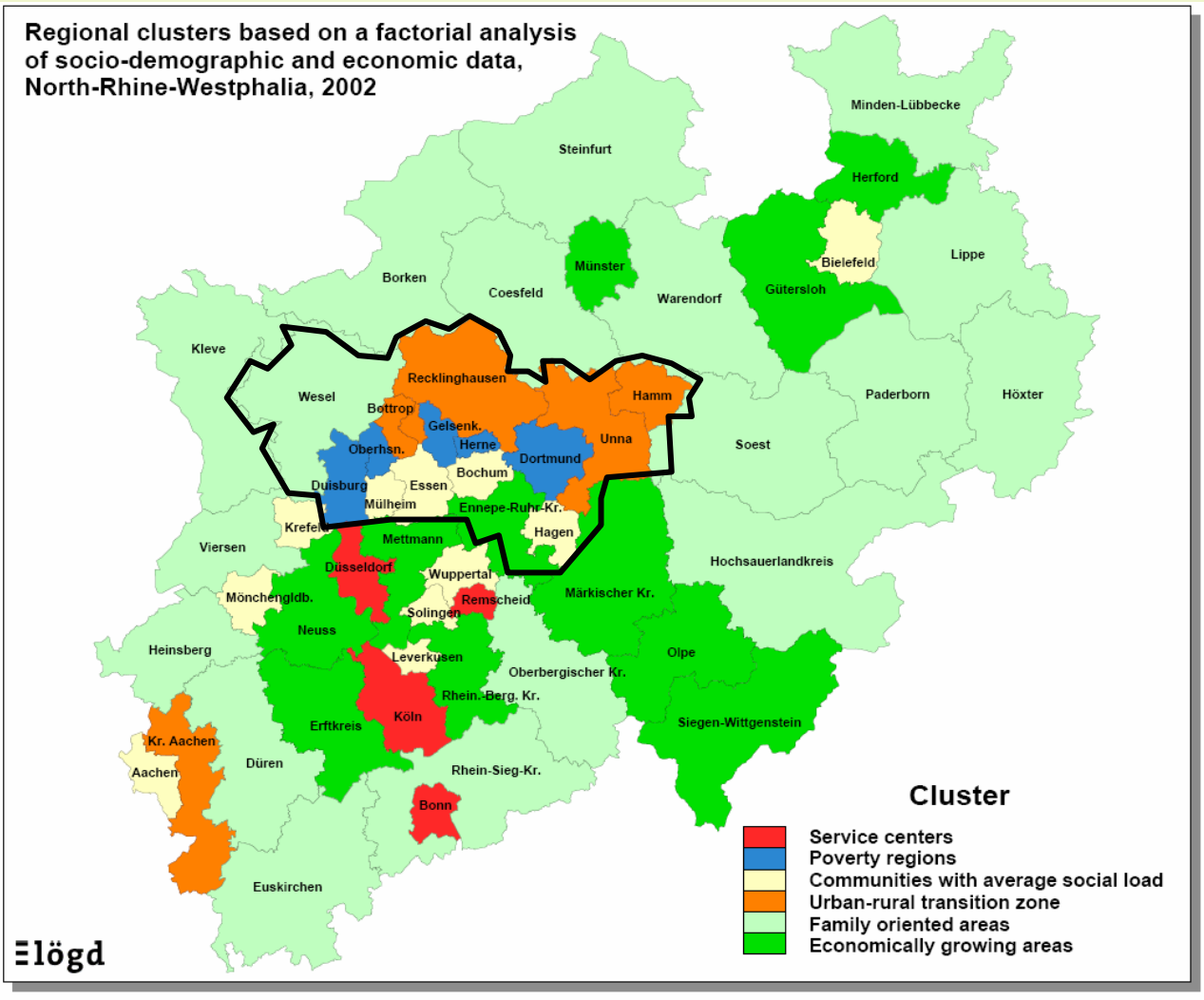
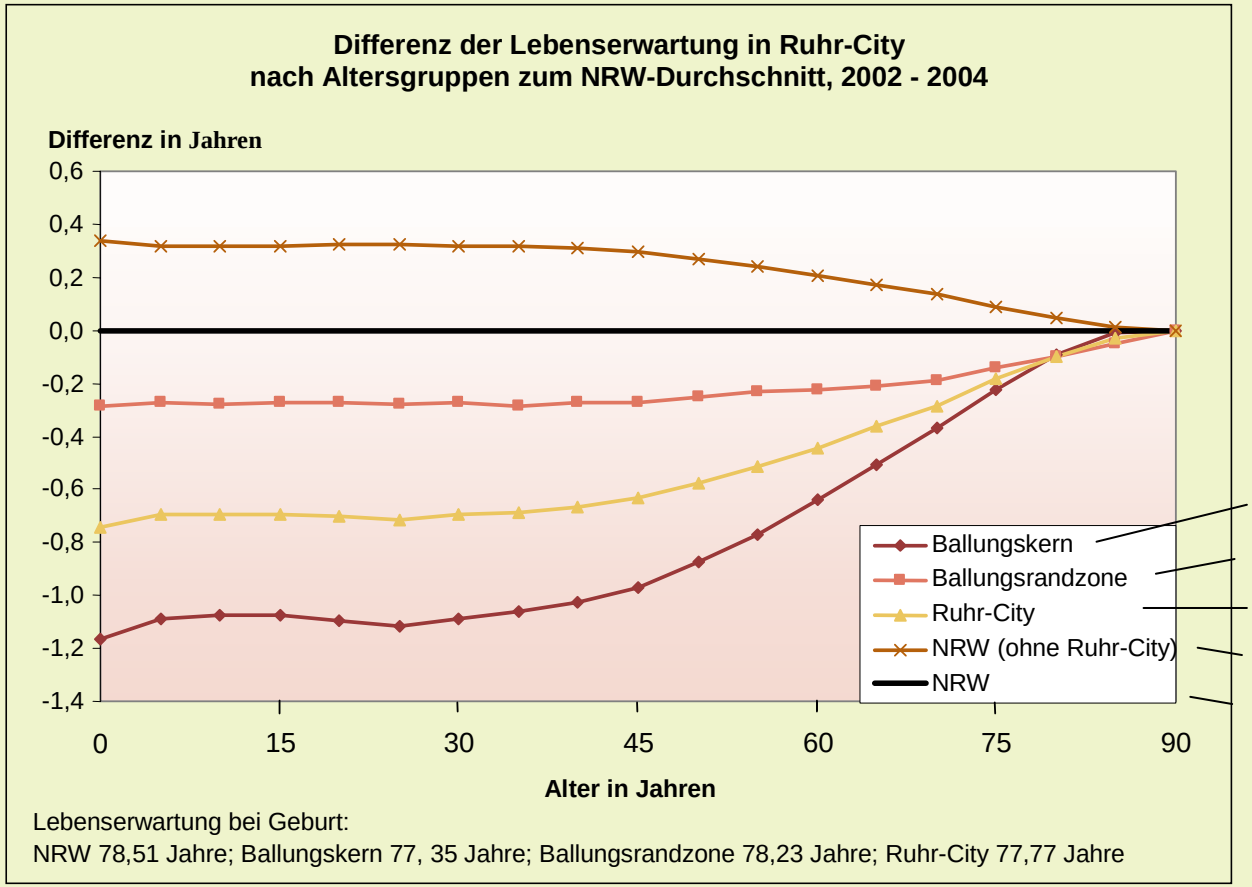
Population structure



Poverty regions of NRW belong to the Ruhr area

Health

Life expectancy in different age groups



Lebenserwartung bei Geburt:
NRW 78,51 Jahre; Ballungskern 77, 35 Jahre; Ballungsrandzone 78,23 Jahre; Ruhr-City 77,77 Jahre

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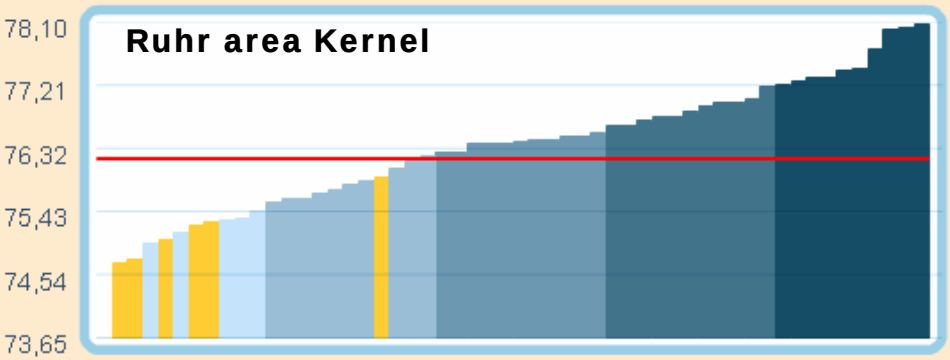
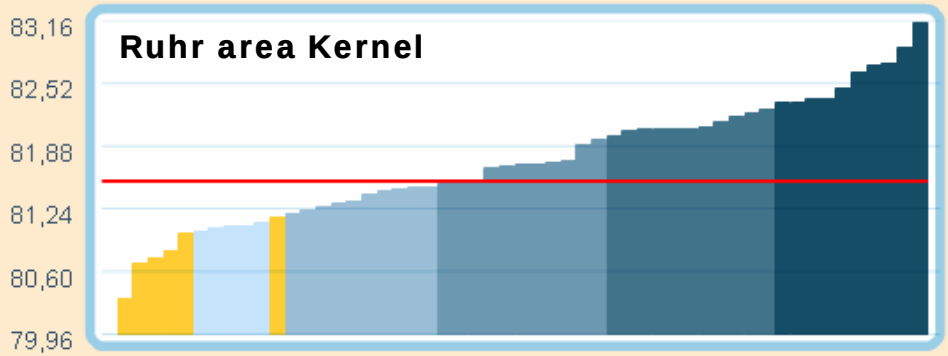
Health

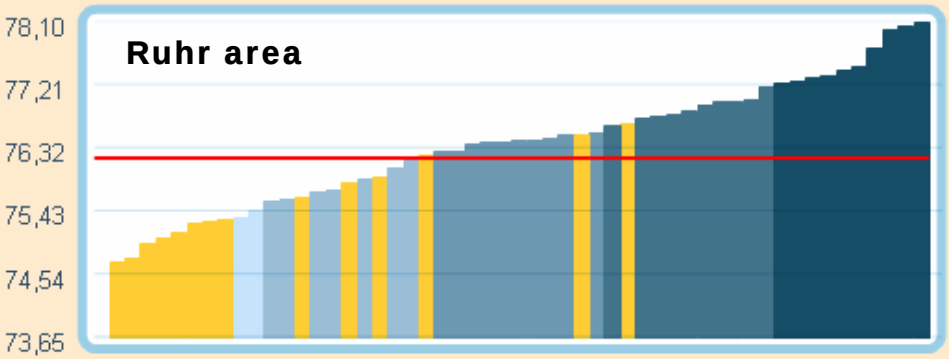
Life expectancy in districts of NRW (Ruhr highlighted)





Life expectancy at birth (male)

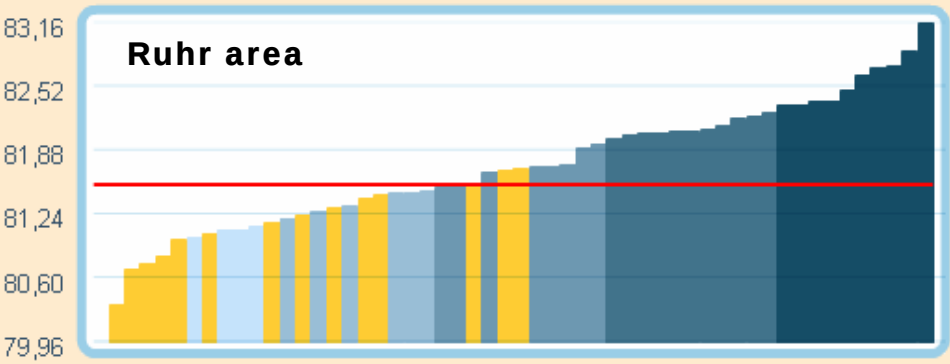
instantatlas



instantatlas

Life expectancy at birth (female)

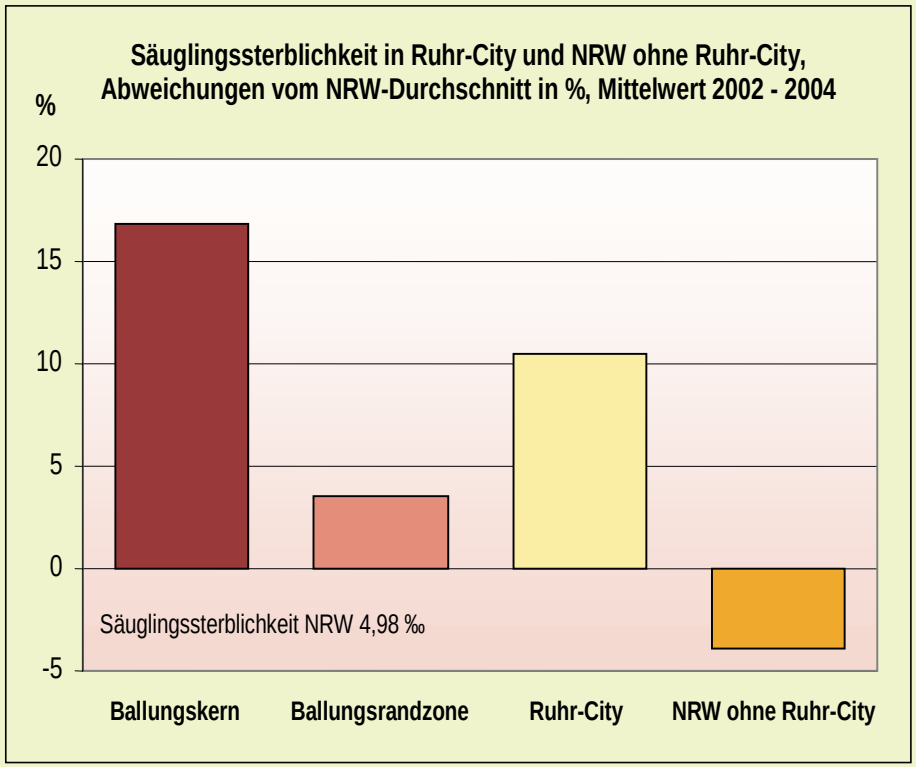
instantatlas

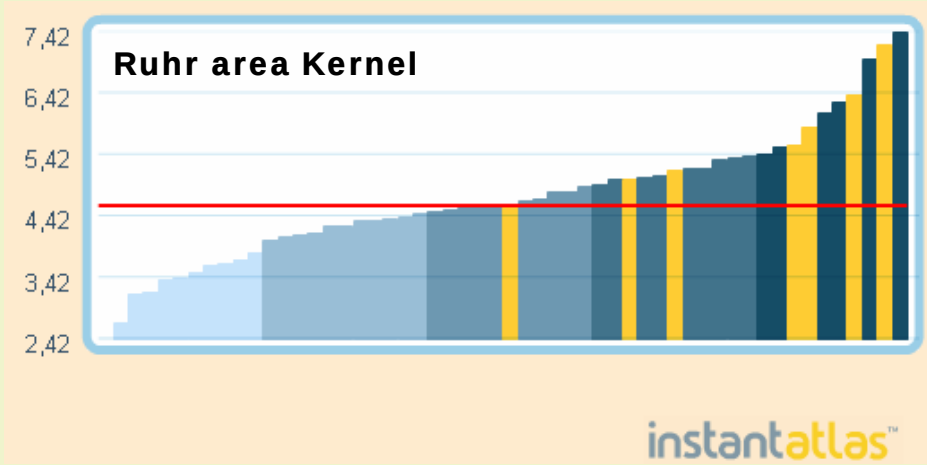


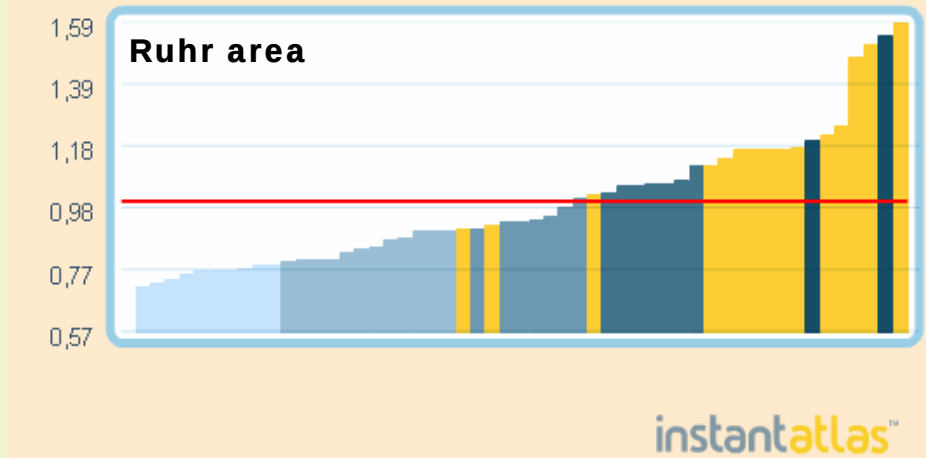
instantatlas

Health

Infant mortality in the Ruhr region







Kernel **outer regions** **Ruhr**

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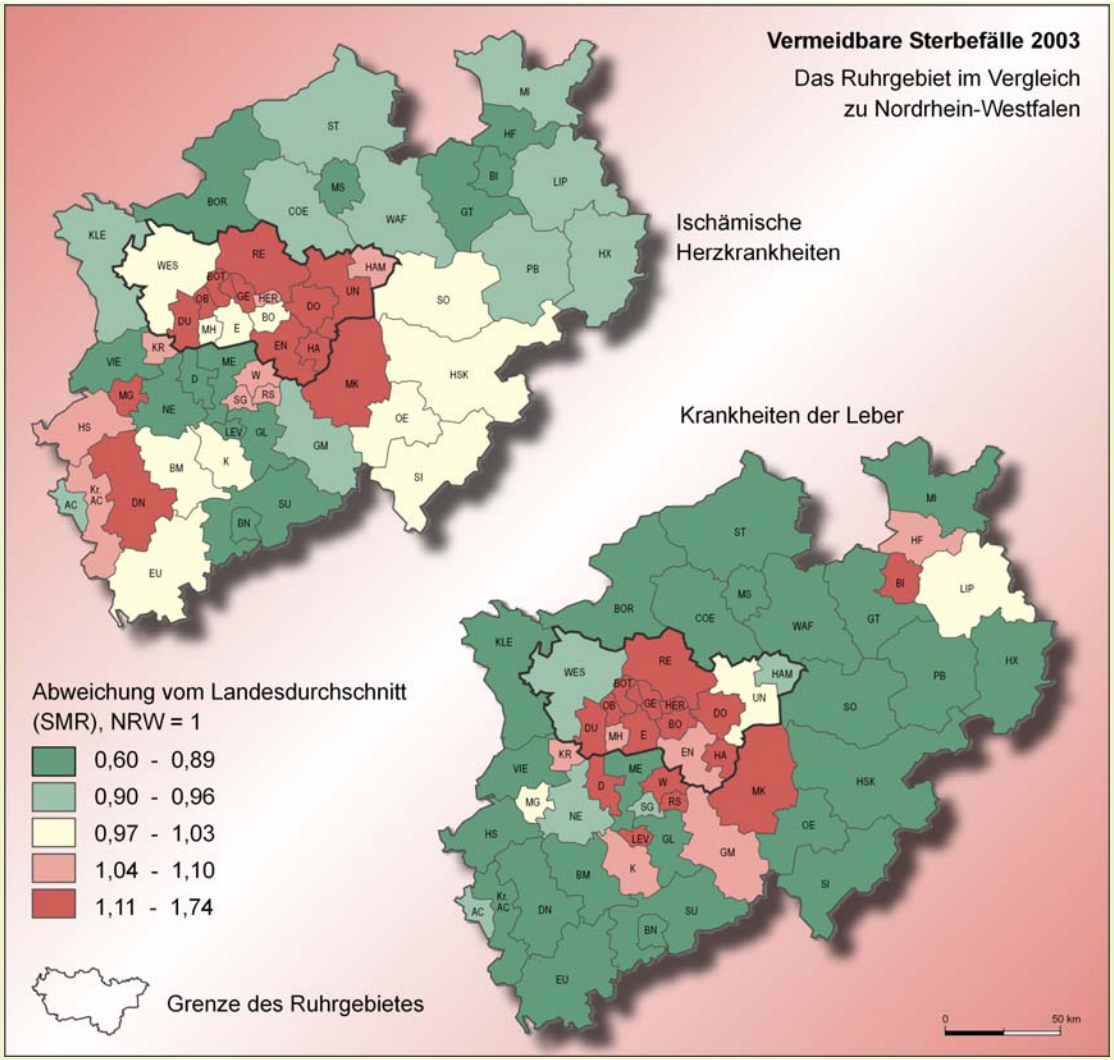
Health



Avoidable deaths

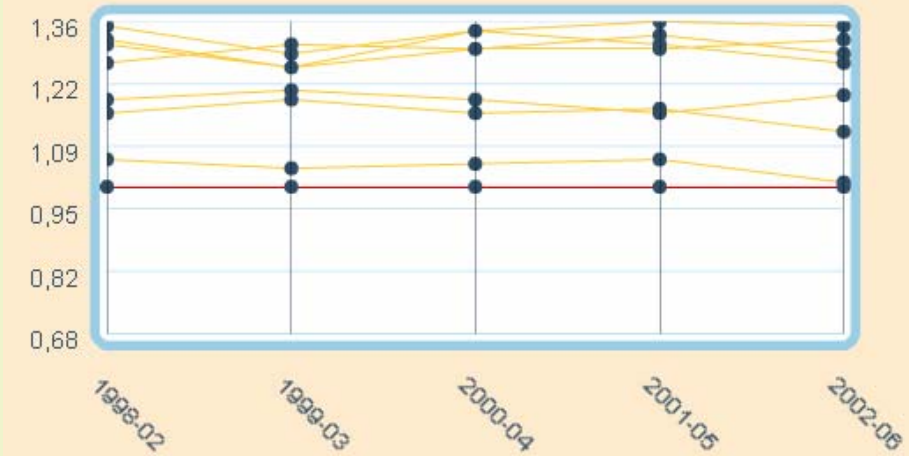
(Partly attributable to life style)

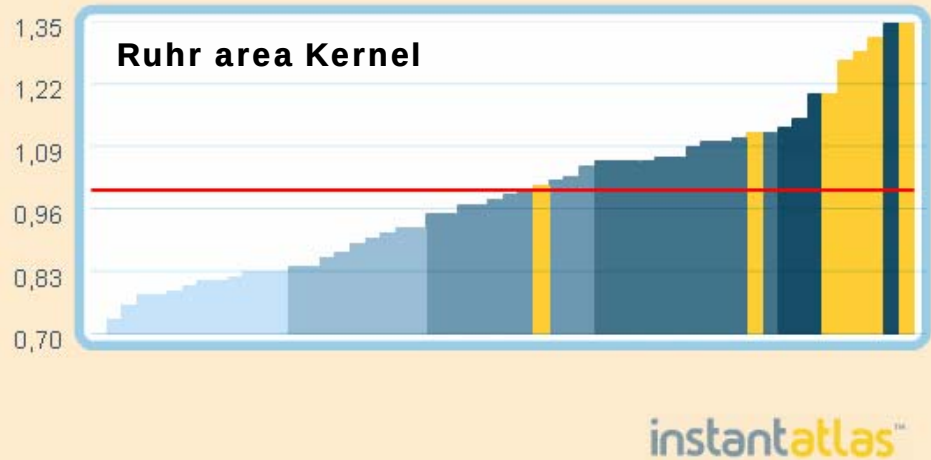
Ischemic heart diseases

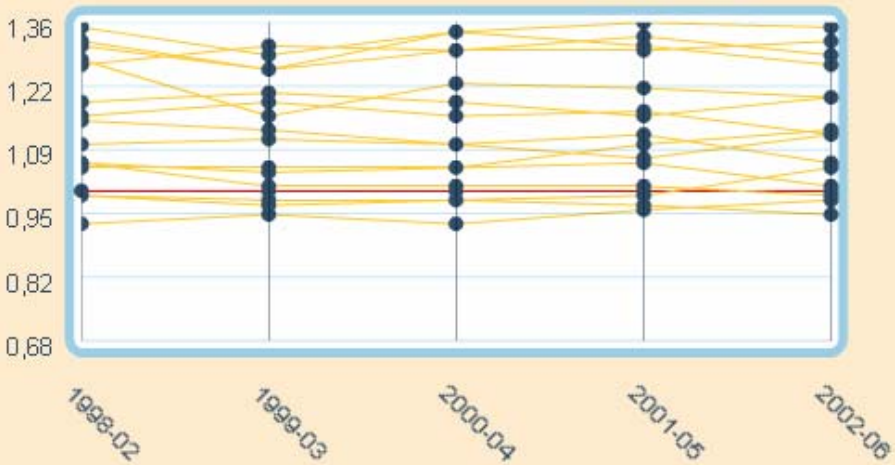
Liver diseases

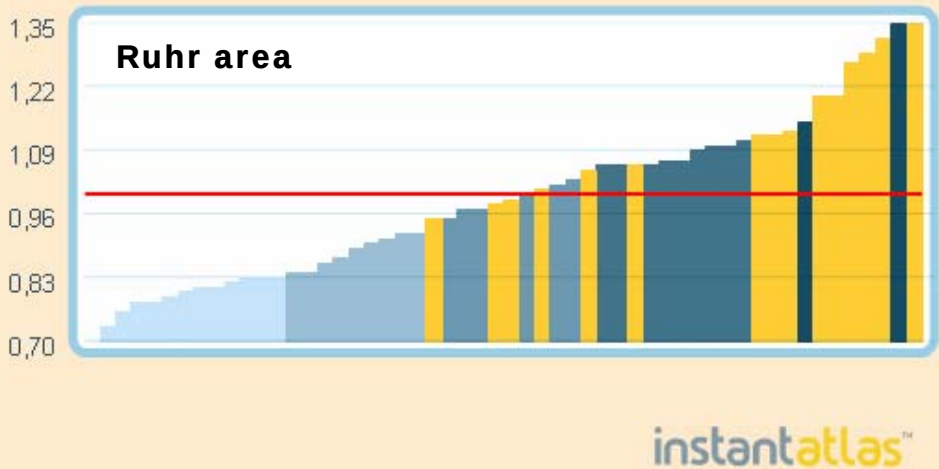
Health

Avoidable deaths (in districts of NRW): lung cancer (age group 15 – 64)





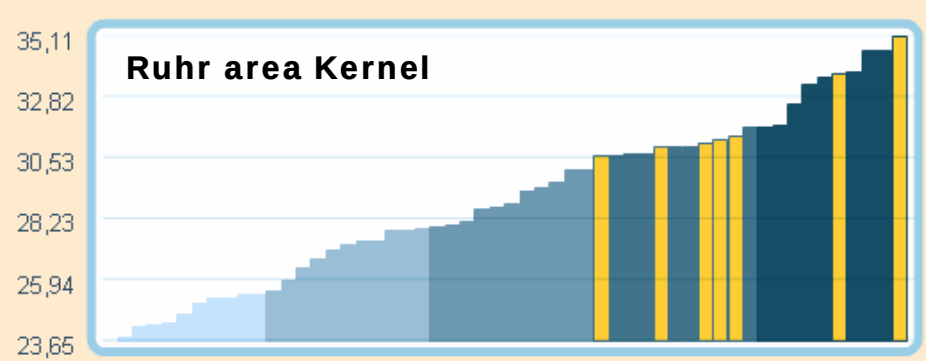


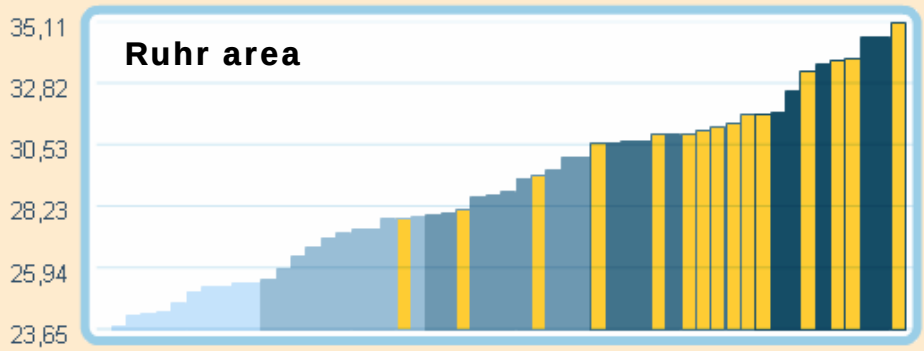


Health behaviour

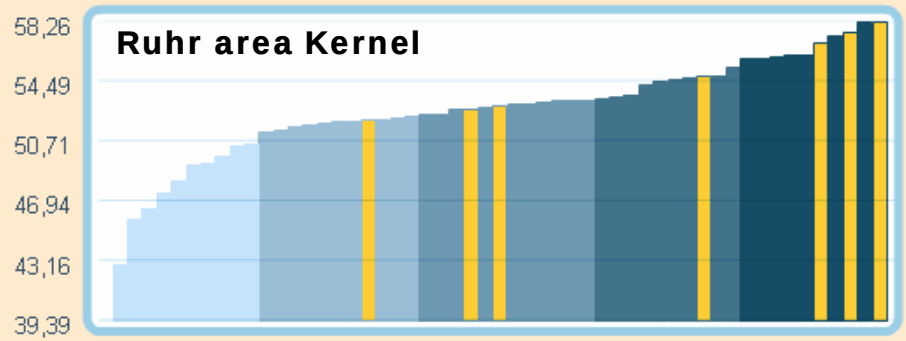
Health behaviour in districts of NRW

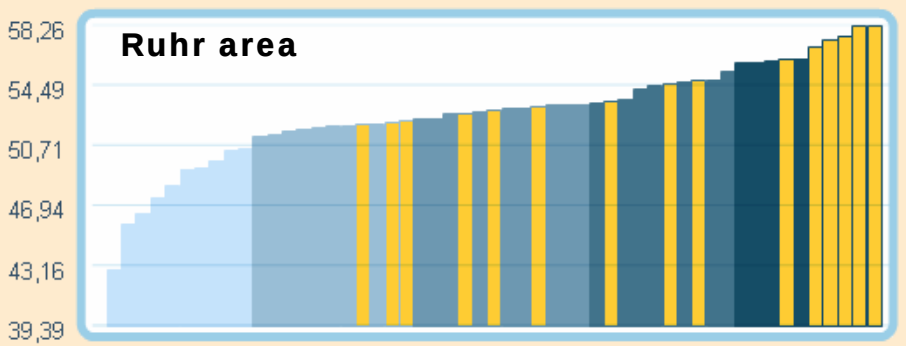
Regular smokers (age > 15, %)





Overweight (age > 15, %)





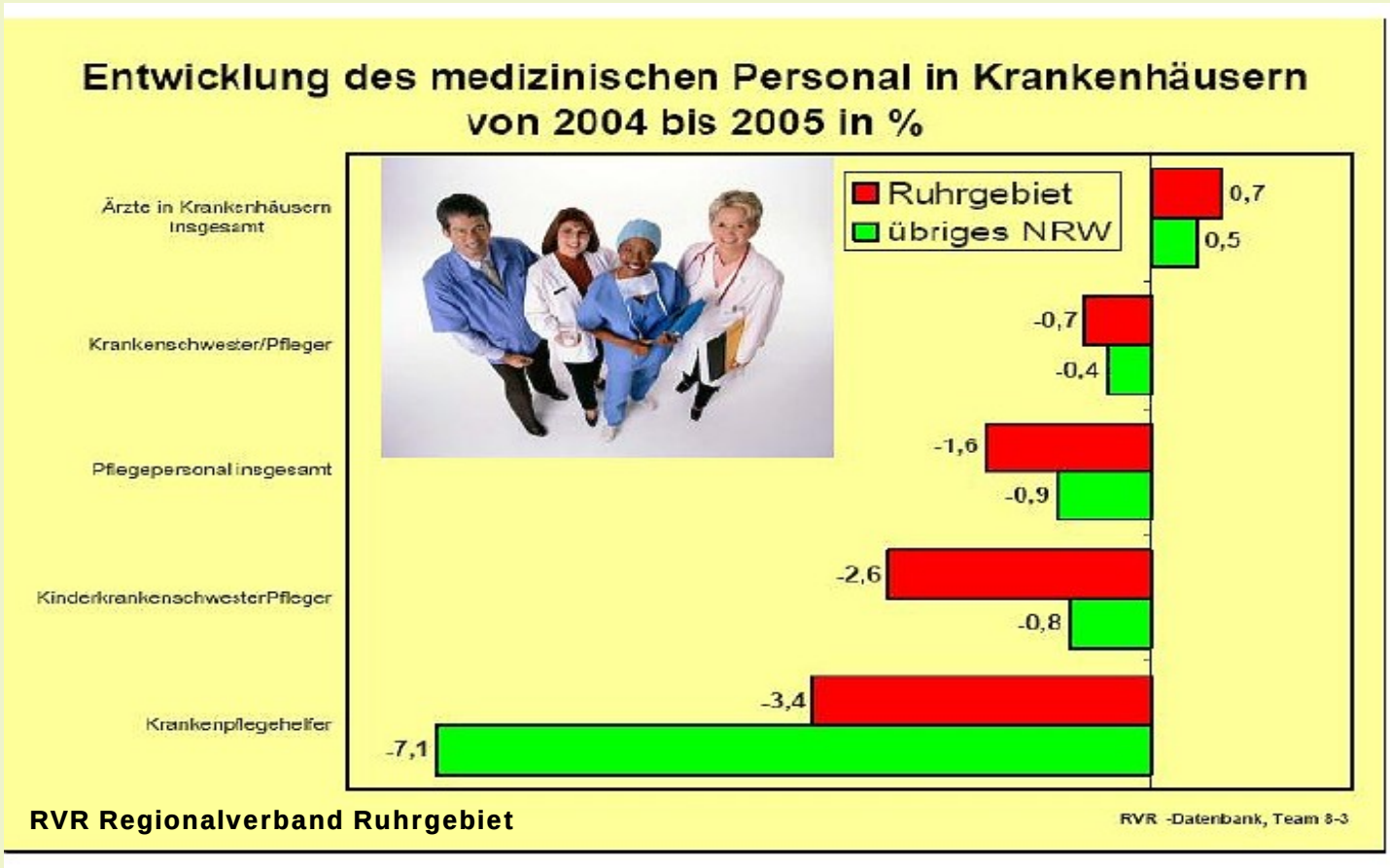
Policies for the Ruhr area

There were political actions to support the Ruhr area (some taken in whole NRW, but with emphasis on the Ruhr area):

- **Some universities were founded** (1970s)
- **Environmental improvements** (against air pollution and for leisure activities)
- **Special economic branches were funded**
- **Cultural events were started in the Ruhr area**
- **Now "Health in the Ruhr" is a main goal** (in economic terms)

Policies for the Ruhr area

Trends in medical staff, the Ruhr area and other parts of NRW: The Ruhr area is better off than the rest of NRW



Physicians

Nurses

nursing staff

Nursing staff children

Nursing staff with low qualification

Differences / similarities between the Ruhr and Glasgow

(Hypotheses and questions, which may explain something):

- General situation is quite similar to Glasgow

Potential reasons for better performance:

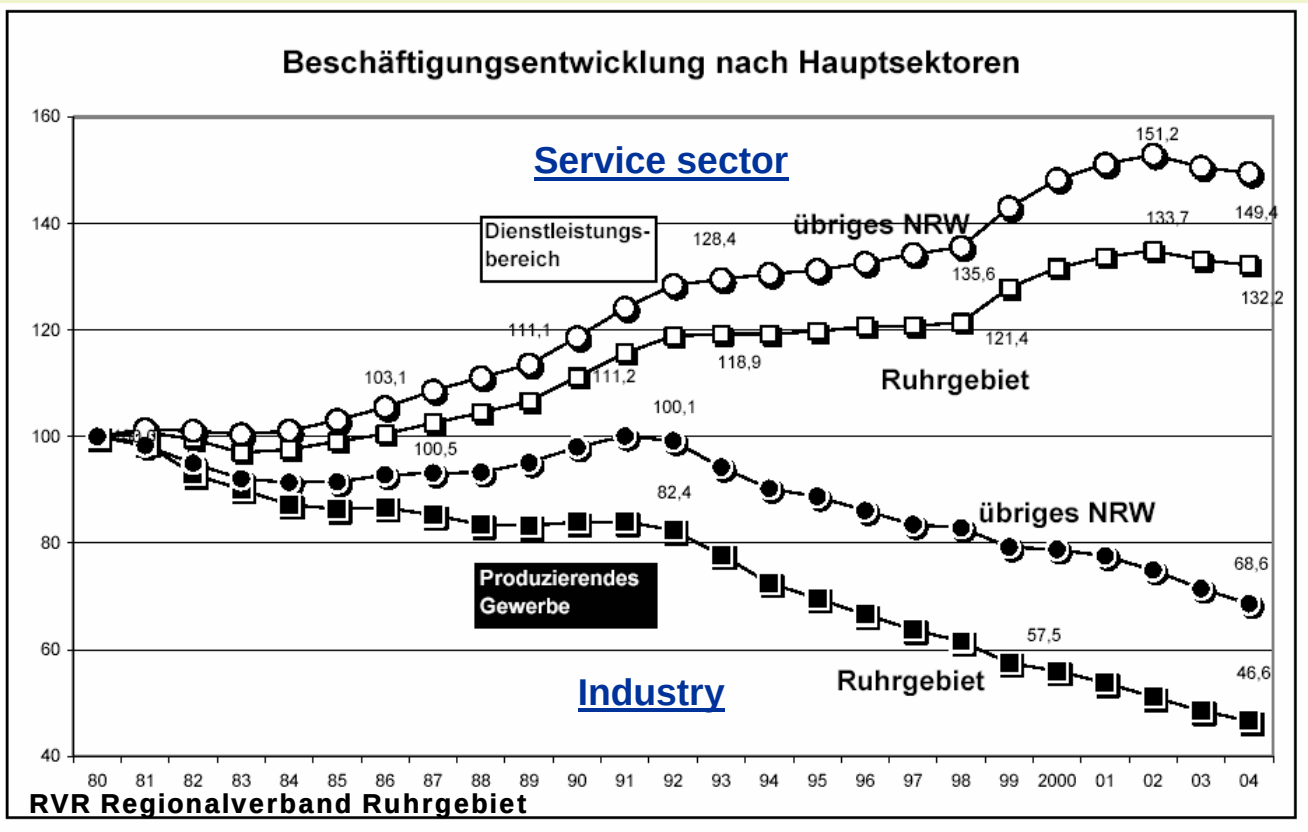
- NRW better off than Scotland?
- Ruhr area is larger → more potential for new starts?
- More political actions taken in the Ruhr area?
- Ruhr area is sited in the middle of Europe → an advantage for getting new firms?

Thank you

Open for discussion

Employment in the Ruhr area

Employment trends in industry and service sector



Comparison of districts of NRW (Ruhr highlighted)

Total mortality

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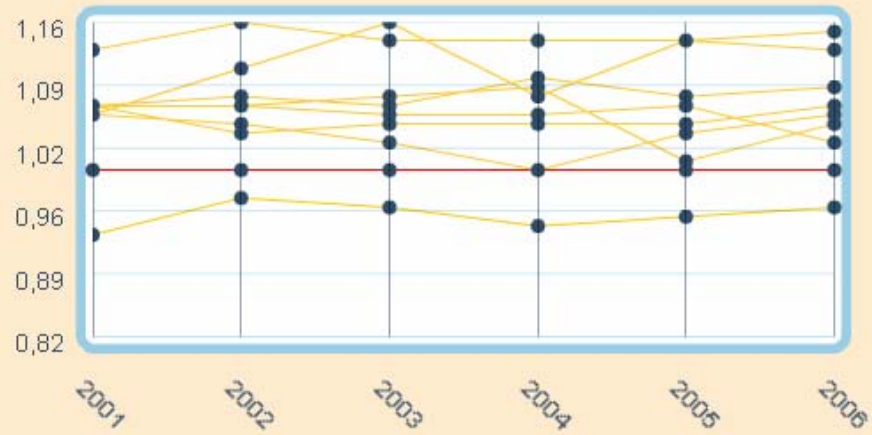
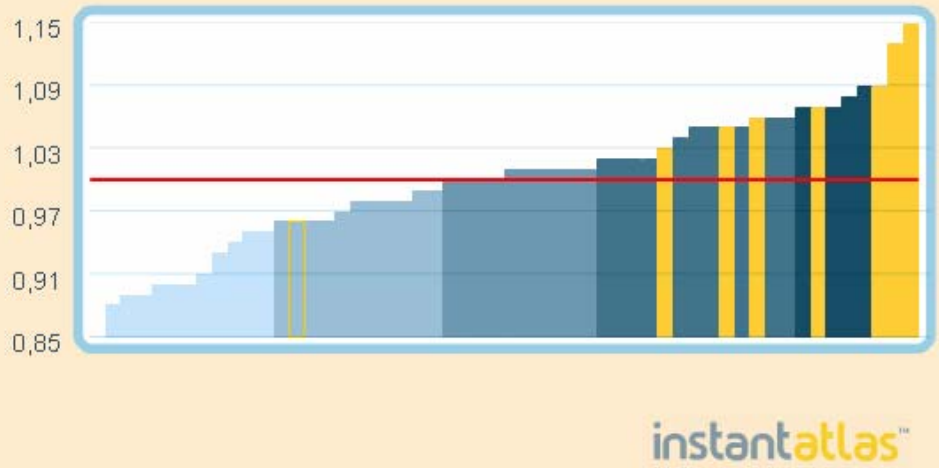
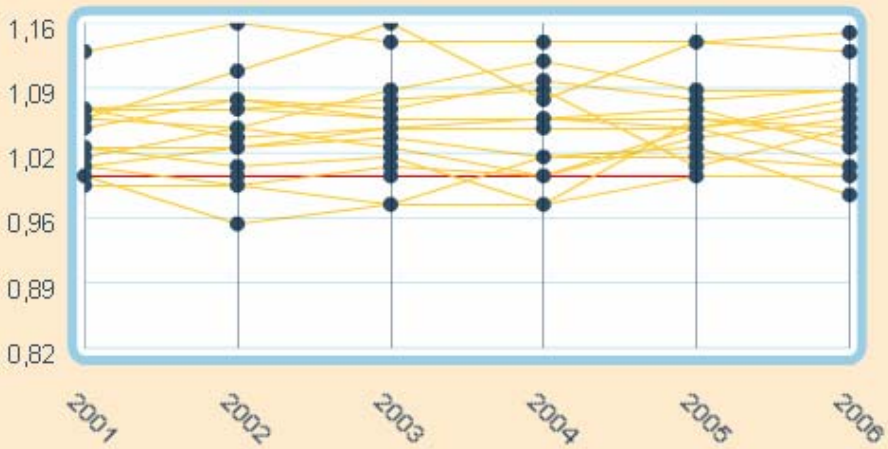
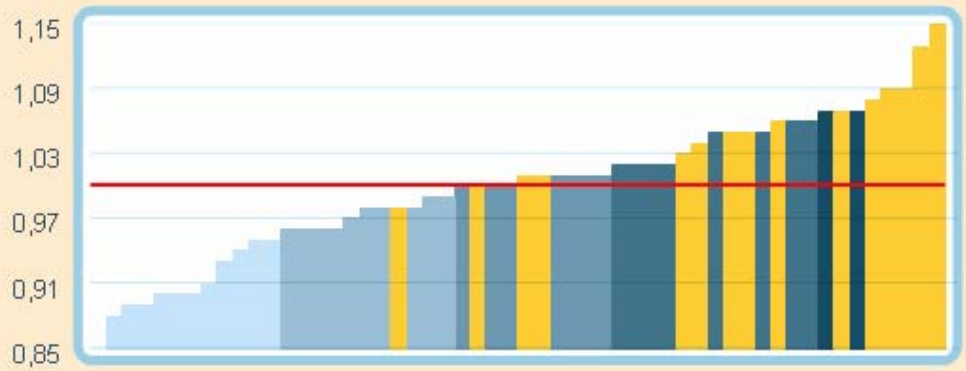


Ruhr region Kernel







Ruhr region

instantatlas

Comparison of districts of NRW (Ruhr highlighted)

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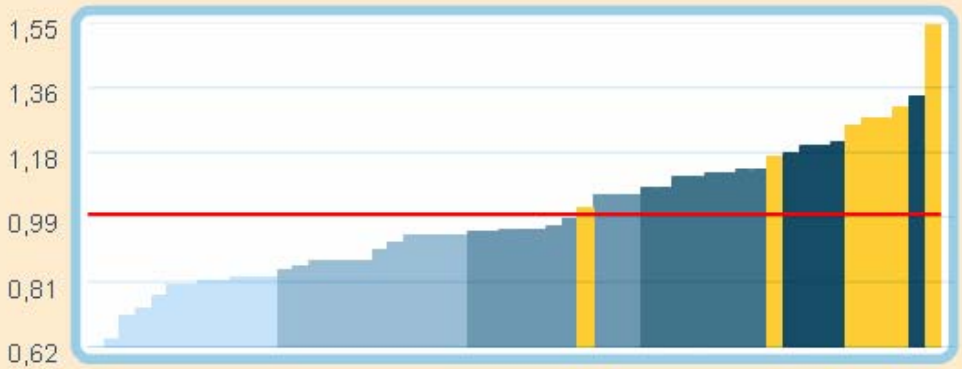
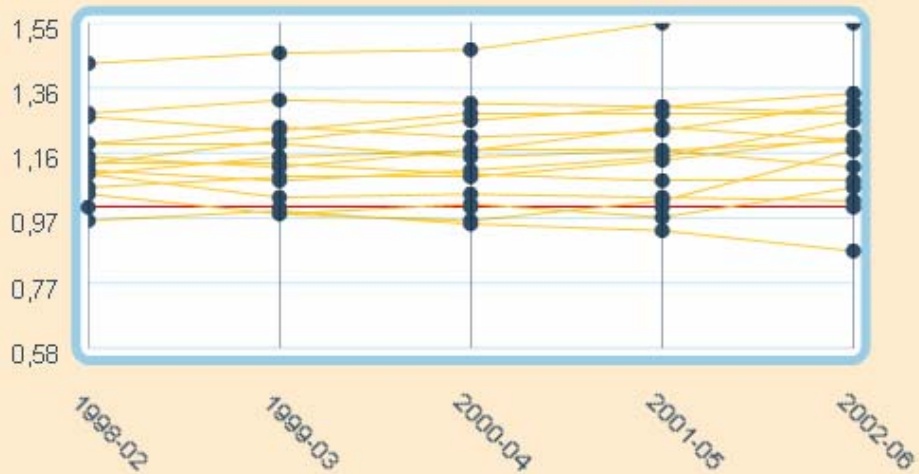
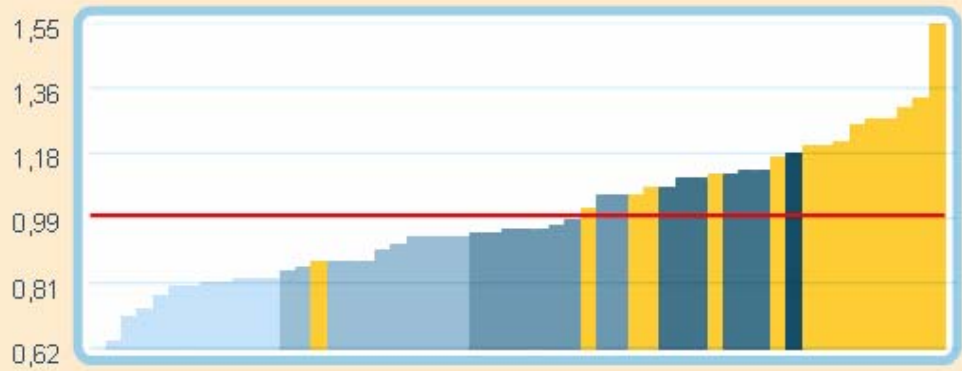
Avoidable deaths: ischemic heart diseases (age group 35 – 64)

Ruhr region Kernel







Ruhr region

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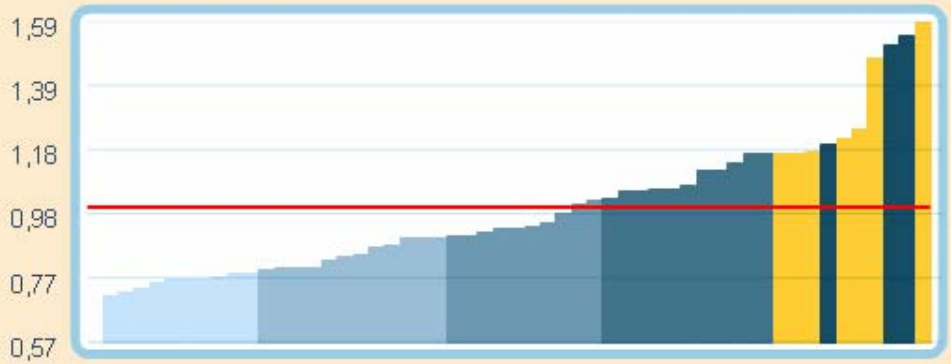
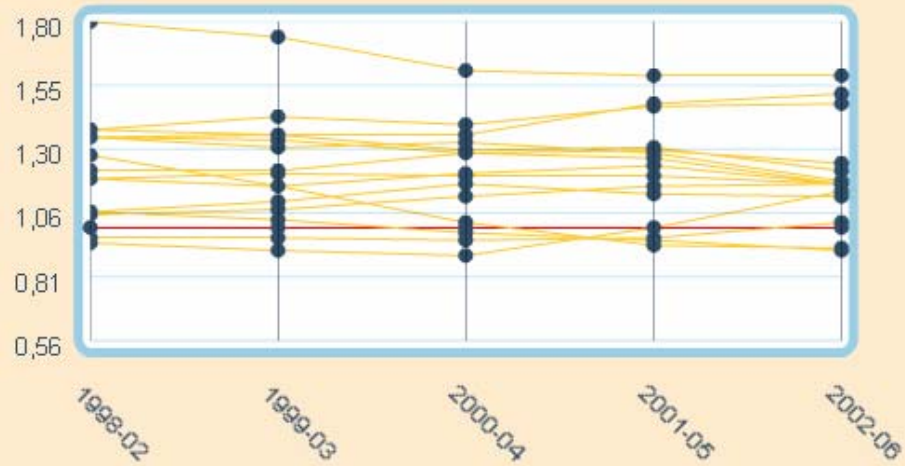
Comparison of districts of NRW (Ruhr highlighted)

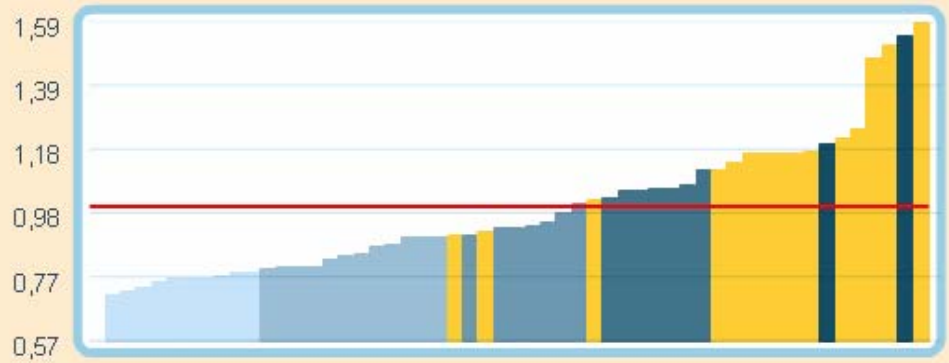
Landesinstitut für
Gesundheit und Arbeit
des Landes Nordrhein-Westfalen

Avoidable deaths: liver diseases diseases (age group 15 – 74)

Ruhr region Kernel







Ruhr region

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PAS-DE-CALAIS

Kent County Council

the UNIVERSITY of GREENWICH

Nord – Pas-de-Calais Demography, Industry and Mortality and some comparisons with South East England

Olivier Lacoste, Gilles Poirier, ORS Nord – Pas-de-Calais

Ann Palmer, CHSS University of Kent

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Comparison of Sante/Public Health

Health and Health Behaviour in Northern France and Southeast England

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En partenariat avec:

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the UNIVERSITY of GREENWICH

IRS NORD PAS-DE-CALAIS

Kent County Council

GOVERNMENT OFFICE FOR THE SOUTH EAST

Medway

East Sussex County Council

Avec le soutien de:

With the support of:

DWP Department for Work and Pensions

sepho

Brighton and Hove City NHS
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Kent & Medway NHS

Surrey and Sussex NHS
Strategic Health Authority

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Teaching Primary Care Trust

PAS-DE-CALAIS

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Comparison of Sante/Public Health

Health and Health Behaviour in Northern France and Southeast England

Nord – Pas-de-Calais - demography

Administrative Area	Number of People
Région (Nord Pas de Calais)	3,995,871
Département (2)	2,555,020 Nord and 1,441,568 Pas-de-Calais
Arrondissements (13)	99,249 (Montreuil) to 1,181,724 (Lille)
Pseudo-Cantons	4919 (Le Quesnoy) to 93.531 Tourcoing 96,959 Roubaix and 184,647 Lille

Demographics

(1) Overal population (2) Number of city (3) % of régional population (4) Density

SITUATION DÉMOGRAPHIQUE EN 1999	Population totale (1)	Nombre de communes (2)	Part de la population régionale (%) (3)	Nombre d'habitants au Km2 (4)
C. U. de Dunkerque Grand Littoral	208 634	18	5,22	819
Pays des Moulins de Flandre	62 221	55	1,56	103
C. A. de Saint Omer	65 246	19	1,63	355
Pays de Saint-Omer	115 735	82	2,9	158
C. A. du Calaisis	98 498	5	2,46	1013
Pays du Calaisis	156 213	63	3,91	232
C. A. du Boulonnais	122 760	22	3,07	599
Pays du Boulonnais	163 031	74	4,08	257
Pays maritime et rural du Montreuillois	70 555	70	1,77	110
Bassin de vie du Littoral	797 161	420	19,95	202
Nord - Pas-de-Calais	3 995 871	1 547	100	322

Source Insee : Rgp 1999 , Traitement ORS Nord - Pas-de-Calais
CU=Communauté urbaine, CA communauté d'agglomération

- 20 % of the population of the region live in the coastal area
- The suburbs (CA) of Calais and the urban (CU) parts of Dunkerque have greater density than the rest of the region

(CA = suburb CU = town)

Nord – Pas-de-Calais - demography

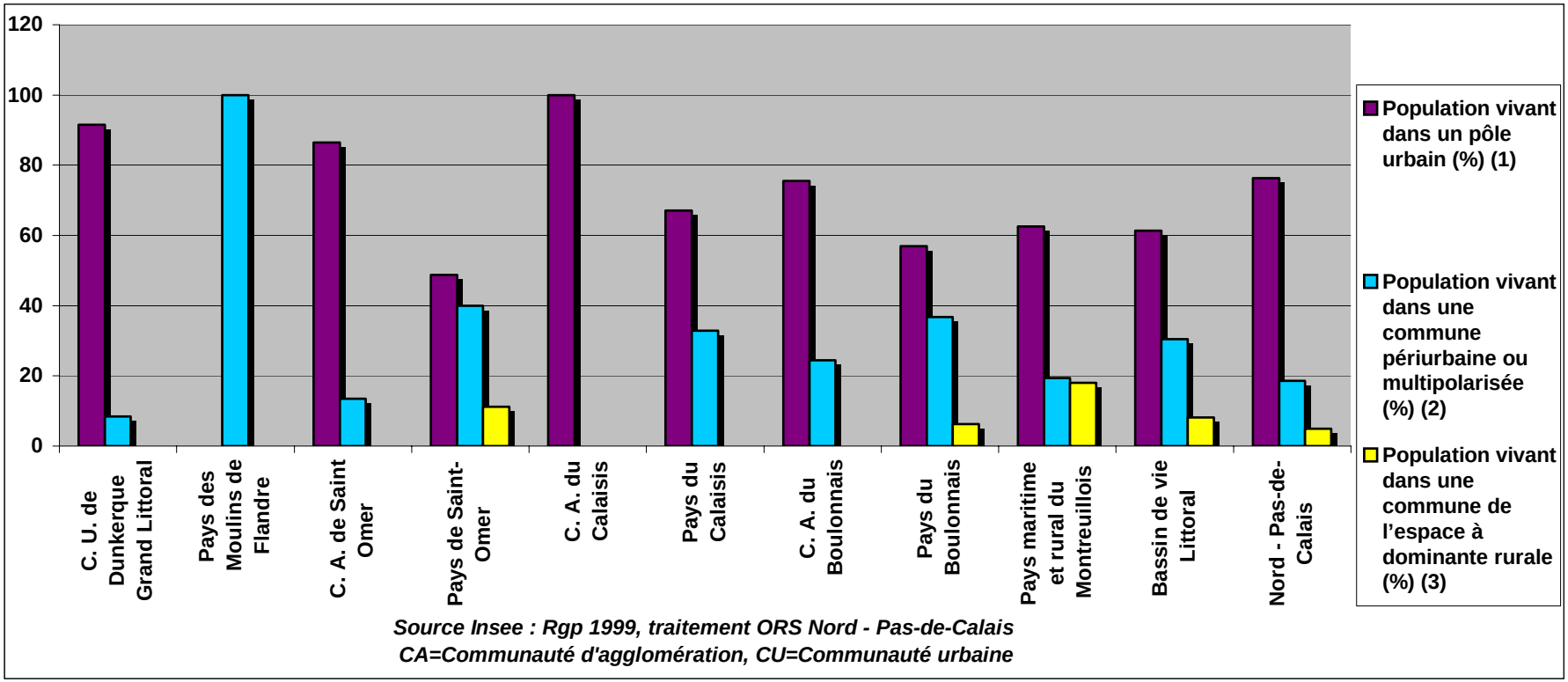
- Nord Pas de Calais is one of the most urbanized regions in France.
- Lille Metropole with its 1.1 millions citizens (one fourth of the population of the region) ranks fourth biggest city in France.
- Other main towns and agglomerations over 100,000 habitants are: Dunkerque, Boulogne sur Mer, Calais, Bethune, Valenciennes, Douai-Lens.
- Nord Pas de Calais is the densest region in France
- The unemployment rate at regional level is higher than for France (12.2% compared to 9.3%).
- Nord Pas de Calais is the third region in France as for the density of employment in industry. The four main sources of revenue are agriculture, industry, construction and services.
- The GIP per habitant is 82 versus 104 for France that places the Nord Pas de Calais among the poorest French regions.

The People of Northern France

- The region is characterized by the youngest population in the whole of France (28 % under 20 years old in 1999).
- Nord Pas de Calais is inhabited mostly by French (including 2.99% immigrants having the French nationality). Foreigners constitute 4.4% of total population in Nord and 1.6% in Pas de Calais. They come in majority from Spain, Portugal and Italy, as well as from Algeria, Morocco and Turkey.
- The reproduction rate in Nord Pas de Calais is high and the migration rate relatively low (87% of the population was born locally)
- The region is characterized by the worst heath indicators all over the France.
  - Life expectancy at birth is among the lowest both for men and women, the general mortality rate the highest in France, for both genders.
  - According to the Regional Health Observatory (ORS) SMR for men in the region is 126%.
- It is thought this results from high incidence of diseases related to alcohol, bad nutritional habits of population and high proportion of workers who used to be exposed to risk factors in industrial areas and in mines.

The population is living mainly in an urban environment

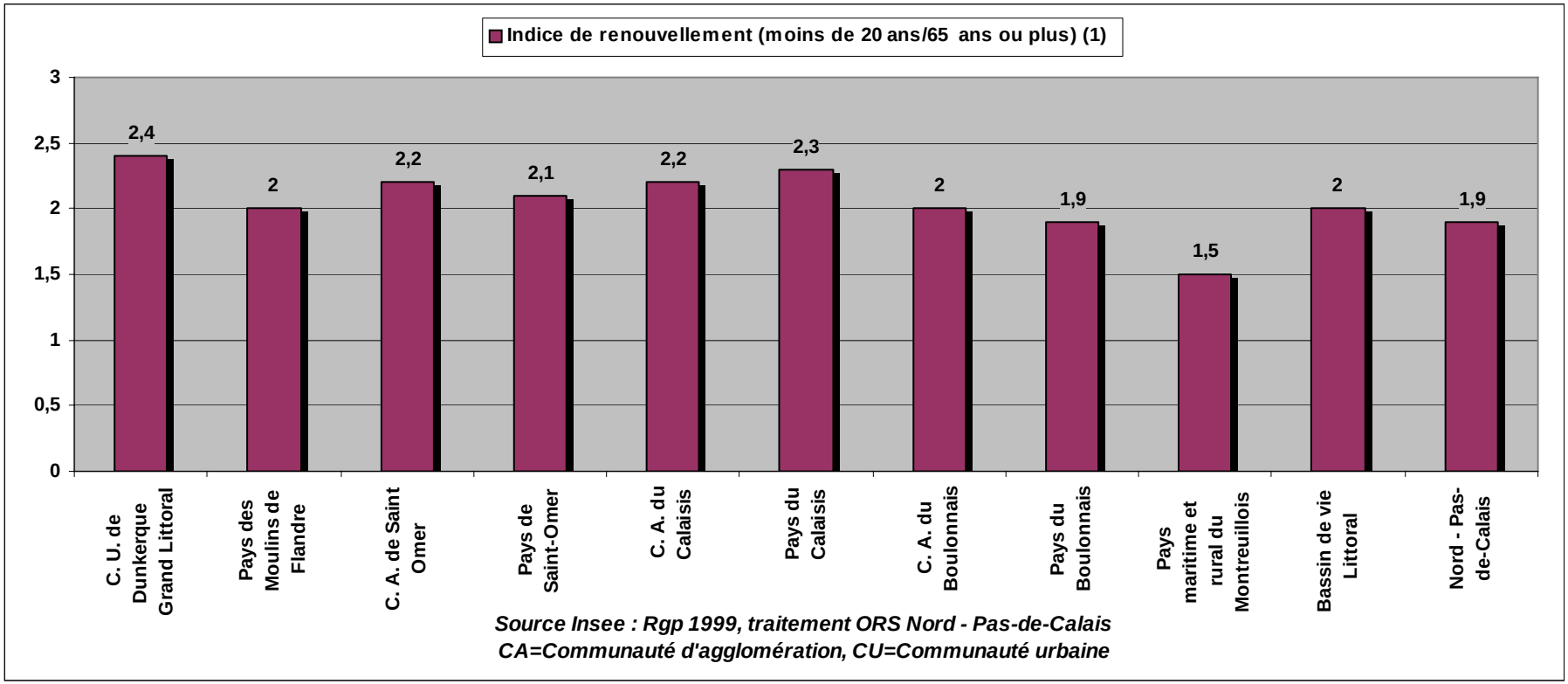
(1) Urban population (2) Peri-urban population (3) rural population



The majority of the population live in an urban environment notably in the suburbs (CA) of Calais (100%)

A young population

Under 20 years / 65 years or more

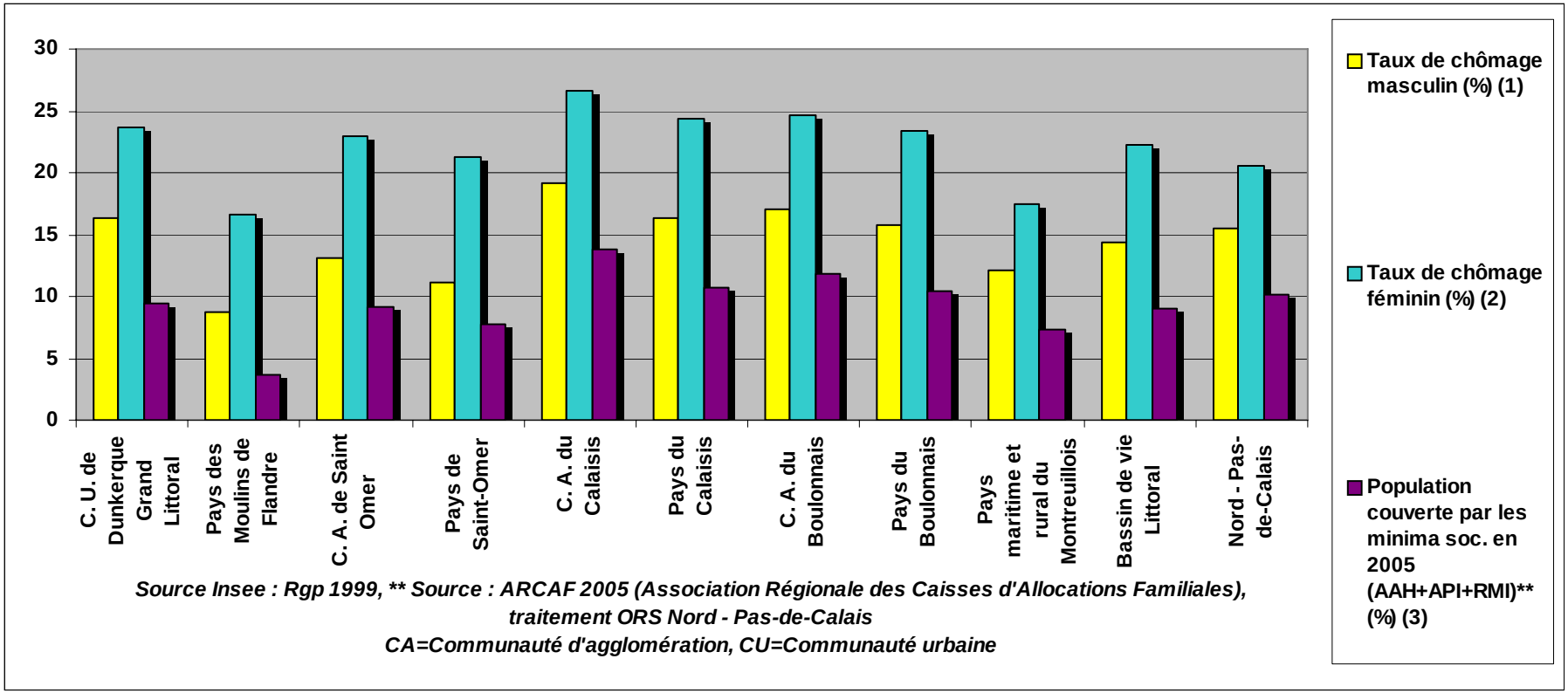


Source Insee : Rgp 1999, traitement ORS Nord - Pas-de-Calais
CA=Communauté d'agglomération, CU=Communauté urbaine

- Most areas show indication of re-juvenation greater than the region as a whole
- This is more so in the suburbs (CA) and the countryside around Calais and in the urban parts of Dunkerque

Unemployment in 1999

(1) men unemployment rate, (2) women unemployment rate (3) Social help rate

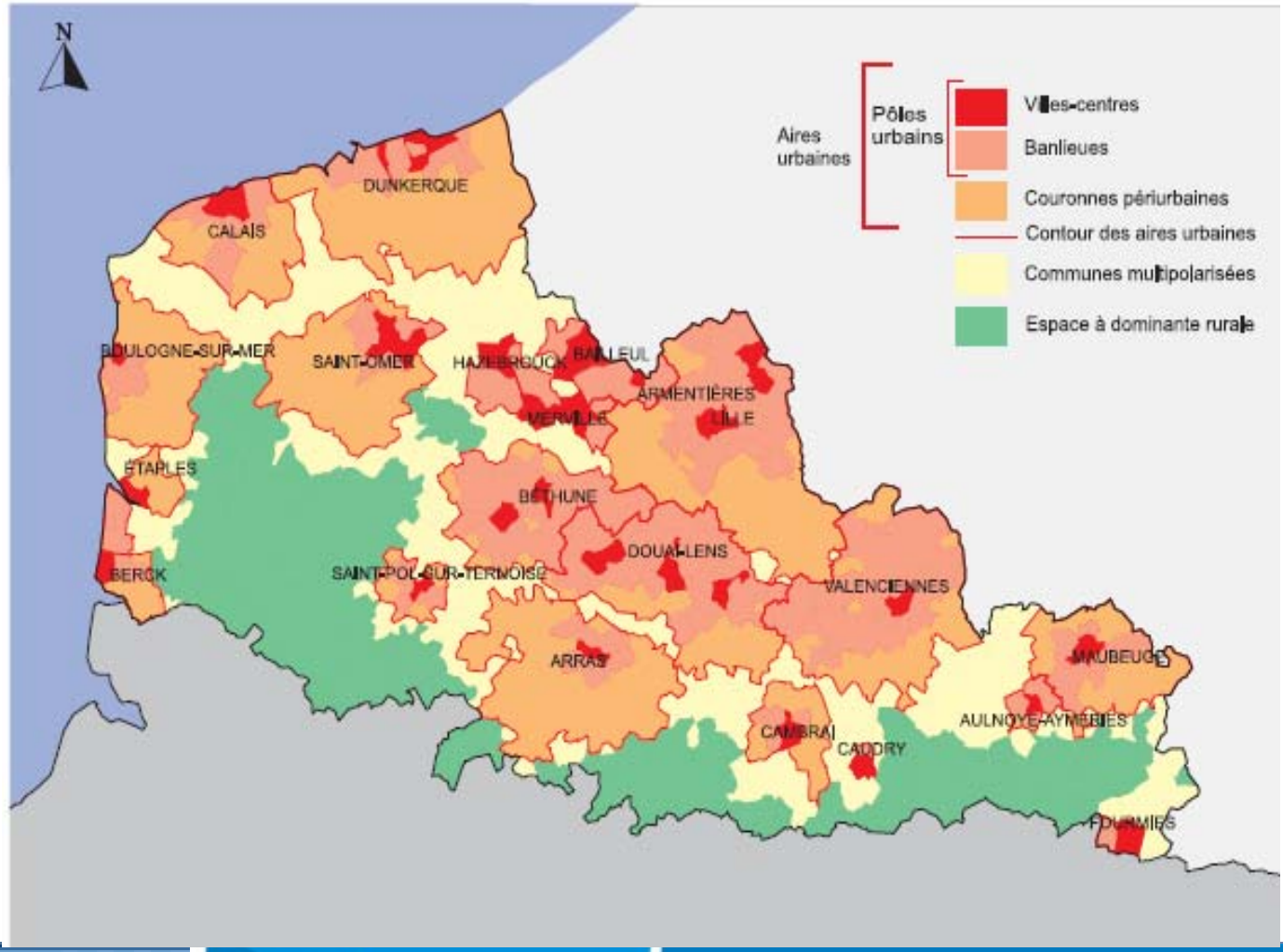


*Source Insee : Rgp 1999, ** Source : ARCAF 2005 (Association Régionale des Caisses d'Allocations Familiales), traitement ORS Nord - Pas-de-Calais*

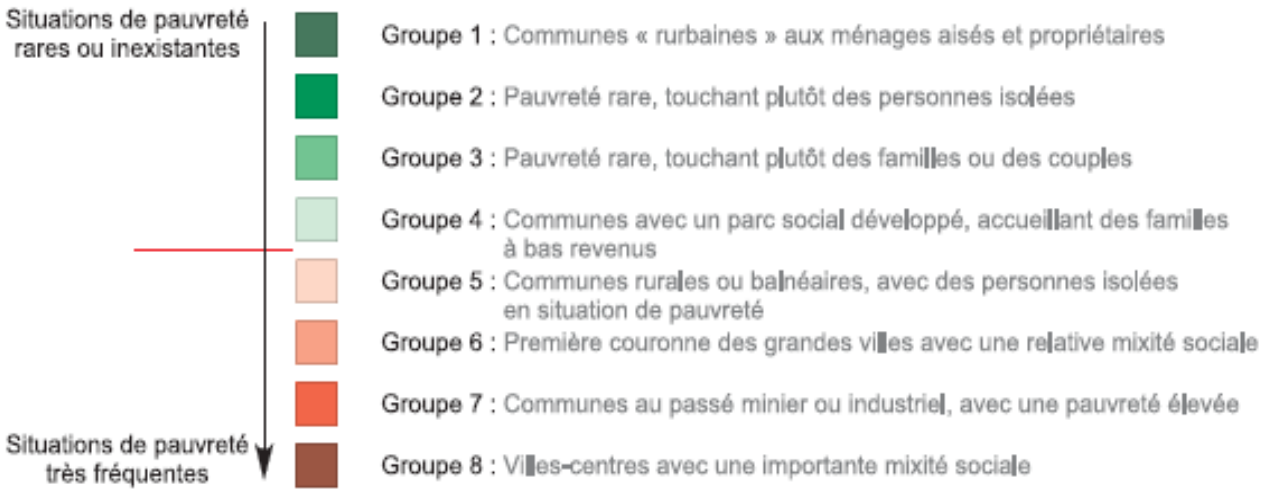
CA=Communauté d'agglomération, CU=Communauté urbaine

- Apart from St-Omer, the suburbs (CA) have an unemployment rate above that of the region and Coastal area. Unemployment is worse for women.
- The suburbs (CA) of Calais attain, for both sexes, an unemployment rate higher than the % required for strongest social minimum

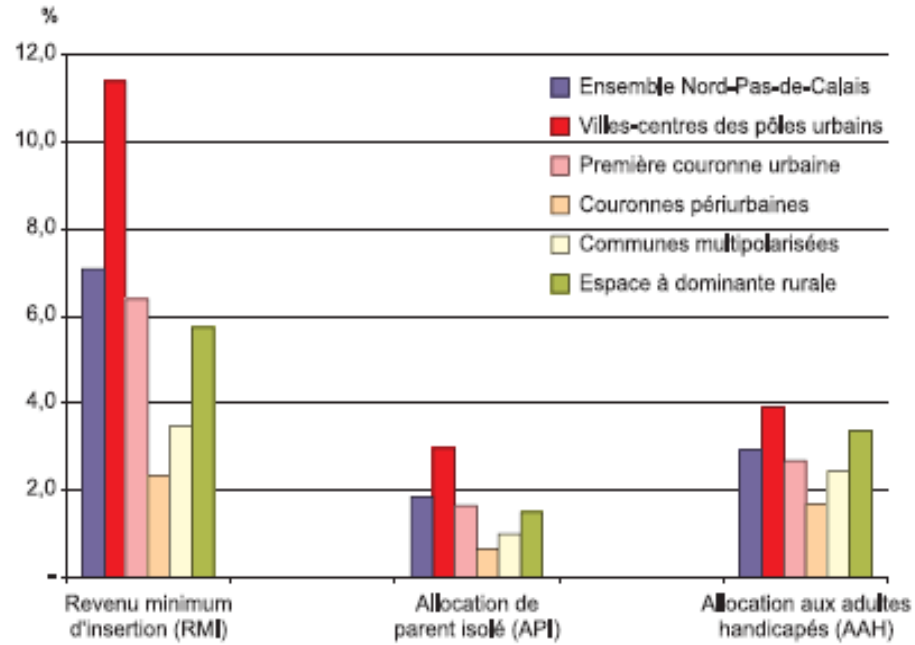
Categories of Space in 1999



Typologie des communes en 8 groupes : Guide de lecture



Graphique 2 : PART DE LA POPULATION COUVERTE[1] PAR UN MINIMUM SOCIAL, PARMI LA POPULATION DE MOINS DE 65 ANS



[1] Population couverte : allocataires et famille éventuelle (conjoint, enfants et autres personnes à charge).
Source : Fichiers Caf 2004, MSA, Insee - RP 1999

Calculating the Townsend Score

Step 1: The following variables are extracted from the 1991 Census;

V1 = % economically active residents aged 16-59/64 who are unemployed

V2 = % private households which do not possess a car

V3 = % private households which are not owner-occupied

V4 = % private households with more than one person per room

Step 2: The distributions of the extracted variables are 'normalised' using the following transformations;

N1 = LN(V1+1)

N2 = LN(V2+1)

N3 = SQRT(V3)

N4 = LN(V4+1)

Step 3: The variables are standardised by subtracting the mean and dividing by the standard deviation;

S1 = (N1 - mean of N1)/ S.D. of N1

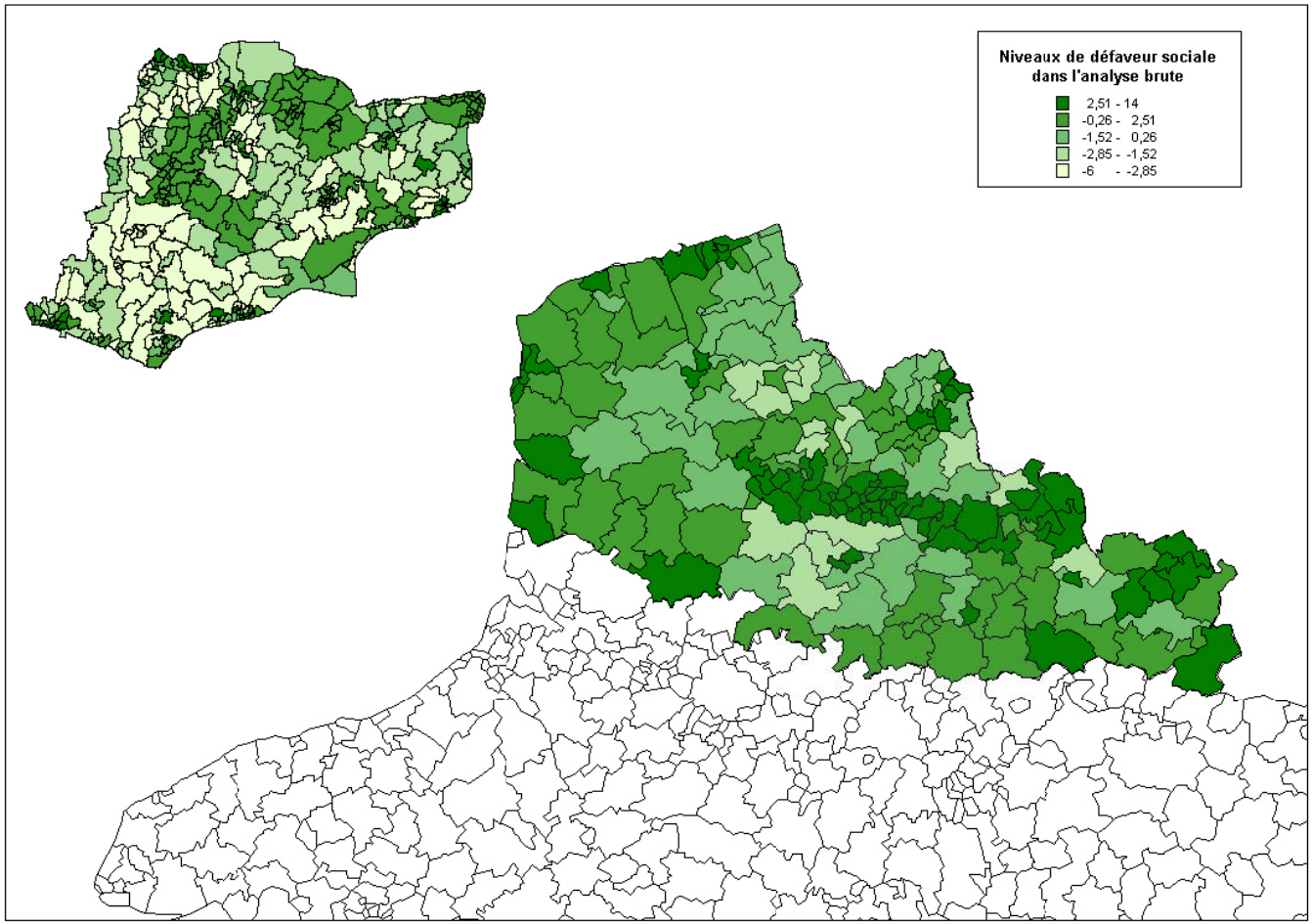
S2 = (N2 - mean of N2)/ S.D. of N2

S3 = (N3 - mean of N3)/ S.D. of N3

S4 = (N4 - mean of N4)/ S.D. of N4

Step 4: The Townsend Score is calculated by summing the standardised variables; i.e. Townsend Score = S1 + S2 + S3 + S4.

Using Townsend Scores to compare deprivation across SE England and N France

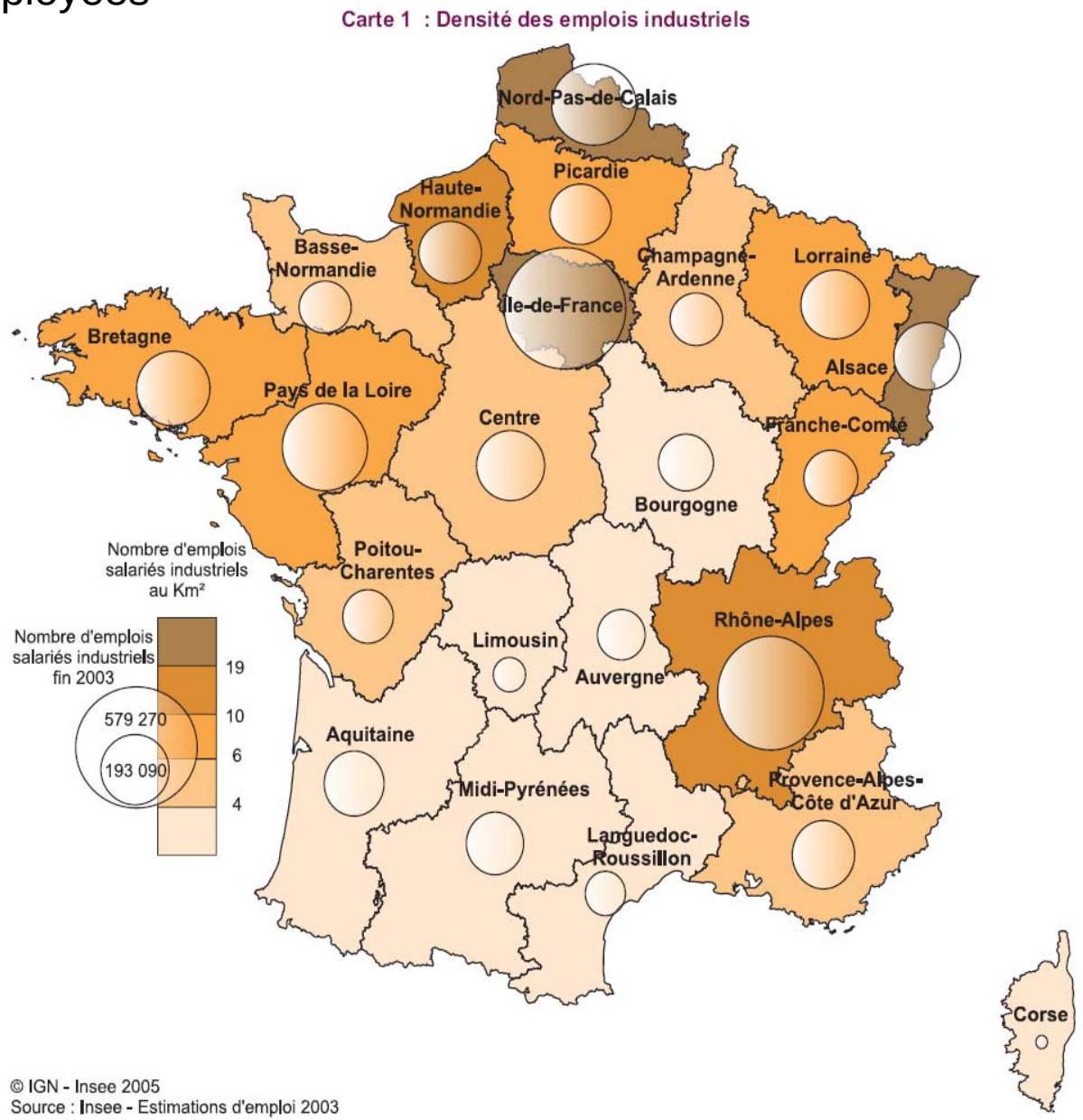


- More concentrated deprivation in northern France
- Coastal deprivation
- Central belt of deprivation through the mining regions of France

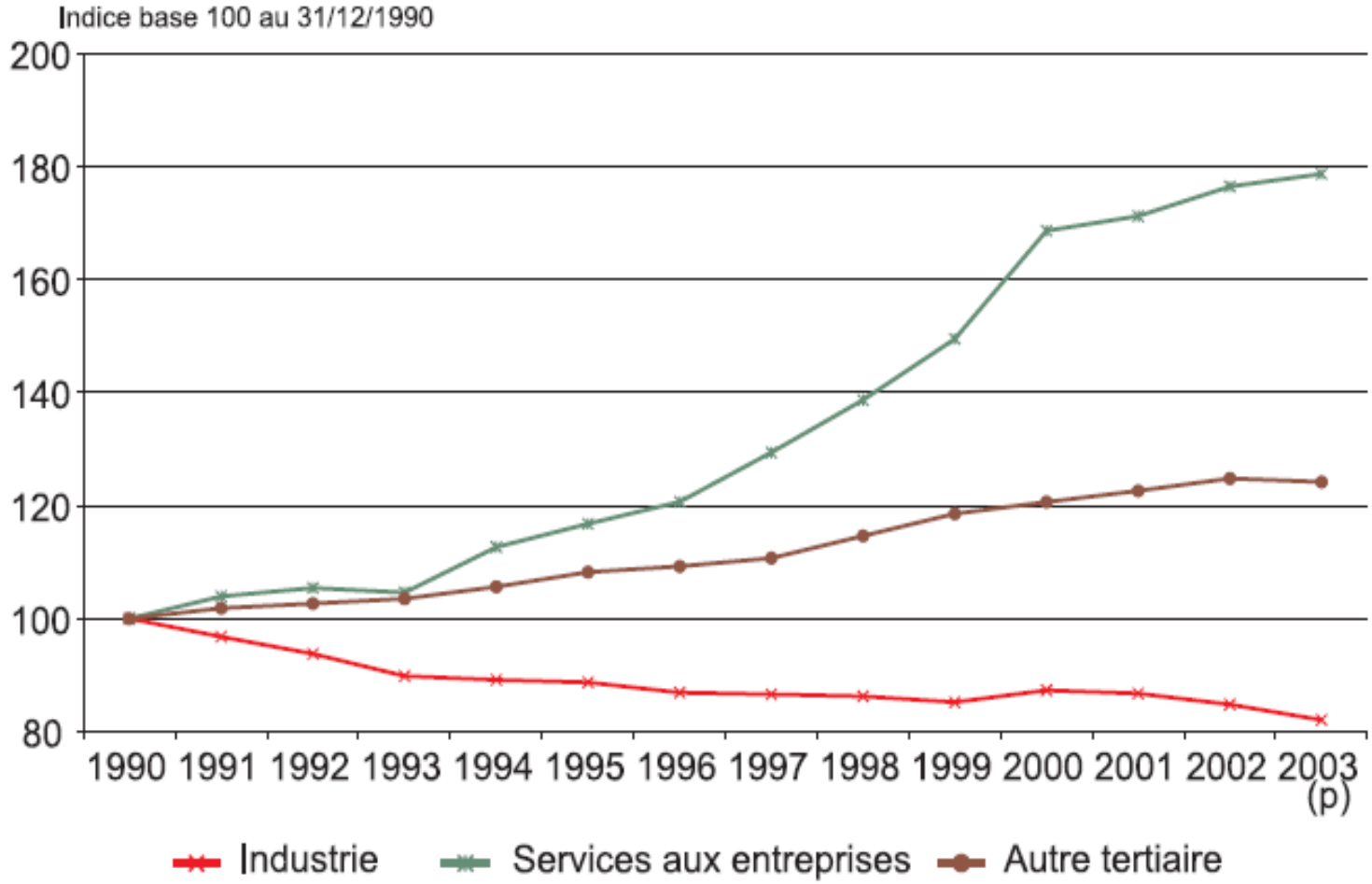
Nord – Pas-de-Calais - Industry

- Present
  - Chemical industry around Dunkerque
  - Port at Calais, Dunkerque
  - Fishing at Boulogne
- Past
  - Bassin des mineurs

Density of employees in industry

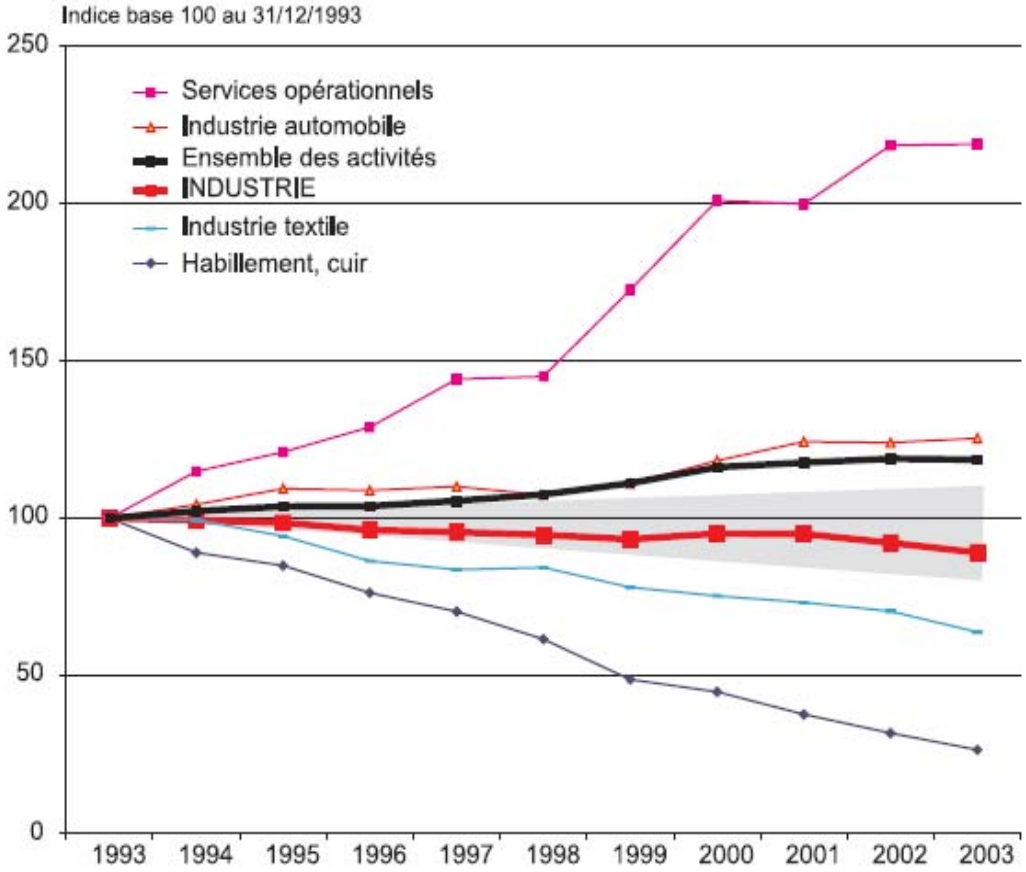


Graphique 1 : Évolution du nombre de salariés dans l'emploi total du Nord-Pas-de-Calais entre fin 1990 et fin 2003



(p) Données provisoires
Source : Insee - Estimations d'emploi au 31 décembre de chaque année

Graphique 2 : Évolution des salariés dans quelques secteurs d'activité du secteur privé marchand



Source : Unedic au 31 décembre de chaque année

Un ensemble d'activités (à l'intérieur du cône grisé) connaît des fluctuations proches de celles de l'ensemble de l'industrie, avec un indice en 2003 s'échelonnant de 78 à 109. Sur l'ensemble de la période, ont ainsi évolué, par ordre décroissant de l'indice en 2003 :

- Construction navale, aéronautique et ferroviaire : 109
- Industries agricoles et alimentaires : 108
- Chimie, caoutchouc, plastiques : 105
- Industrie des composants électriques et électroniques : 95
- Industries des équipements mécaniques : 92
- Métalllurgie et transformation des métaux : 91
- Industrie des produits minéraux : 91
- Pharmacie, parfumerie et entretien : 90
- Édition, imprimerie, reproduction : 88
- Industries des équipements du foyer : 86
- Industrie du bois et papier : 80
- Industrie des équipements électriques et électroniques : 78

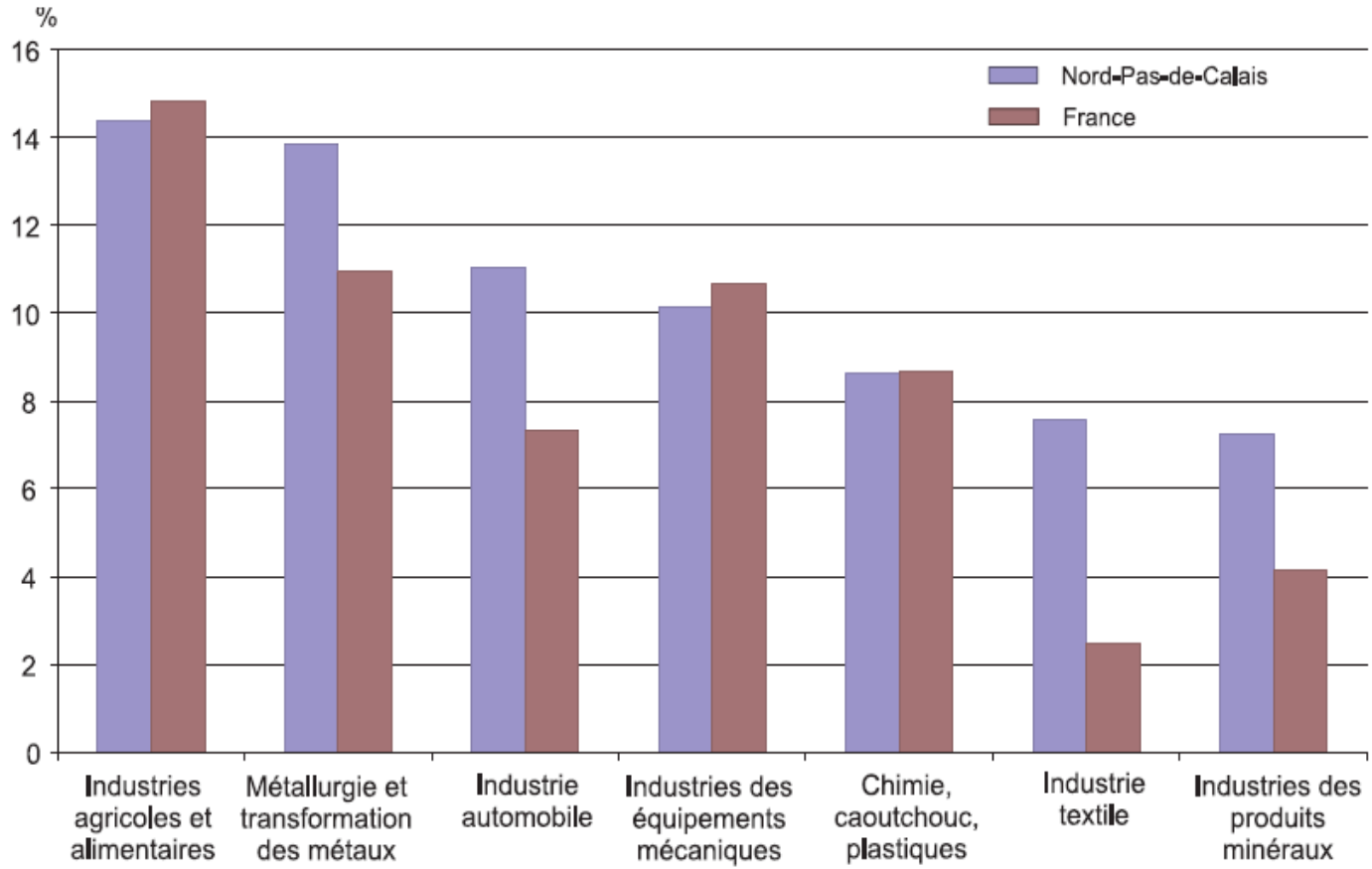
Gains / losses of employees in industry during the period 1993-2003

Tableau 2 : Gains et pertes d'effectifs entre fin 1993 et fin 2003 dans l'industrie

Sur les 24 800 emplois perdus :			
Habillement, cuir	-12 800	Industrie automobile	+ 6 800
Industrie textile	-9 500	Chimie, caoutchouc, plastiques	+ 1 900
Industries du bois et du papier	-2 700	Industries agricoles et alimentaires	+ 1 700
Métallurgie et transformation des métaux	-2 500	Industrie des composants électriques et électroniques	+ 1 500

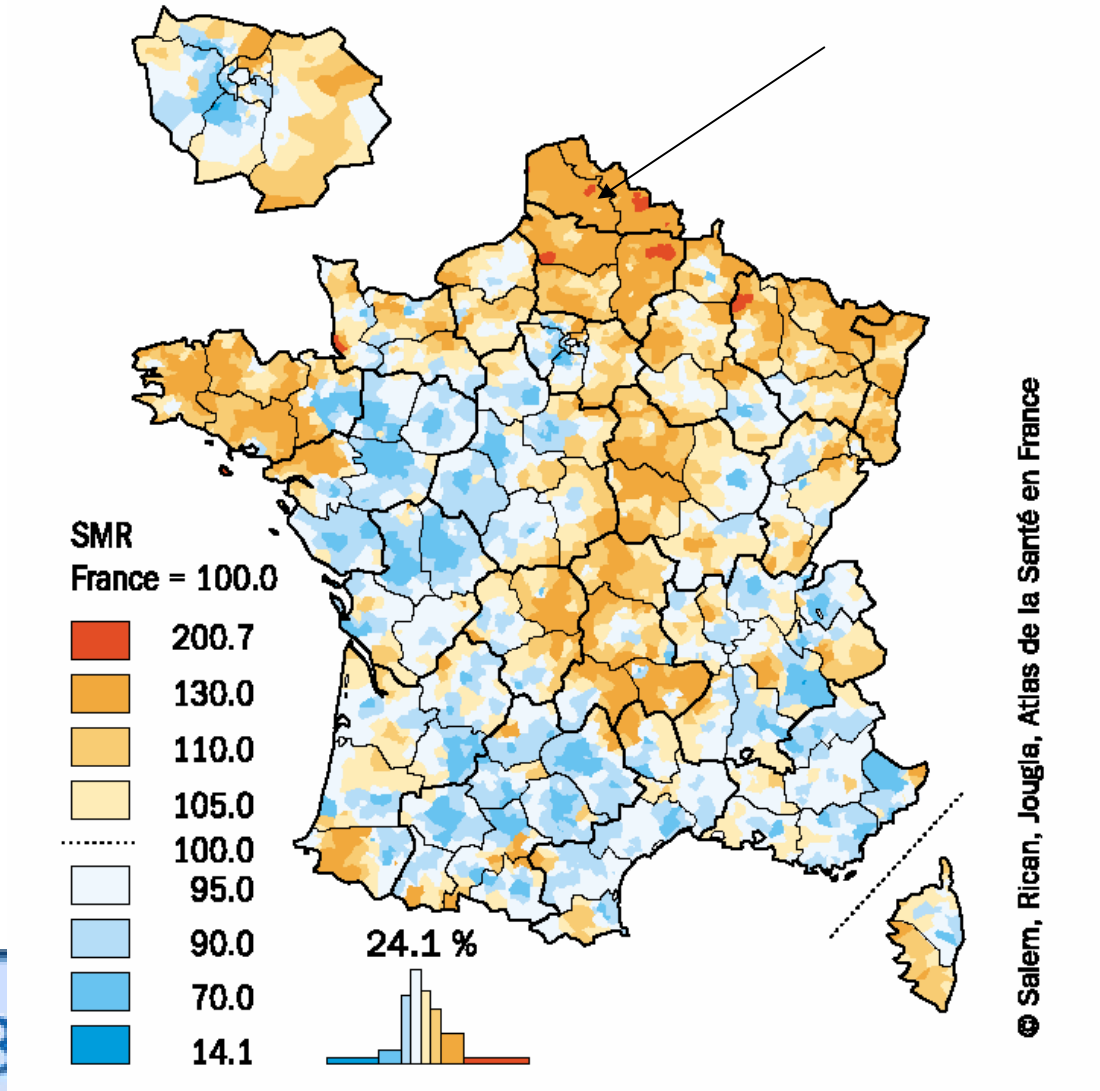
Source : Unedic

Graphique 3 : Part des emplois salariés dans l'industrie des principaux secteurs d'activité au 31 décembre 2003



Source : Insee - Estimations d'emploi 2003

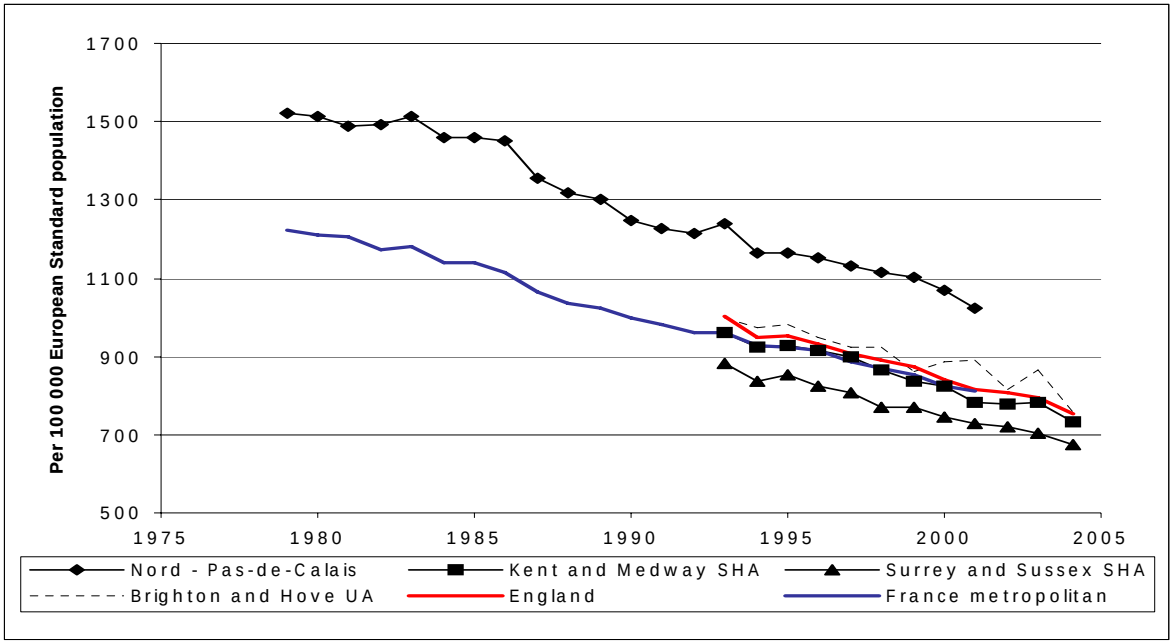
Standardised mortality ratios for the period 1988-1992 (scale: canton; integrated figures)

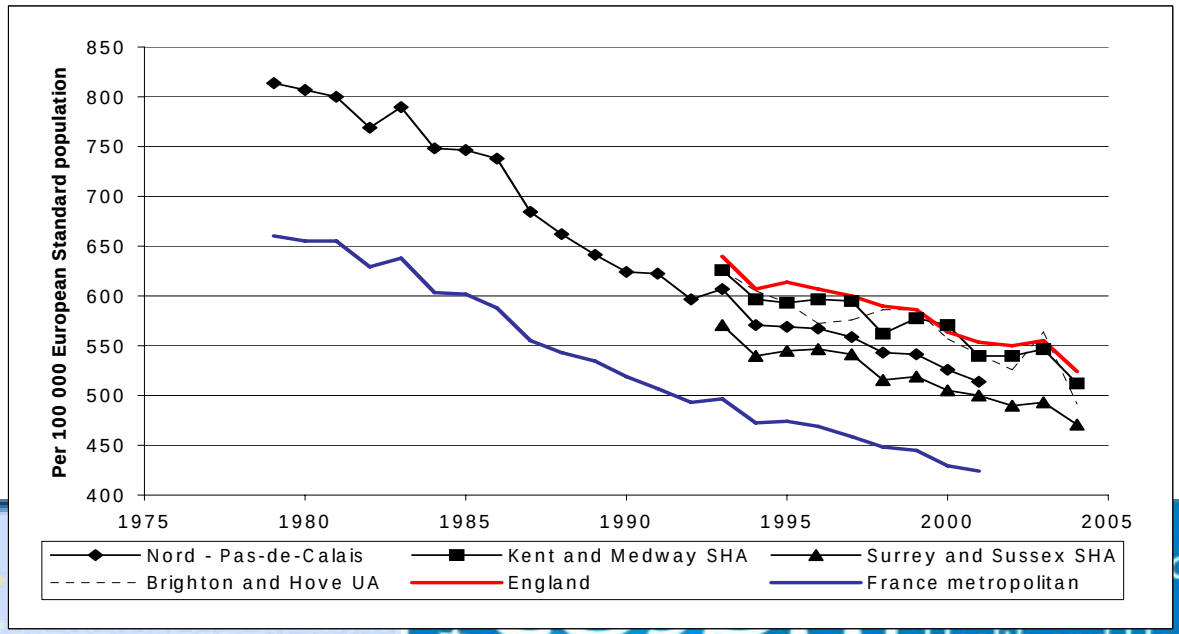


Source: Inserm. CépiDc. RGP 90.

Mortality indicators for comparison of Nord – Pas-de-Calais and South East England

- More recent mortality data is available in England, older data only available from 1986
- French mortality data is available at Canton level from 1979 - 2001.
- Agreed that French mortality at Canton level would cover the years 1997-2001 whilst English mortality data would cover 1999-2003.
- Time trend data would be a three year rolling average from 1979 (France) and 1986 (England) at regional and departmental level.
- In France ICD 9 was used for coding deaths between 1979 and 1999 and ICD 10 from 2000; in England ICD 9 was used to the end of year 2000 and ICD 10 from the beginning of 2001

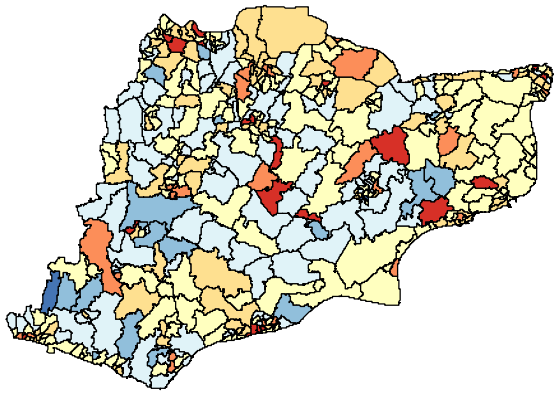




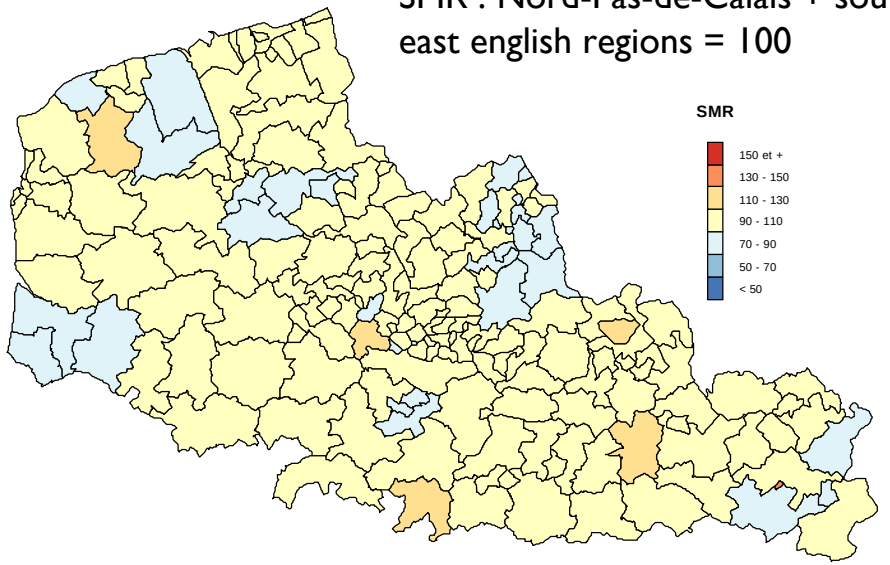
Trends in mortality – men (top) and women (bottom) all ages

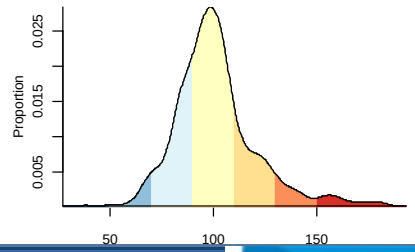
- In both countries the trend is downwards
- Men in NPC have 26% higher mortality than France, England and SE England
- French women have 29-30% lower mortality than women in England but women in NPC are less healthy and similar to England
- The expected variations in SE England are demonstrated i.e. Sussex is more healthy than Kent

Women, mortality 1996-2002 - SMR all cause and all ages



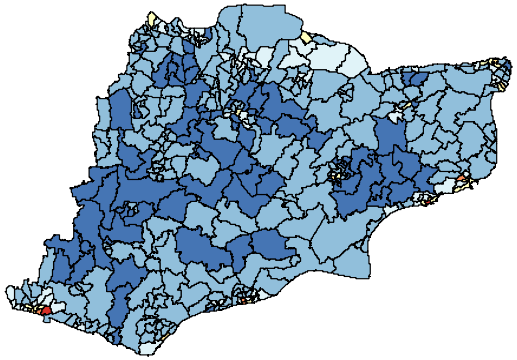
Lissés par la méthode locale de Marshall
Local Linear Empirical Bayes Smoother
SMR : Nord-Pas-de-Calais + south-east english regions = 100



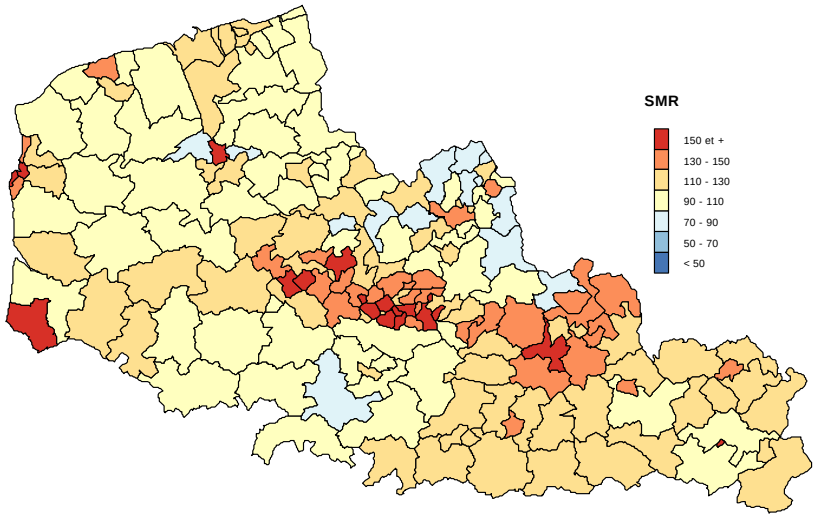


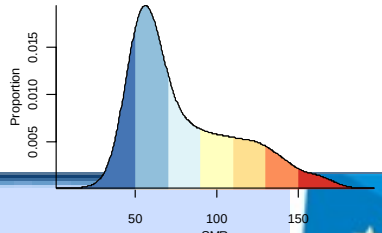
Men : premature mortality (0-64 years) 1996-2002 –All causes

Lissés par la méthode locale de Marshall
using Local Linear Empirical Bayes Smoother
SMR : Nord-Pas-de-Calais + south-east english regions = 100

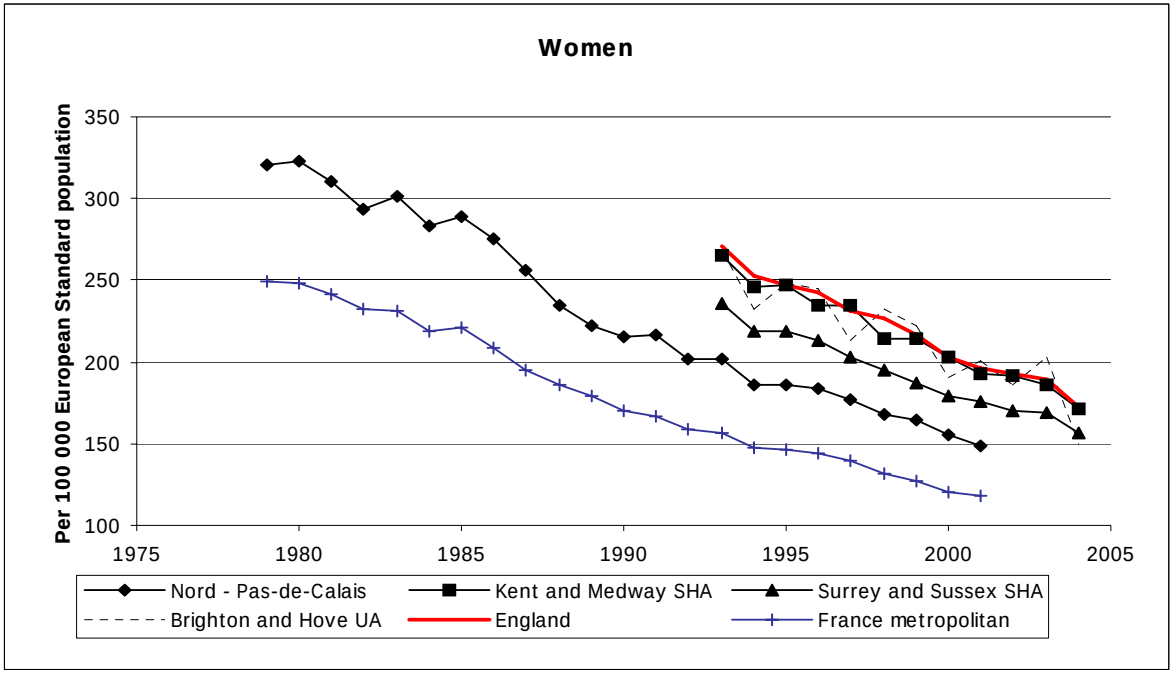


The mortality in Nord – Pas-de-Calais is higher than in Southeast of England.
In France, some areas show very high rates of premature mortality (areas with old mining industry, areas around Dunkerque,…)





Mortality from all circulatory diseases – women all ages 1996-2002 ICD9 390-459 adjusted, ICD10 I00-I99)

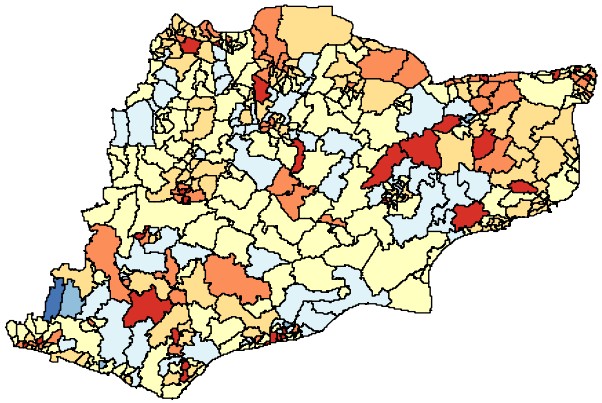


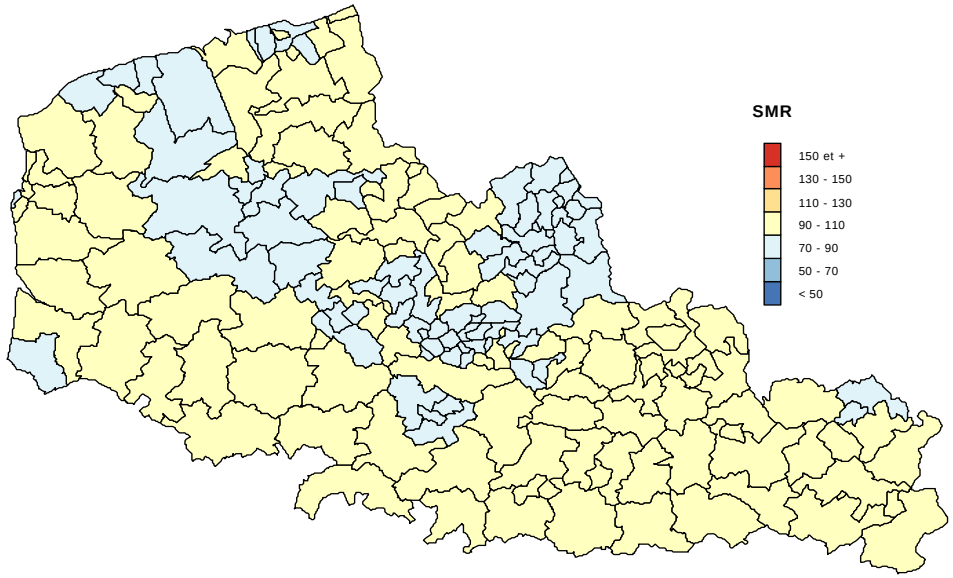
- Trends for mortality from circulatory disease are similar for men and for women, although male mortality is higher
- Mortality is lower in France than in England, the trend is downwards on both sides of the channel
- Circulatory deaths in NPC are 28% above French national average but below English, in Surrey and Sussex deaths are 13% below English average; for both countries the trend is downward.

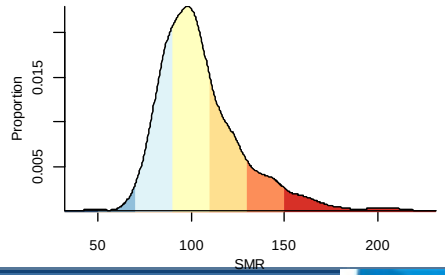
Mortality from circulatory diseases - Women All ages, 1996-2002

SMRs for Kent, Medway, East-Sussex, Brighton & Hove, Nord – Pas-de-Calais = 100

Local Linear Empirical Bayes Smoother

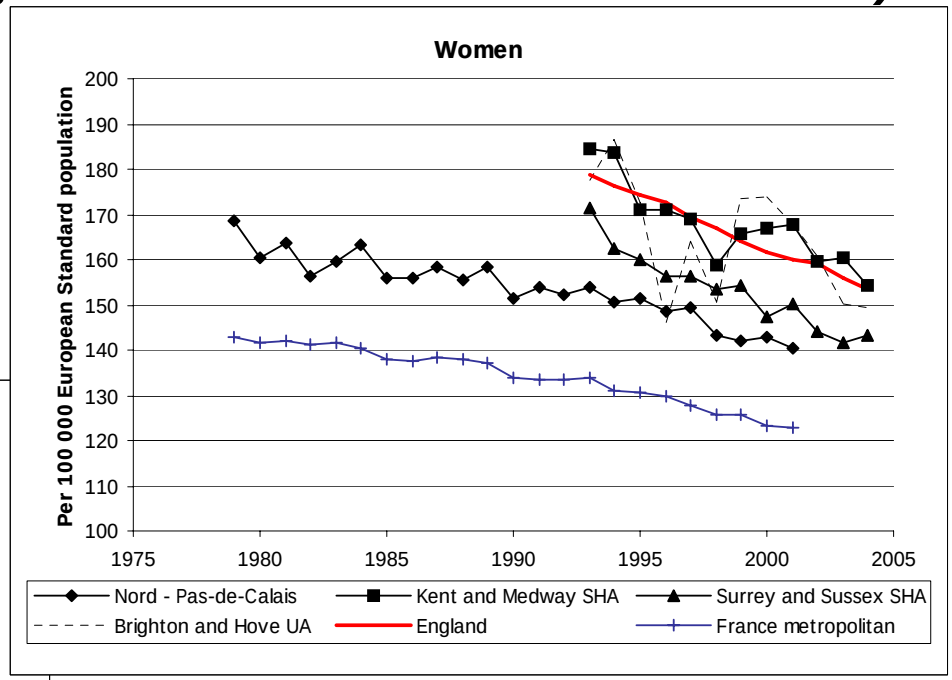


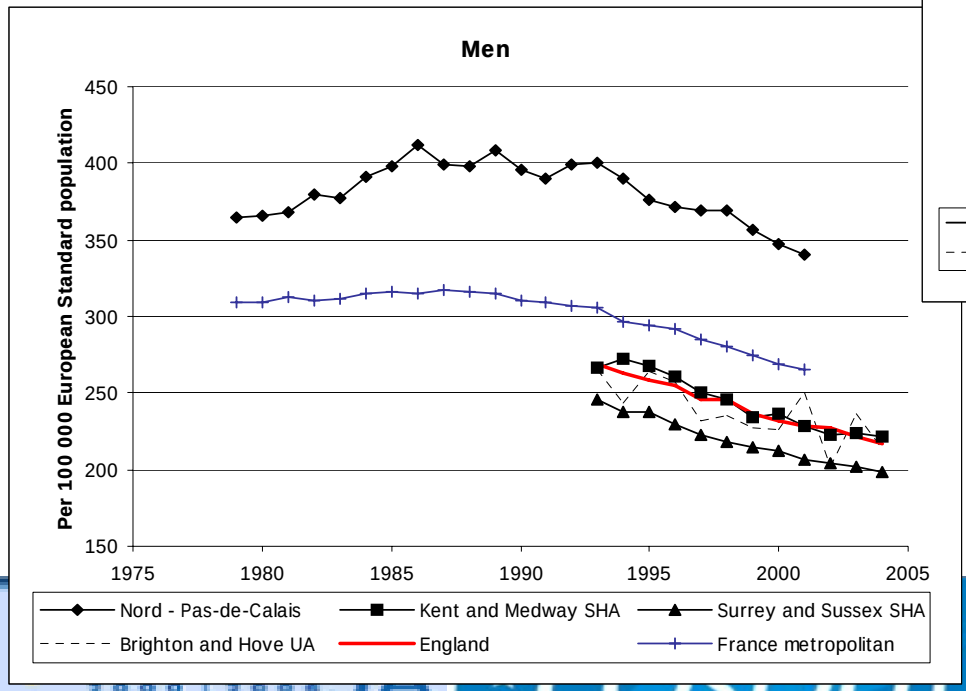




Mortality from all cancers at all ages (ICD9 140-208 adjusted, ICD10 C00-C97)

- Female cancer mortality is much lower than male – both countries
- Male cancer mortality is higher in France, female is higher in England

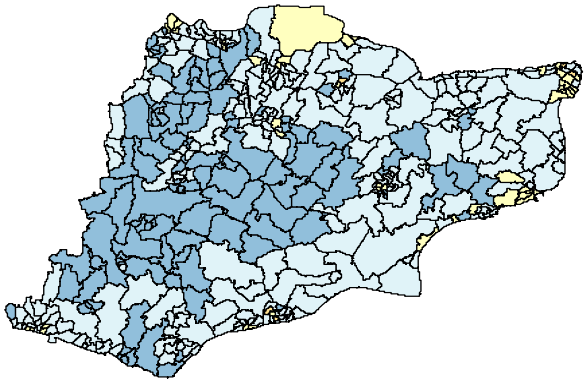


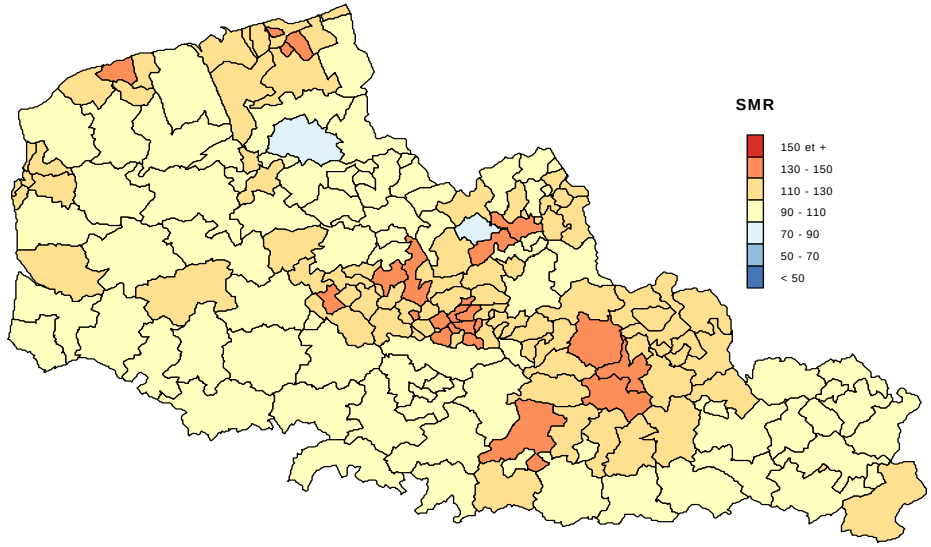


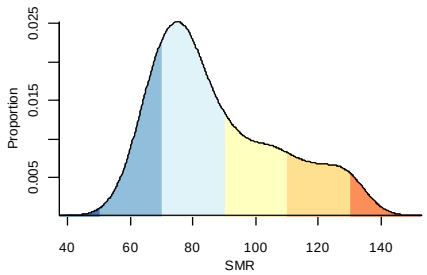
- In Nord Pas de Calais cancer mortality is much higher than the national average
- In SE England it is average (KM) or below (Surrey and Sussex)

Mortality from cancer - Men : All ages, 1996-2002

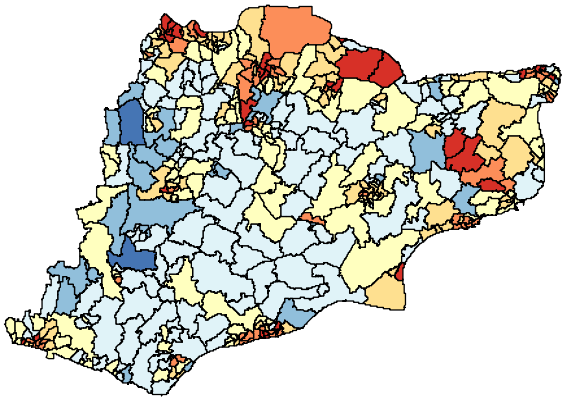
SMR of Kent, Medway, East-Sussex, Brighton & Hove, Nord – Pas-de-Calais = 100
Local Linear Empirical Bayes Smoother

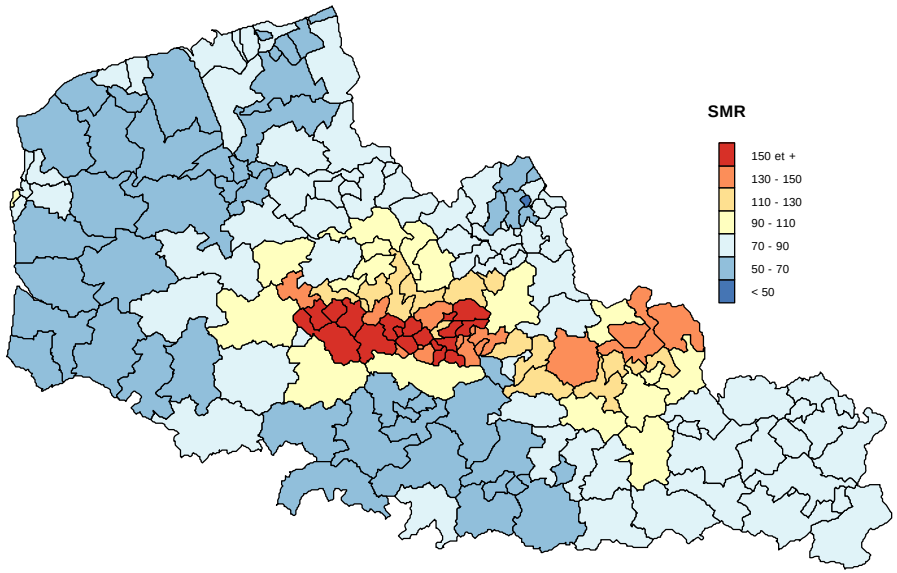


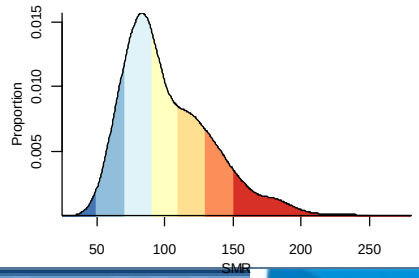




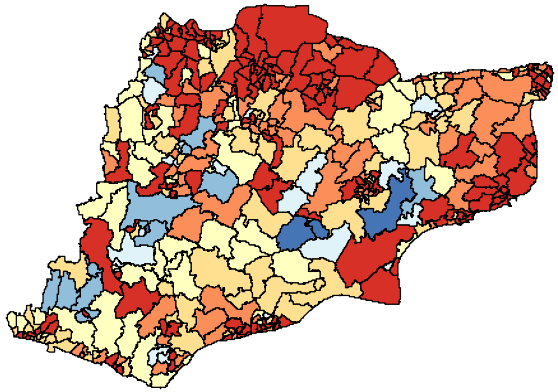
Mortality from respiratory diseases: Men, all ages 1996-2002

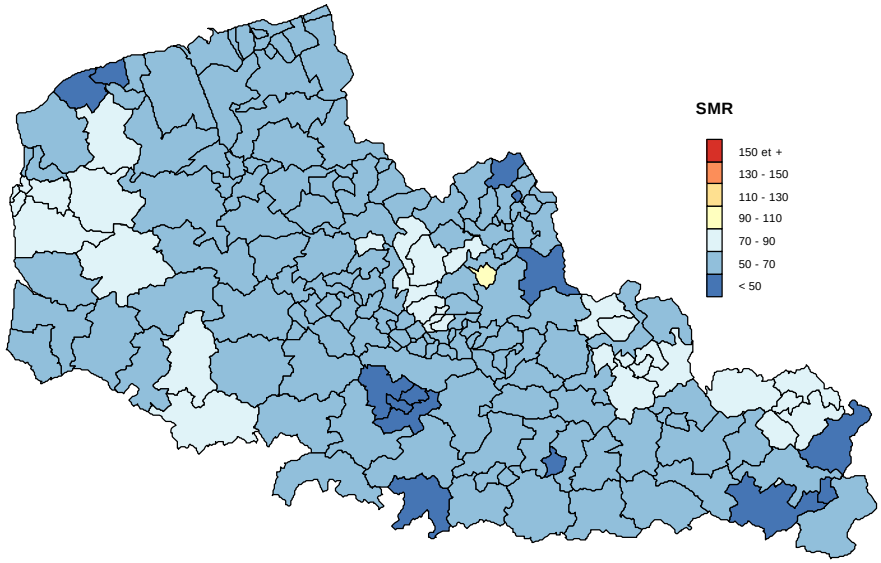


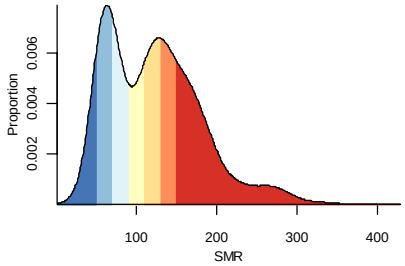




Mortality from respiratory diseases: Women all ages







Correlation of Townsend Scores and Mortality

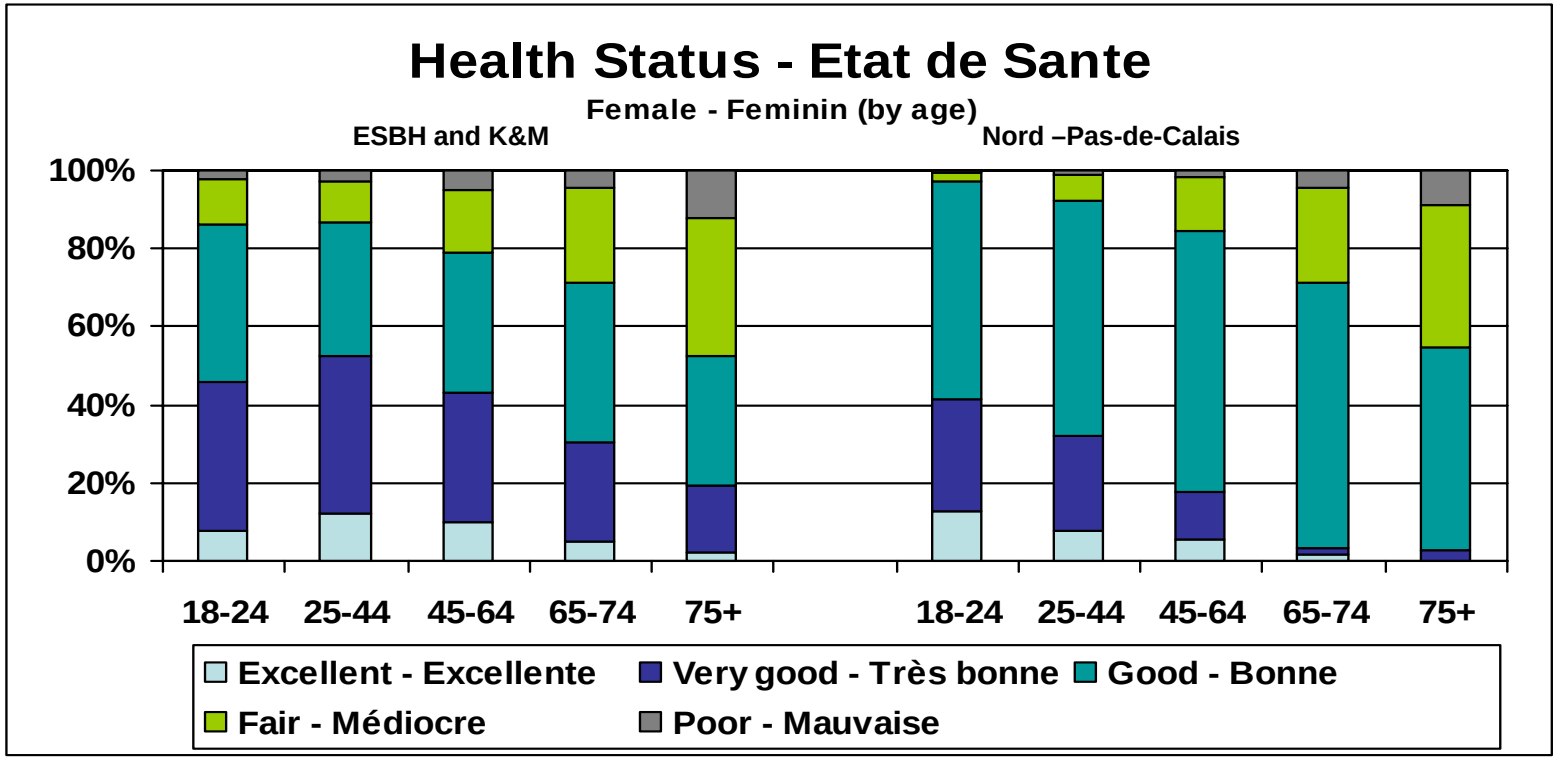
- Using unweighted data:
  - Strong positive correlation exists between Townsend deprivation score and overall mortality (+) or premature mortality (++), for both regions and for both genders
  - In the Nord Pas-de-Calais, this correlation is weaker for women
  - Statistical relationship between deprivation and overall mortality is stronger for South-East England than for Northern France. This result does not hold for premature mortality
- Using weighted data (ie taking into account differences in sizes of areas):
  - Correlation between deprivation and mortality remains
  - But, the difference between South-East England and Northern France disappears

Health Survey data

- Three health surveys
  - Enquête Santé 2002-2003 – Extension régionale Nord/Pas-de-Calais
  - Health Counts - Survey of people in East Sussex, Brighton & Hove 2003
  - Kent and Medway Health and Lifestyles survey 2001

	Nord – Pas-de-Calais	**Kent and Medway**	**East Sussex, Brighton & Hove**
Population	4.0 million	1.6 million	740,000
Sample	4,033	8,071	5,936
Timing – Date	October 2002 - September 2003 5 waves	June 2001	May 2003
Age	0+	16+ registered with GP	18+ registered with GP
Weighting	Official INSEE	Age and gender	Age and gender

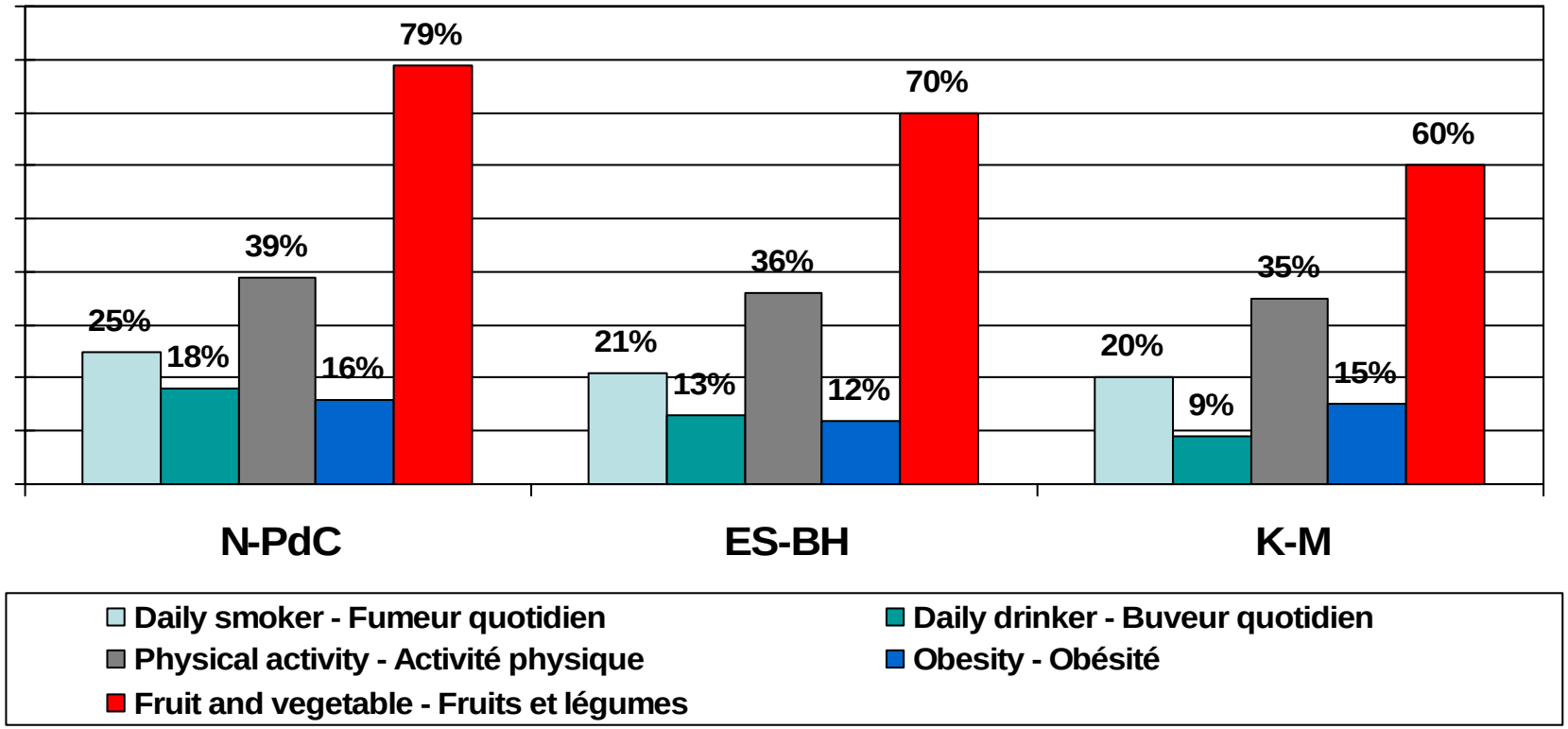
In general, would you say your health is.. (women)



Source: Enquete Sante 2002-3; Kent and Medway Survey 2001; Health Counts 2003

Results: Prevalence of Health Behaviours

Age standardised prevalence rates
Taux de prévalence standardisé sur l'âge



Summary 1

- All cause mortality – English women are 33% higher than French women
- Both countries are experiencing a reduction in female mortality
- Nord – Pas-de-Calais has a worse mortality than France as a whole whereas south east England is lower than English national rate
- Women in Nord – Pas-de-Calais experience similar all cause mortality rates and trends to South East England
- There is more variation across south east England (? due to methodology – electoral wards are smaller)
- Premature mortality in Northern France is higher

Summary 2

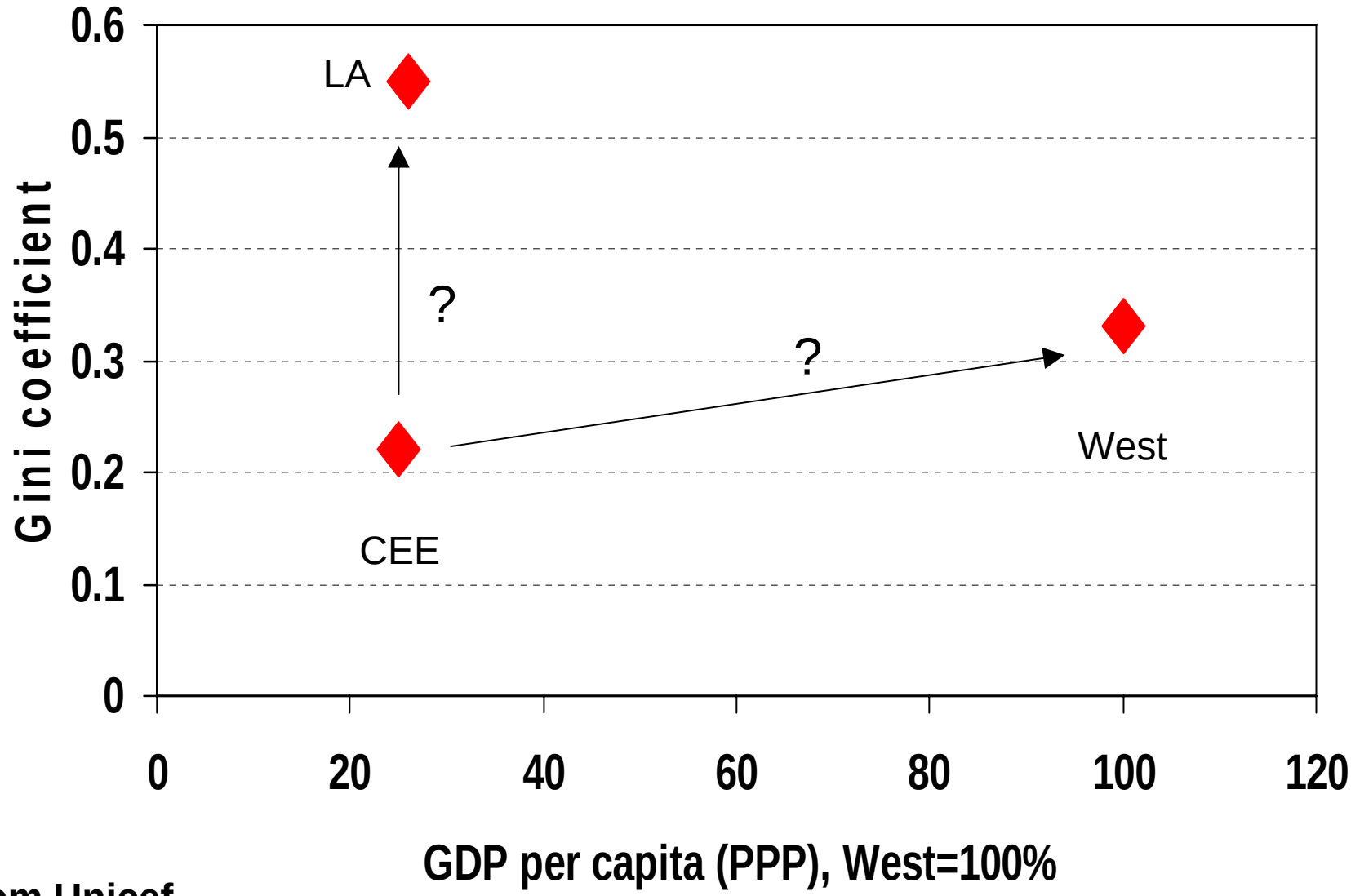
- Cancer mortality is low for both countries and very little variation, some coastal wards in England have SMRs above 100
- For circulatory disease, northern France is 26% higher than France as a whole, but lower than South East England which is at or below England national rate
- There is greater variation in south east England with pockets of high mortality
- There are some regions in south east England with very high respiratory mortality – these are mostly in the deprived coastal wards however any theory this might be due to port and mining health is disproved by low rates amongst women living in the industrial and mining regions in France unless there are lifestyle differences for example it is reported that french miners bath and change at the pit head

Transition and health in Central and Eastern Europe

Martin Bobak

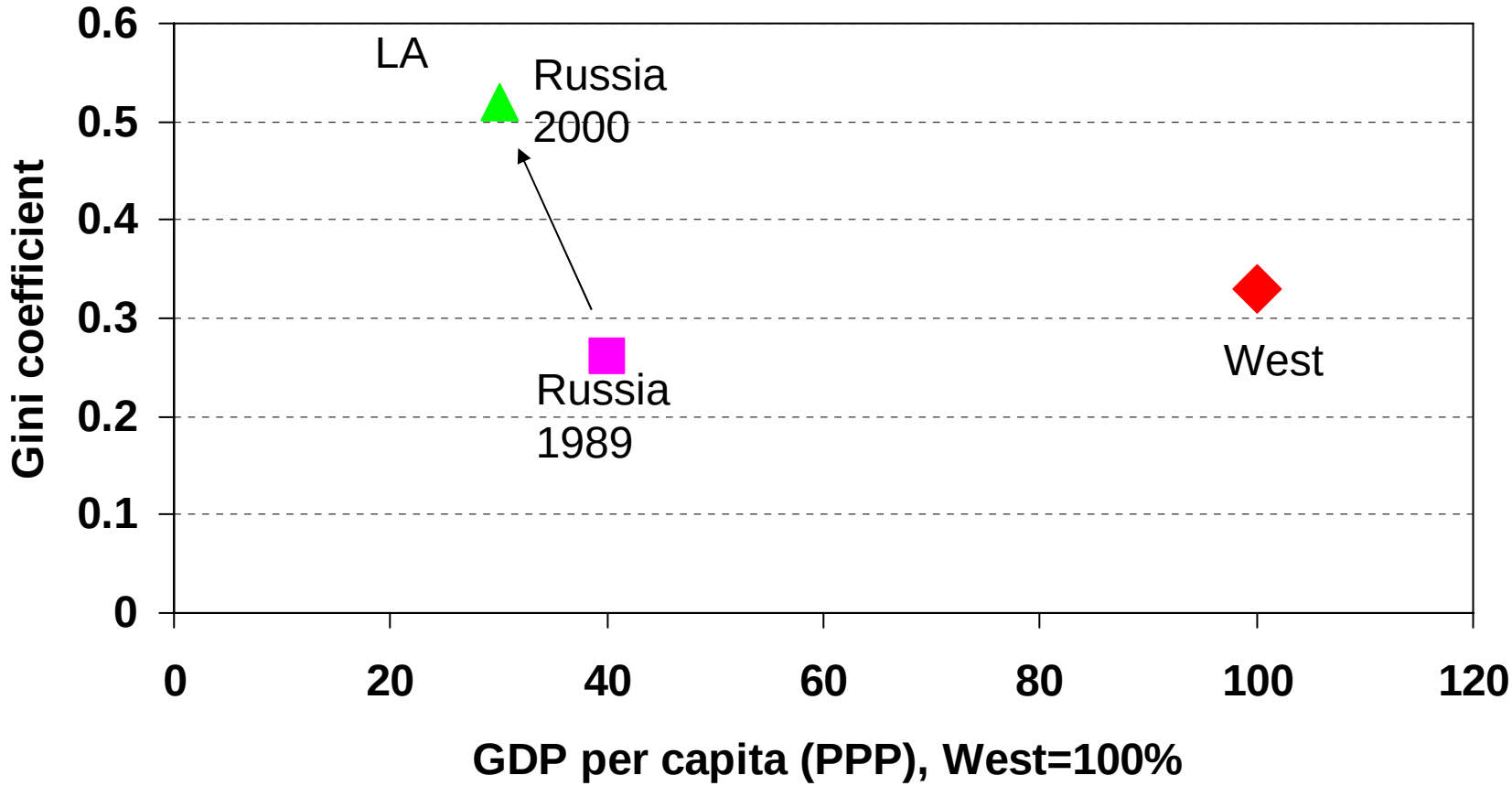
University College London

Central and Eastern Europe in 1990



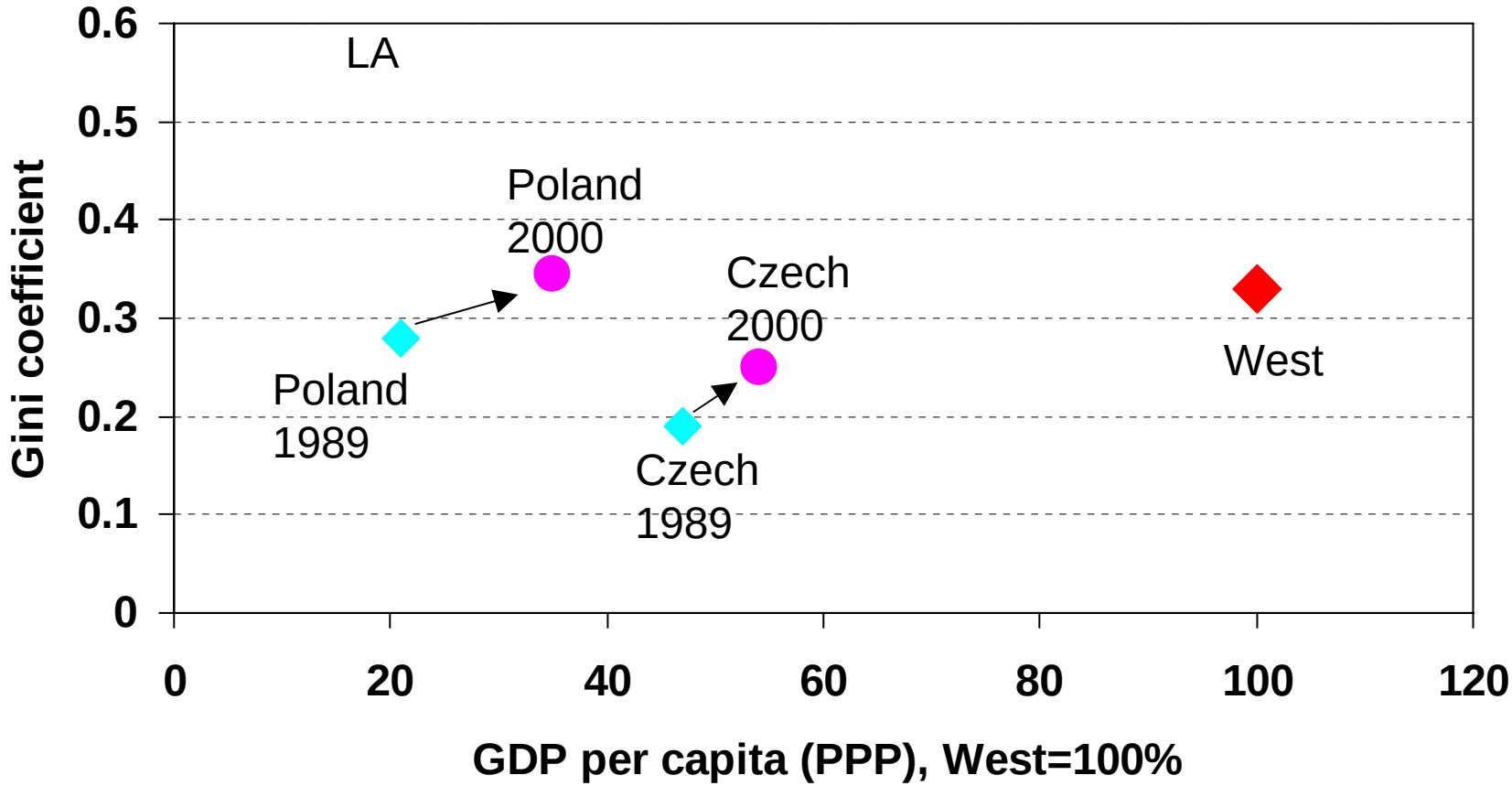
From Unicef

Russia 1989-2000 (Data from UNICEF)

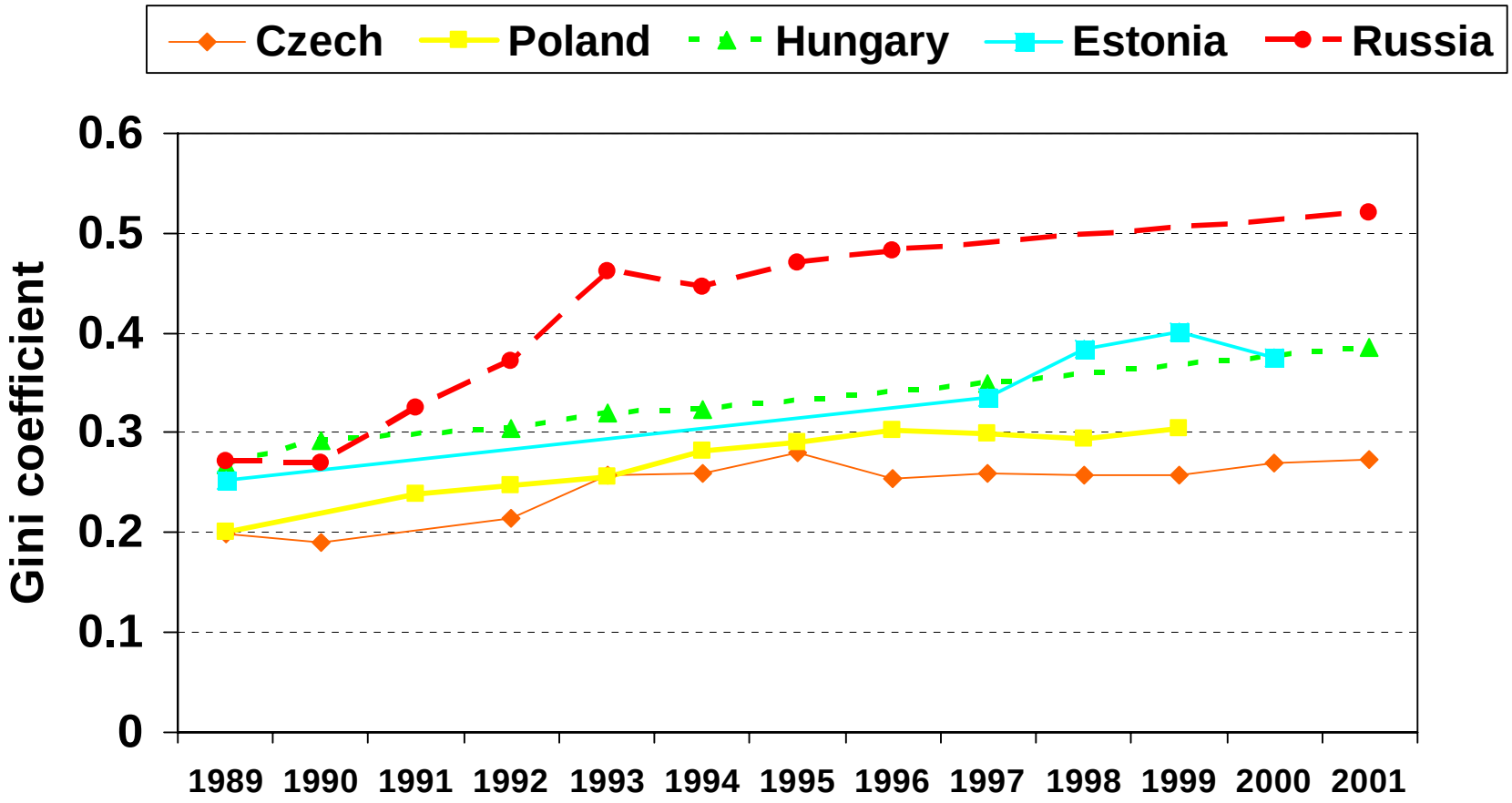


Poland and Czech Rep. 1989-2000

(Data from UNICEF)

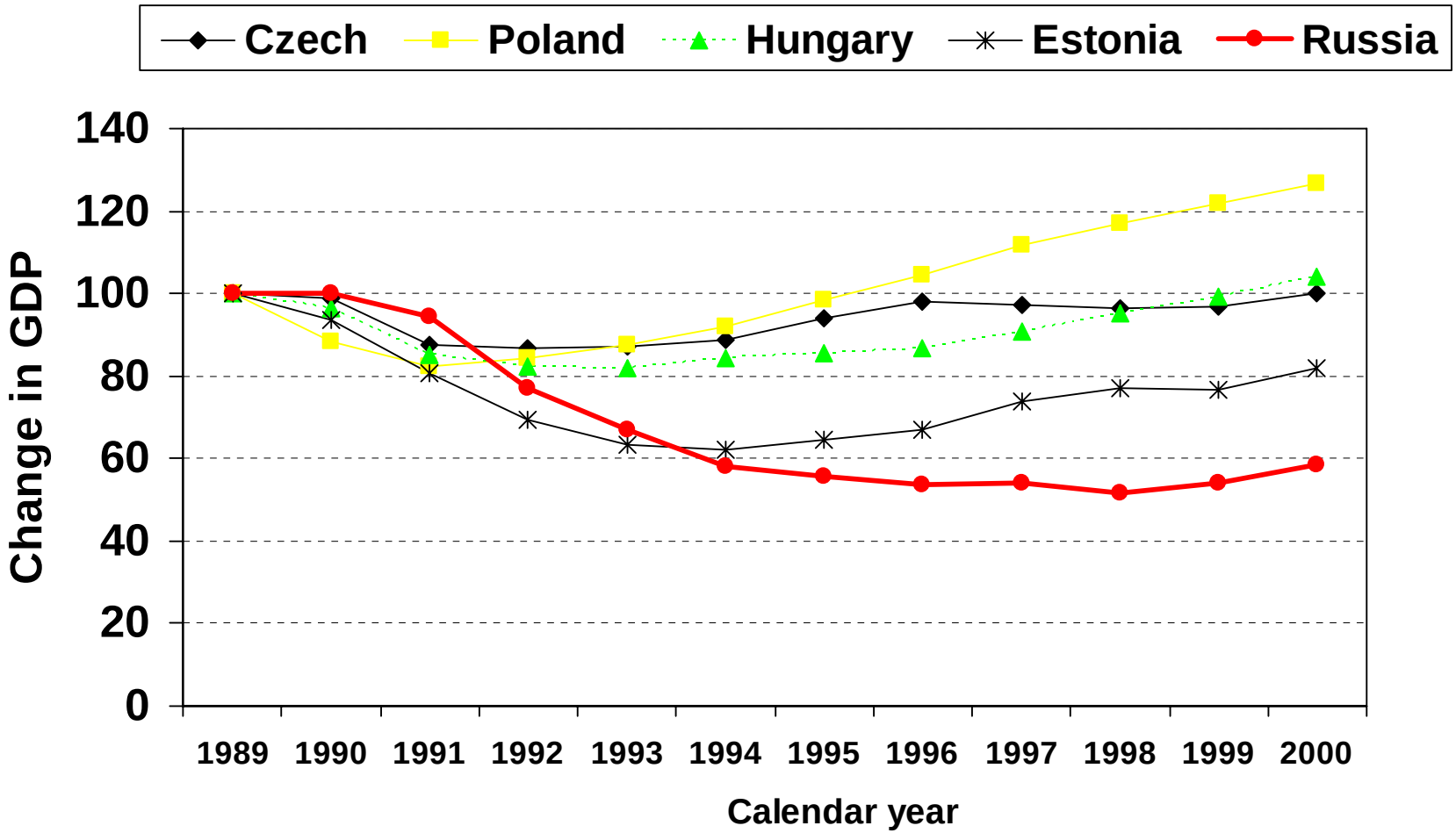


Trends in Gini after 1989



From Unicef, Social Monitor 2003

Change in GDP after 1989 by country



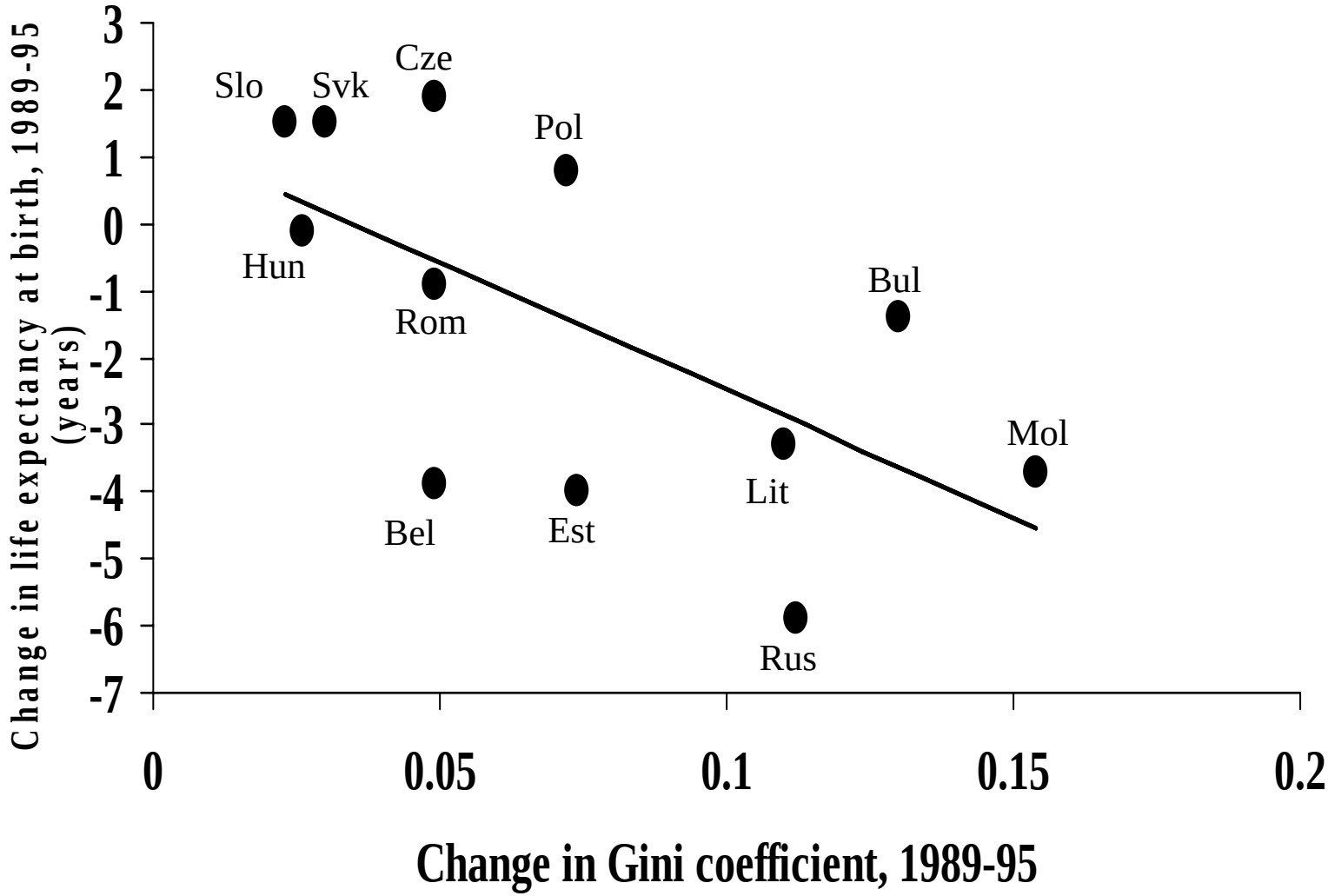
Index , 1989 = 100

From Unicef, Social Monitor 2003

Impact of transition differs by:

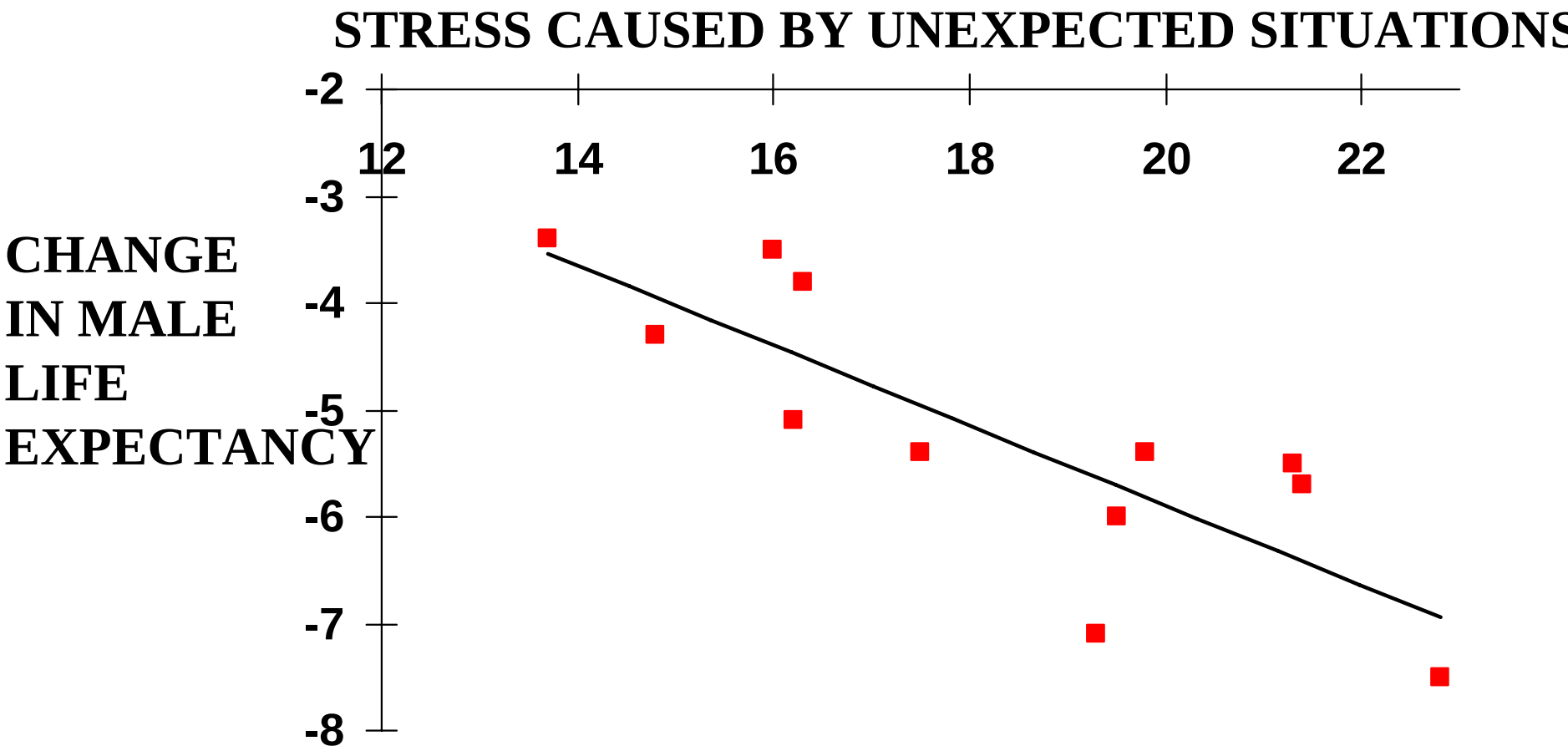
- Geography
- Socioeconomic status
- …?

CHANGE IN LIFE EXPECTANCY BY INCREASE IN INCOME INEQUALITY, 1989-95



Marmot & Bobak, BMJ 2001

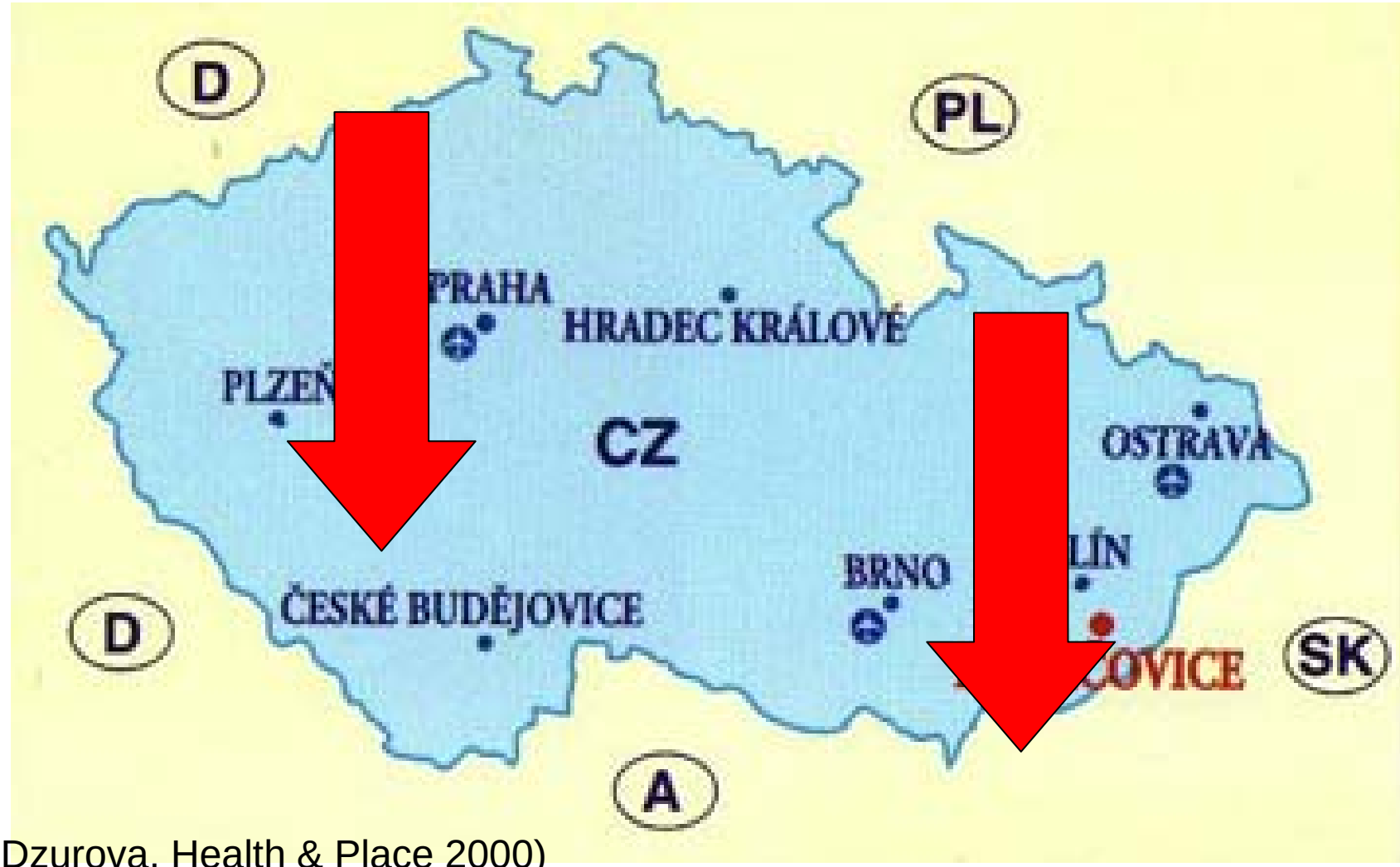
CHANGE IN LE BY SOCIAL STRESS IN 12 RUSSIAN REGIONS, 1989-94



*UNEMPLOYMENT, LABOUR TURNOVER, CHANGE IN MARRIAGE AND DIVORCE RATE

(Cornia 1997)

Mortality gradient in the Czech Republic in 1990: North to South

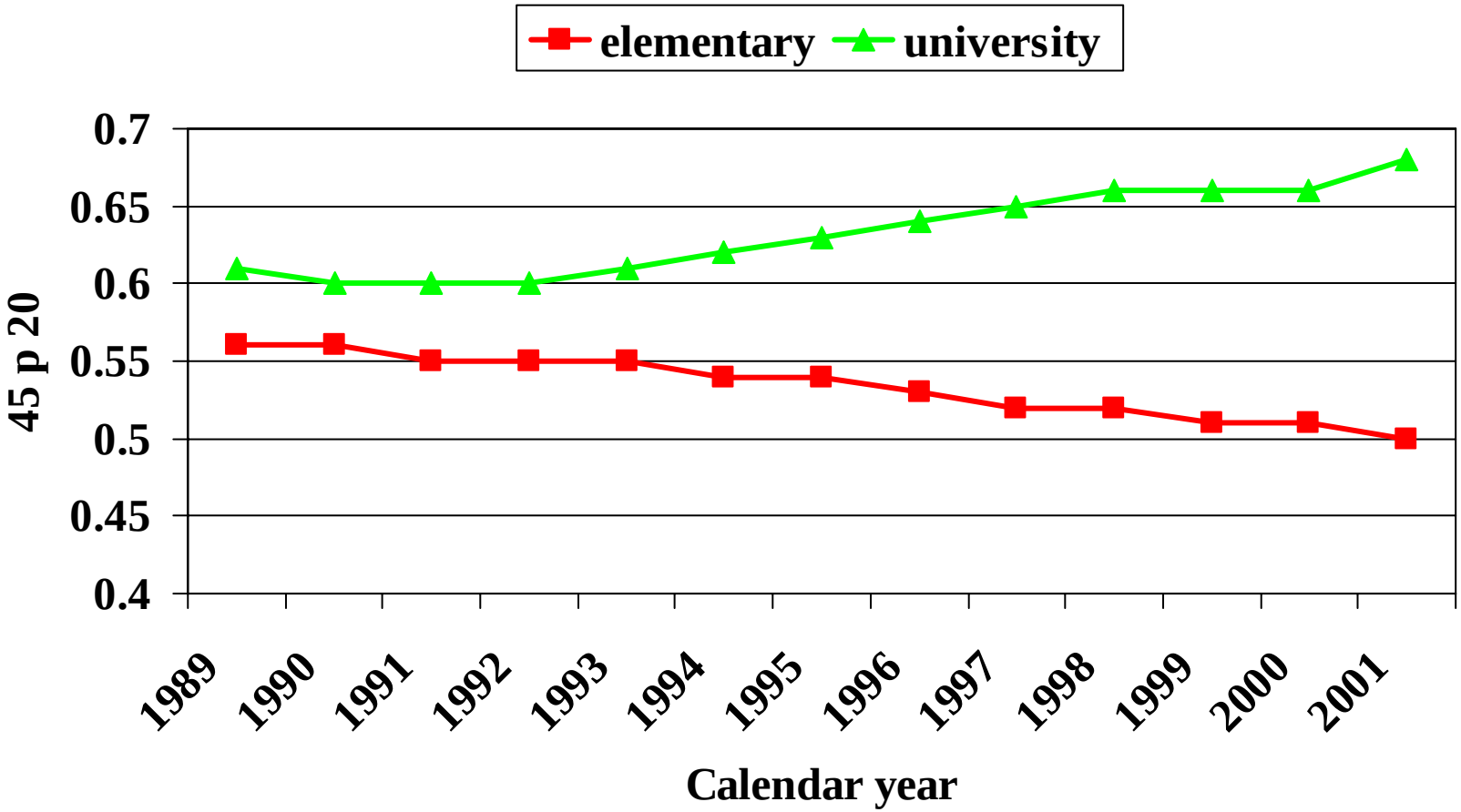


(From Dzurova, Health & Place 2000)

Mortality gradient in the Czech Republic in 1996: East to West

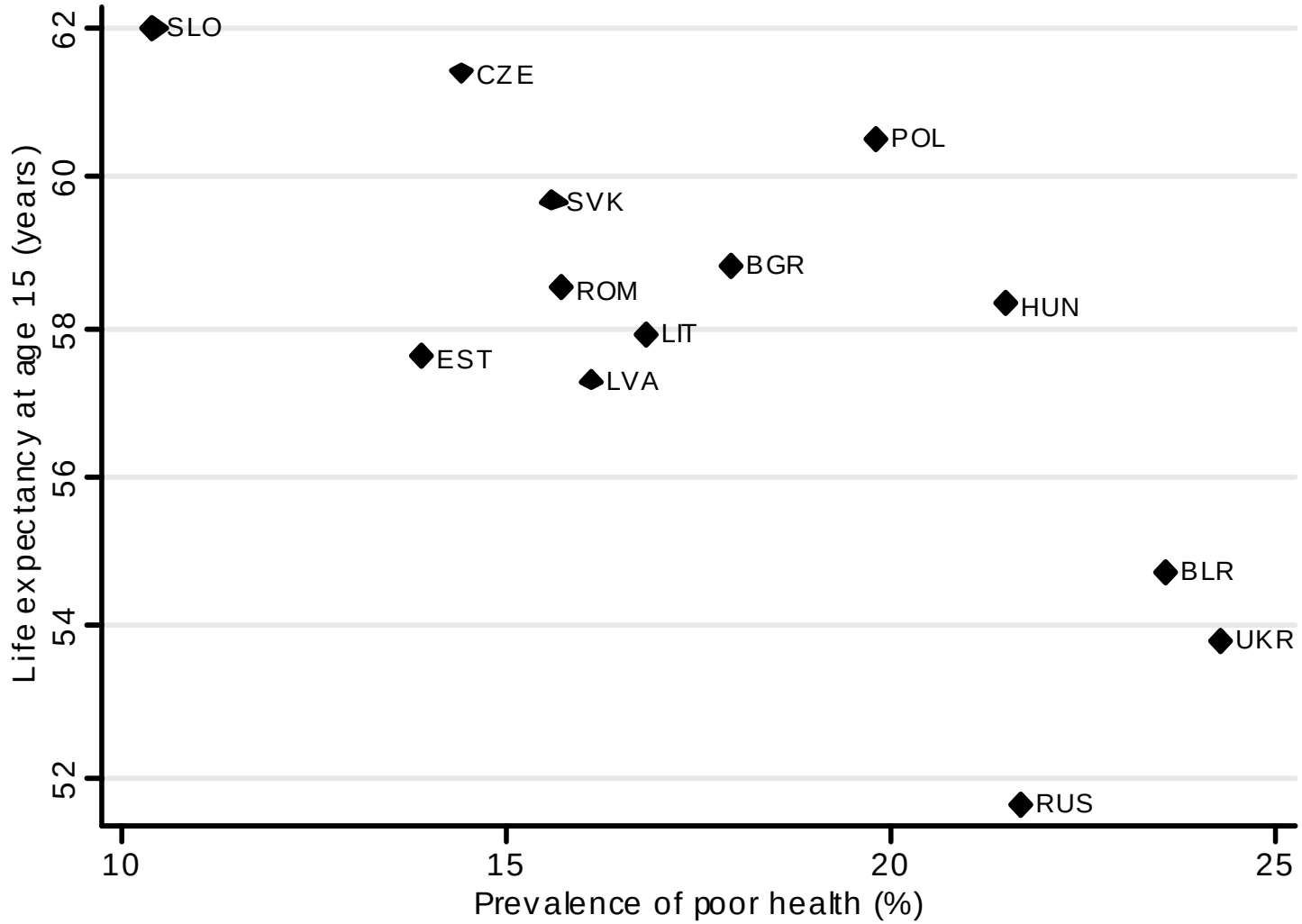
(From Dzurova, Health & Place 2000)

Trends in probability of survival in men by education (relatives' study)



45 p20 = probability of living to 65 yrs when aged 20 yrs

Age-sex adjusted prevalence of poor self-rated health and life expectancy at age 15 (r -0.73, p=0.005, n=13)



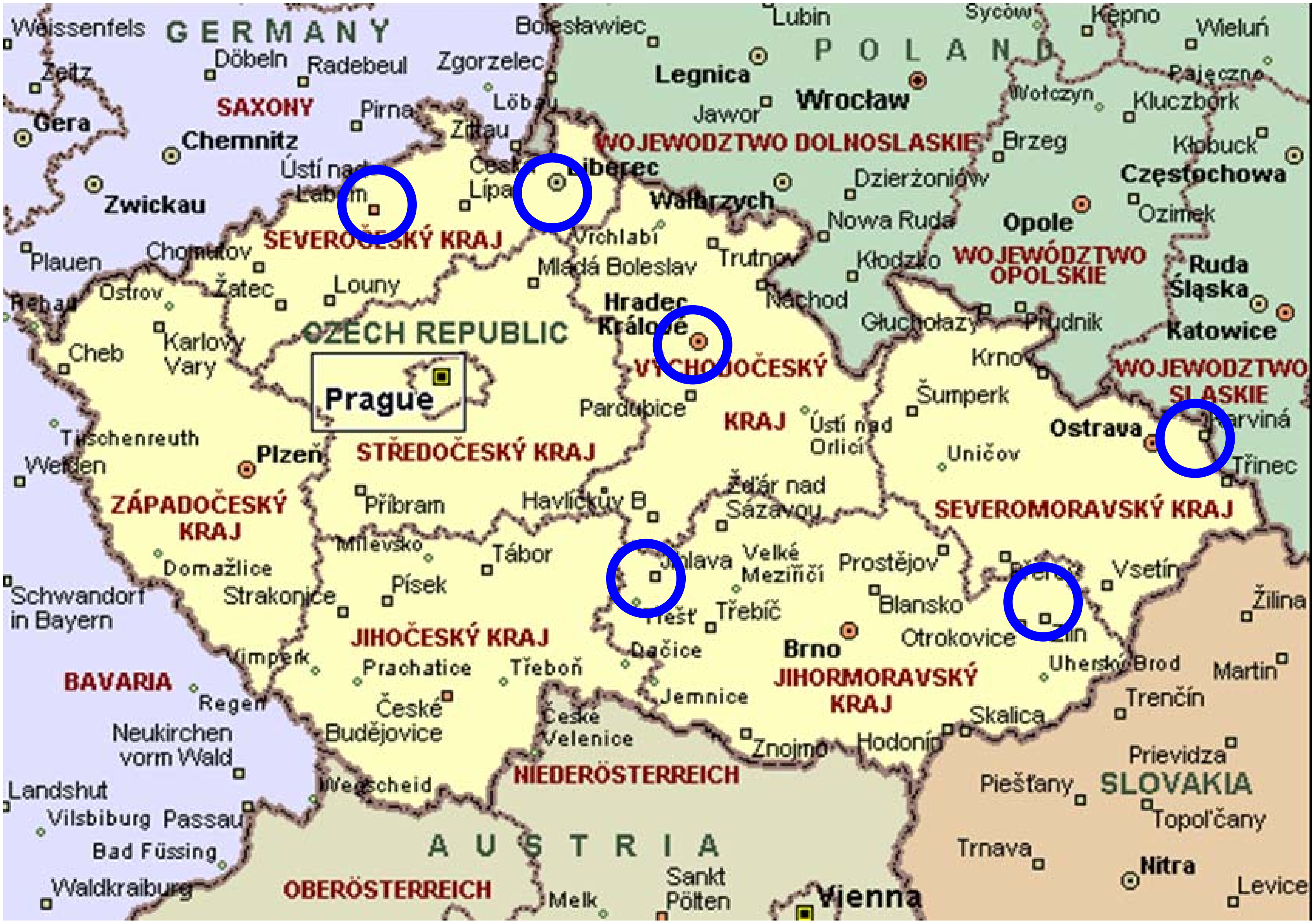
Bobak et al, JECH 2007

Odds ratios (95% confidence intervals) of poor health by societal characteristics in different multi-level models

Societal characteristic, unit of effect	*Odds ratio adj. for age and sex*	*Odds ratio adj. for age, sex and individual SES*
GDP PPP, per $5000 increase	0.75 (0.65-0.86)	0.79 (0.68-0.93)
Annual growth, per 1%	0.90 (0.83-0.98)	0.93 (0.85-1.02)
Max. economic contraction, per 10%	1.10 (1.01-1.20)	1.08 (0.99-1.19)
Gini coefficient, per 0.1 unit increase	1.15 (0.95-1.39)	1.12 (0.93-1.34)
Corruption index, per 1 unit (0 to 10)	1.20 (1.08-1.33)	1.15 (1.03-1.29)
Homicide rates (per 10/100,000 increase)	1.09 (1.00-1.19)	1.08 (0.98-1.18)
Ratio of $80^{th}/20^{th}$ income percentile, per 1 unit increase	1.13 (0.92-1.39)	1.05 (0.84-1.32)
Ratio of $90^{th}/10^{th}$ income percentile, per 1 unit increase	1.02 (0.95-1.11)	1.00 (0.93-1.09)

Bobak et al, JECH 2007

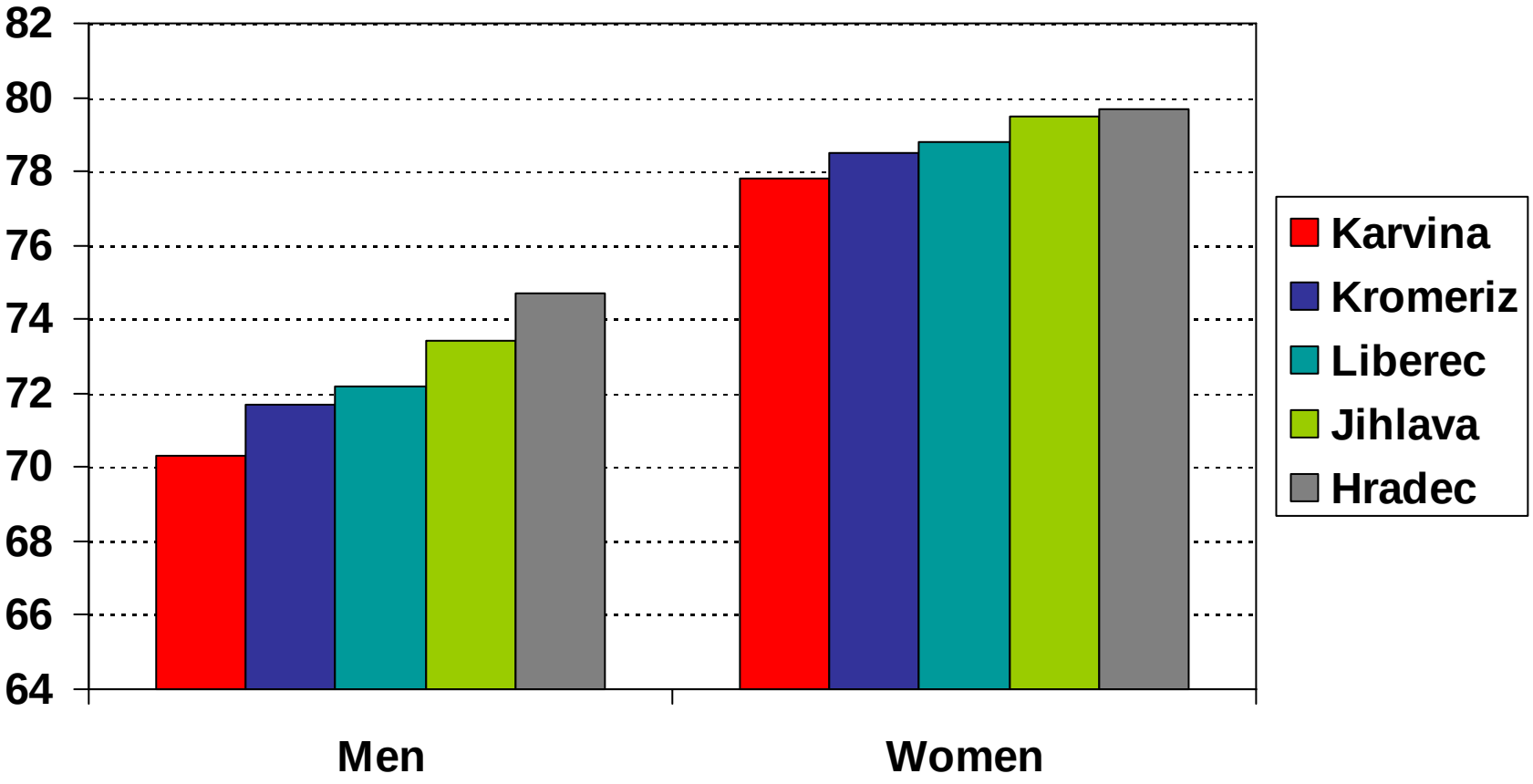
The Czech HAPIEE study



Czech HAPIEE Study

- 4,123 men and 4,729 women
- Response rate 59%
- Random population samples
- Aged 45-69 at baseline (2002-2005)
- 7 cities in total
- 2 cities in North Moravia (Havirov & Karvina)

Life expectancy at birth in Czech town in 2001-2005



Karvina / Havirov (North Moravia)

- Centre of mining & heavy industry before 1990
- Massive closures of enterprises
- Huge losses in employment after 1990

- In top 10 cities by
  - Unemployment (13%, highest in the country)
  - Crime
  - Out-migration
  - Quality of living
  - …

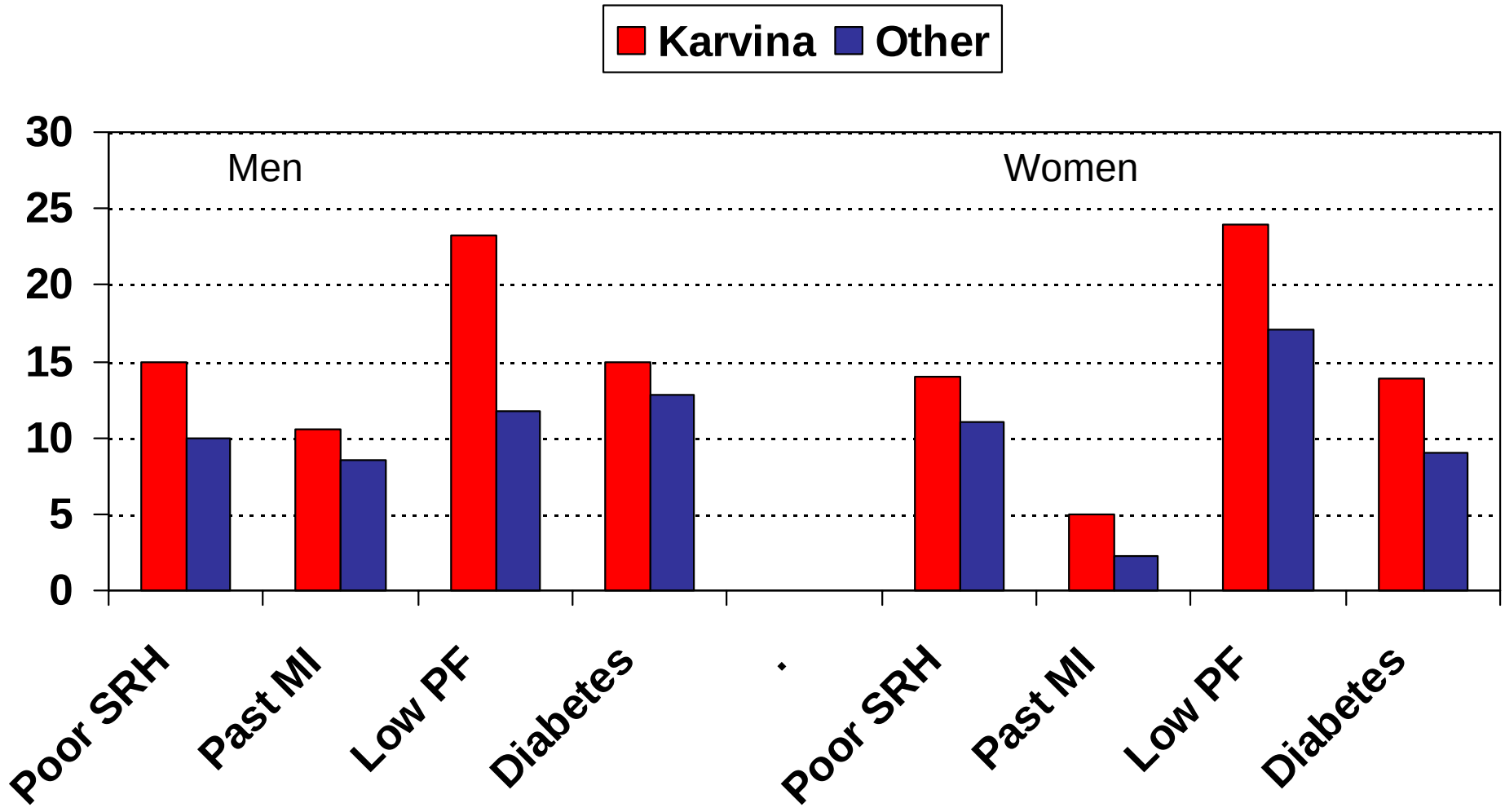
Do these differentials exist in micro-data?

- Health
- Health behaviours / risk factors
- Socioeconomic status
- Psychosocial factors

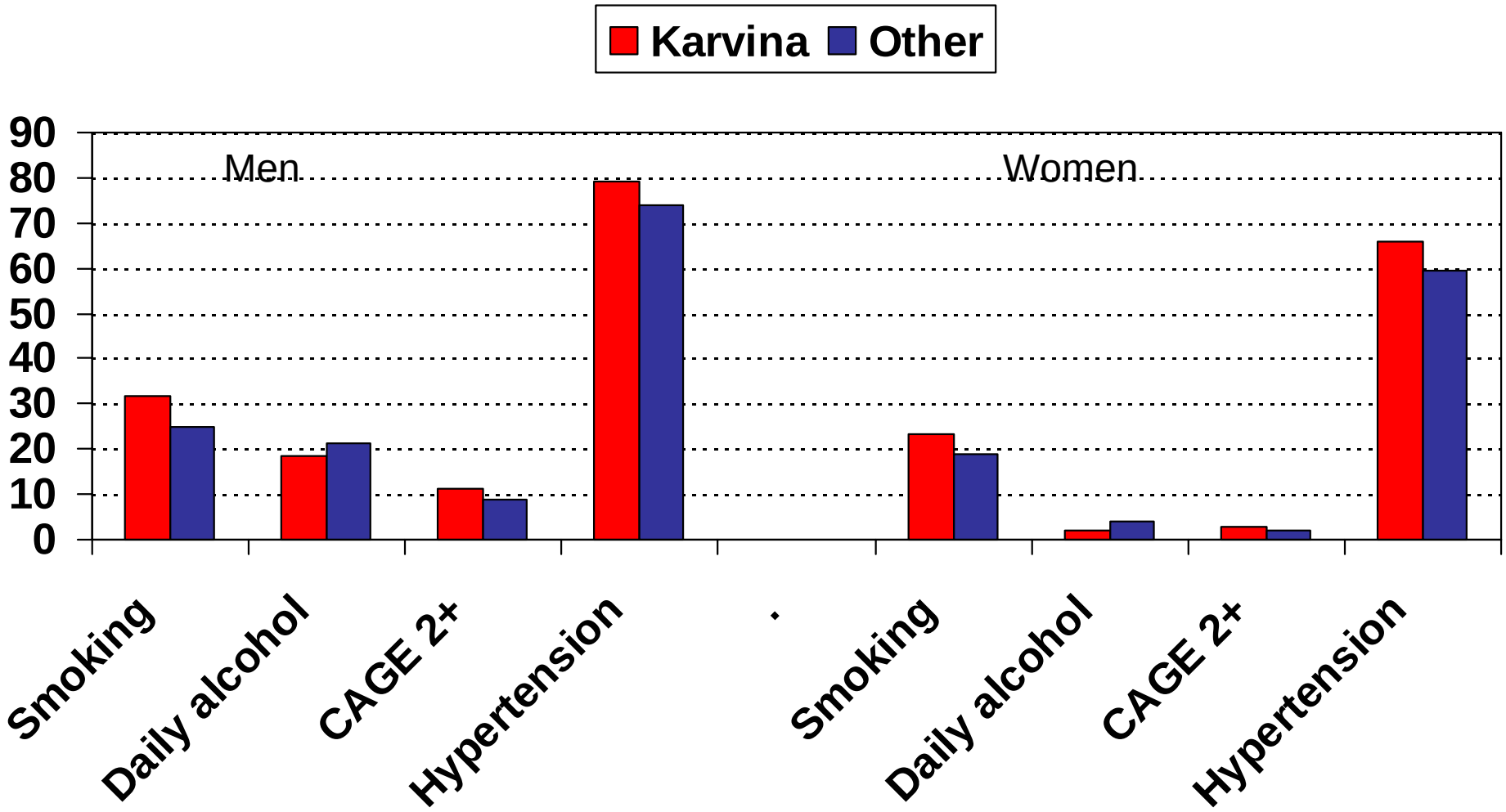
And…

… do these factors explain the health disadvantage?

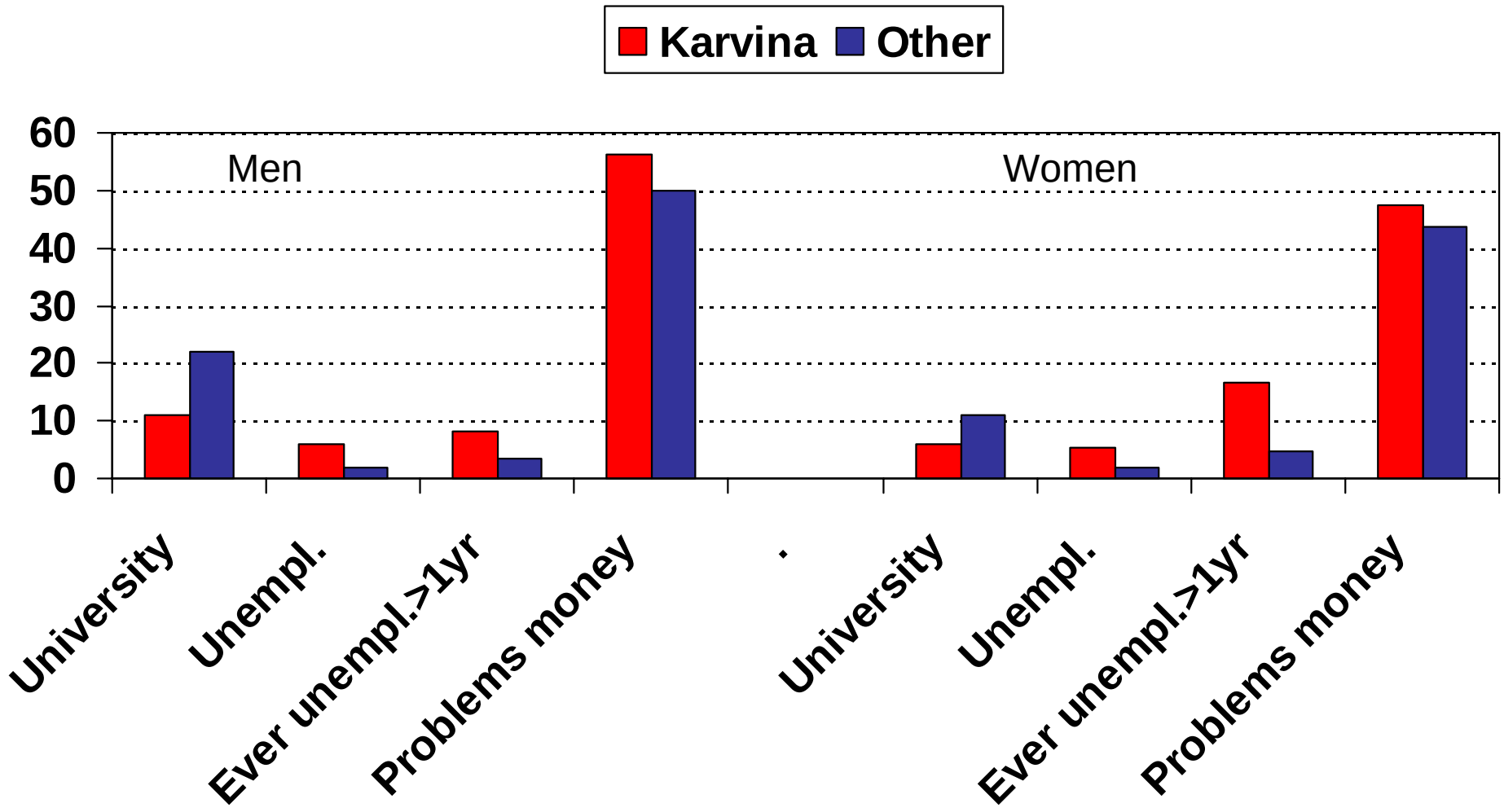
Prevalence (%) of health outcomes by town



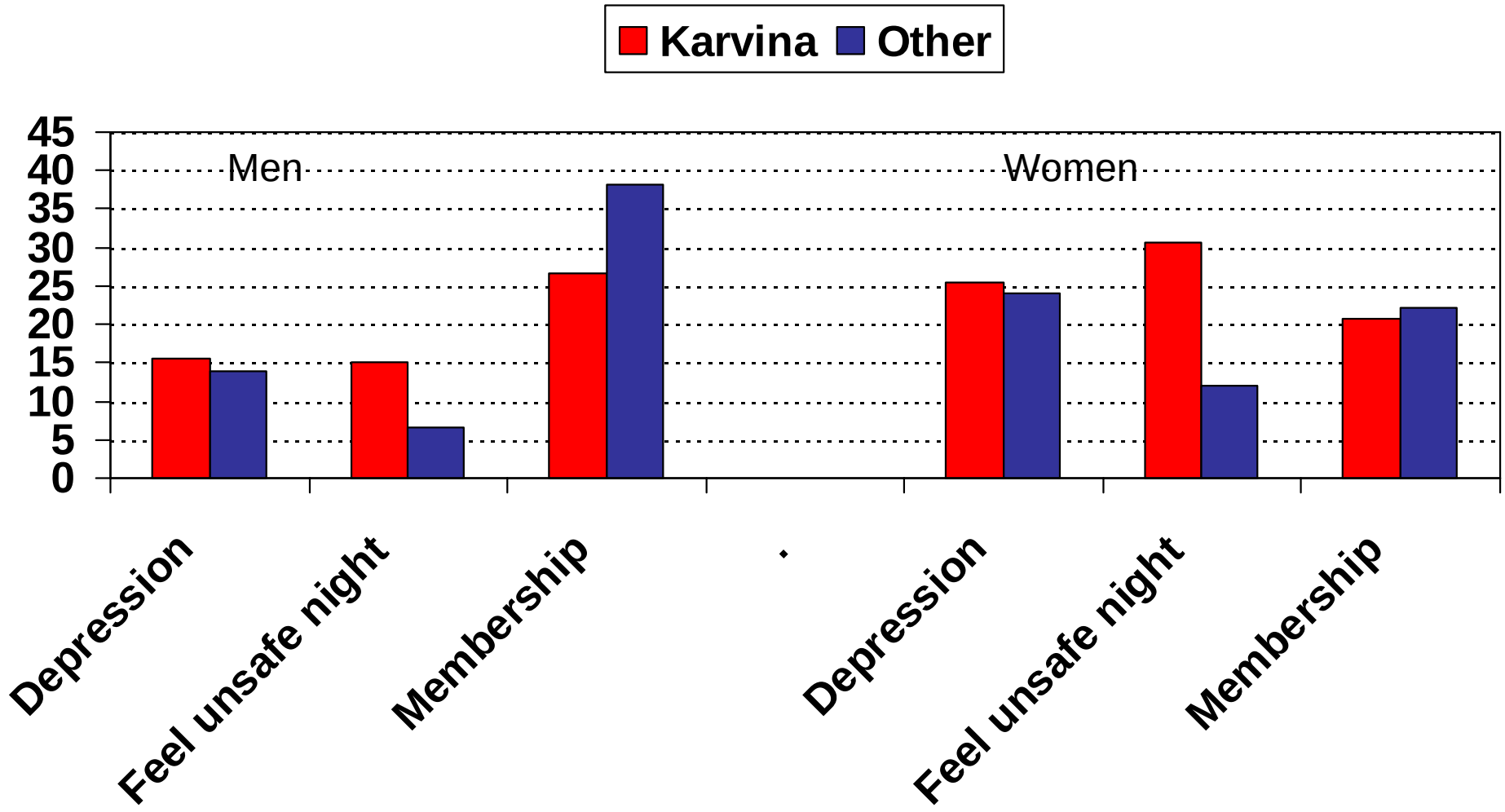
Health behaviours and risk factors by town (%)



Socioeconomic status by town (%)



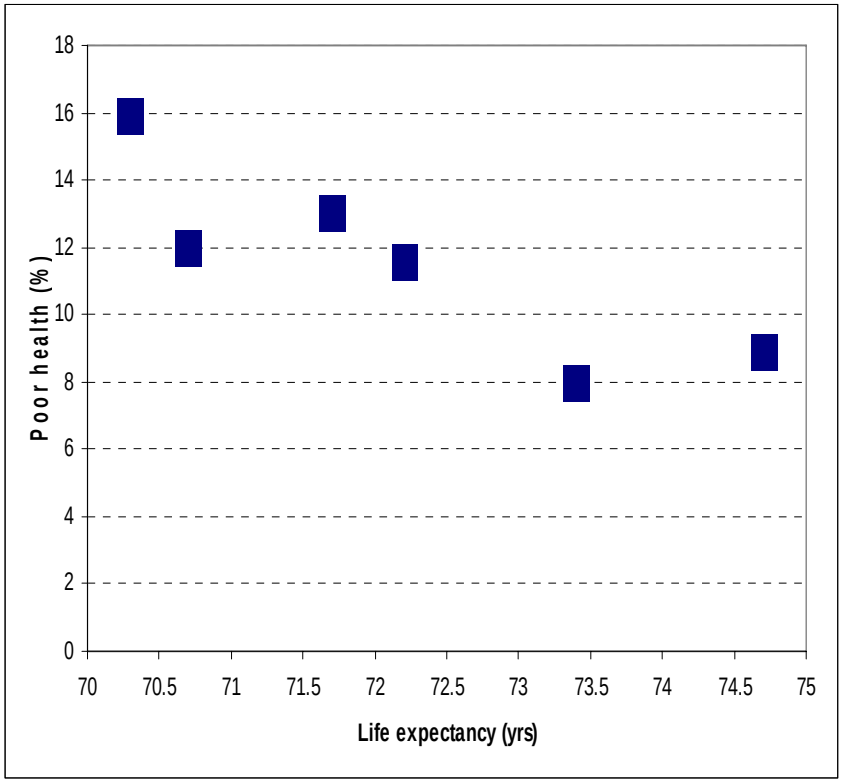
Psychosocial factors by town (%)



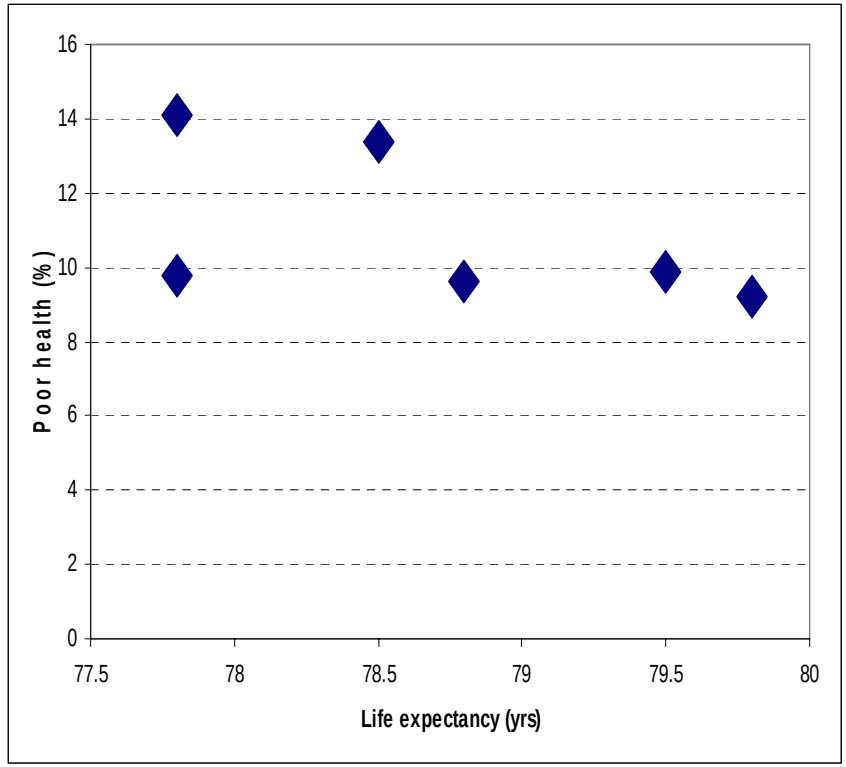
Do these factors explain differences in poor self-rated health?

Life expectancy vs. self-rated health

Men (r=-0.87)



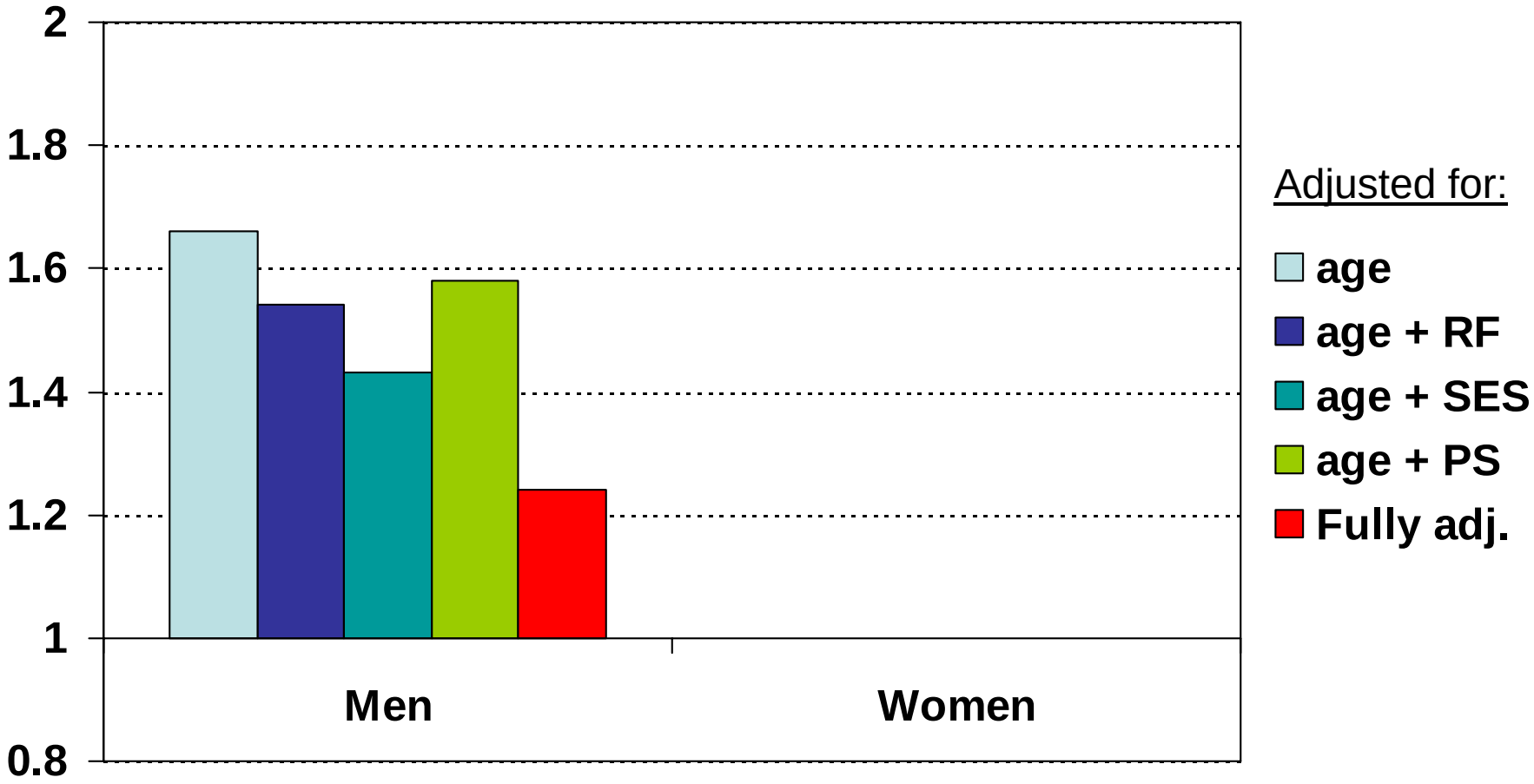
Women (r=-0.57)



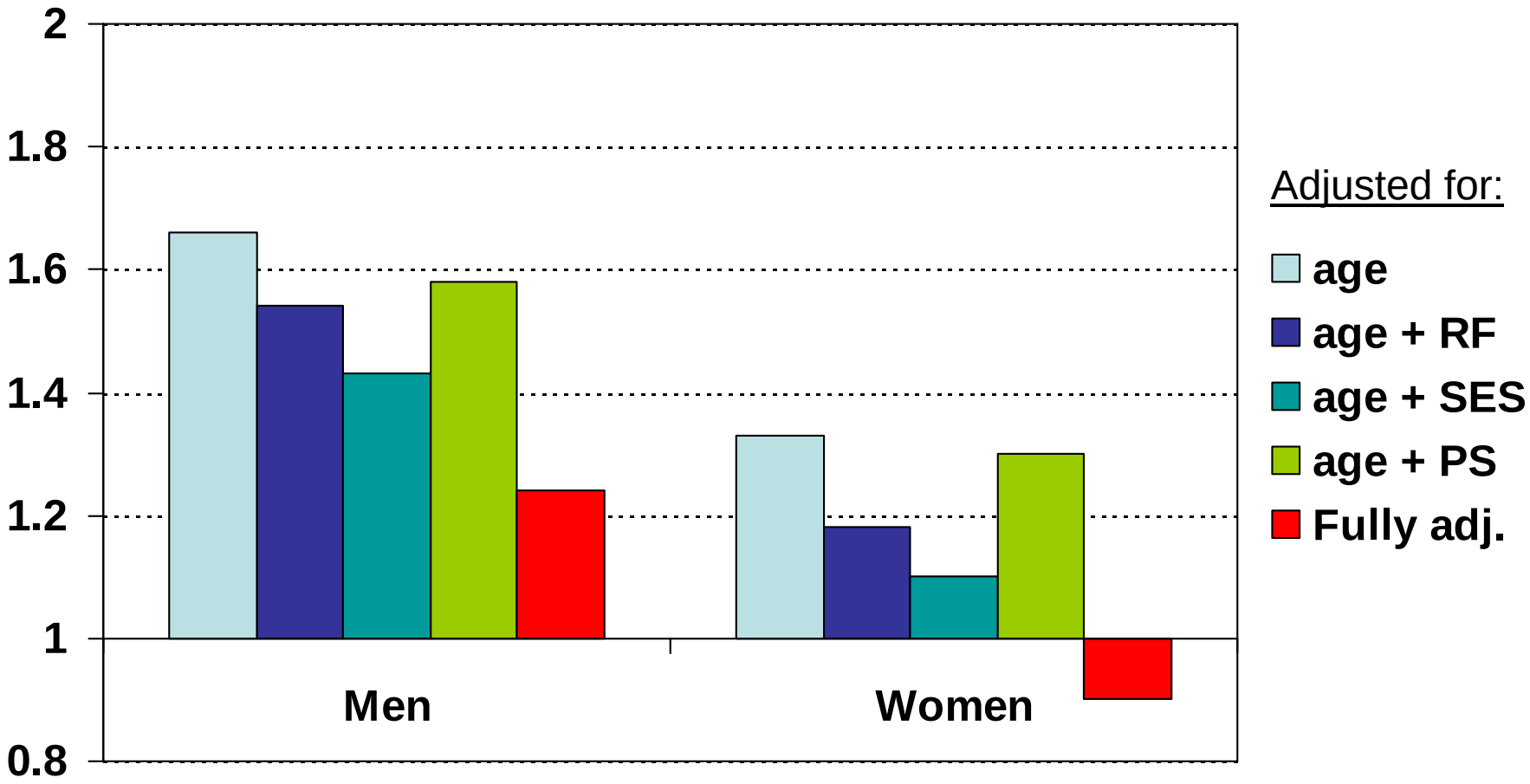
Odds ratios of poor health for Karvina vs. other towns

Adjusted for	Men	Women
Age	1.66 (1.30-2.11)	1.33 (1.05-1.70)
Age + RF	1.54 (1.15-2.06)	1.18 (0.88-1.58)
Age + SES	1.43 (1.10-1.86)	1.10 (0.84-1.43)
Age + PS	1.58 (1.20-2.08)	1.30 (0.99-1.70)
Fully adjusted	1.24 (0.89-1.72)	0.90 (0.64-1.26)

Odds ratios of poor SRH for Karvina vs. other towns



Odds ratios of poor SRH for Karvina vs. other towns



Conclusions

- Societal transition had differential effects
  - by socioeconomic group
  - by geography
- Increasing inequalities
- Can affect health of whole populations
- A number of potential mediators
- Explanation requires individual level data

EM-Closing the Gap
Reducing Premature Mortality.
Baseline for Monitoring Health
Evolution Following Enlargement.

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Exploring health in Scotland and other parts of post-industrial Europe

The experience of Poland

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Marta Mańczuk

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Wednesday June 18th 2008

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„Where observation is concerned, chance favours only the prepared mind”

„Dans les champs de l'observation le hasard ne favourise que les esprits préparés”

Louis Pasteur

French biologist & bacteriologist (1822 - 1895)

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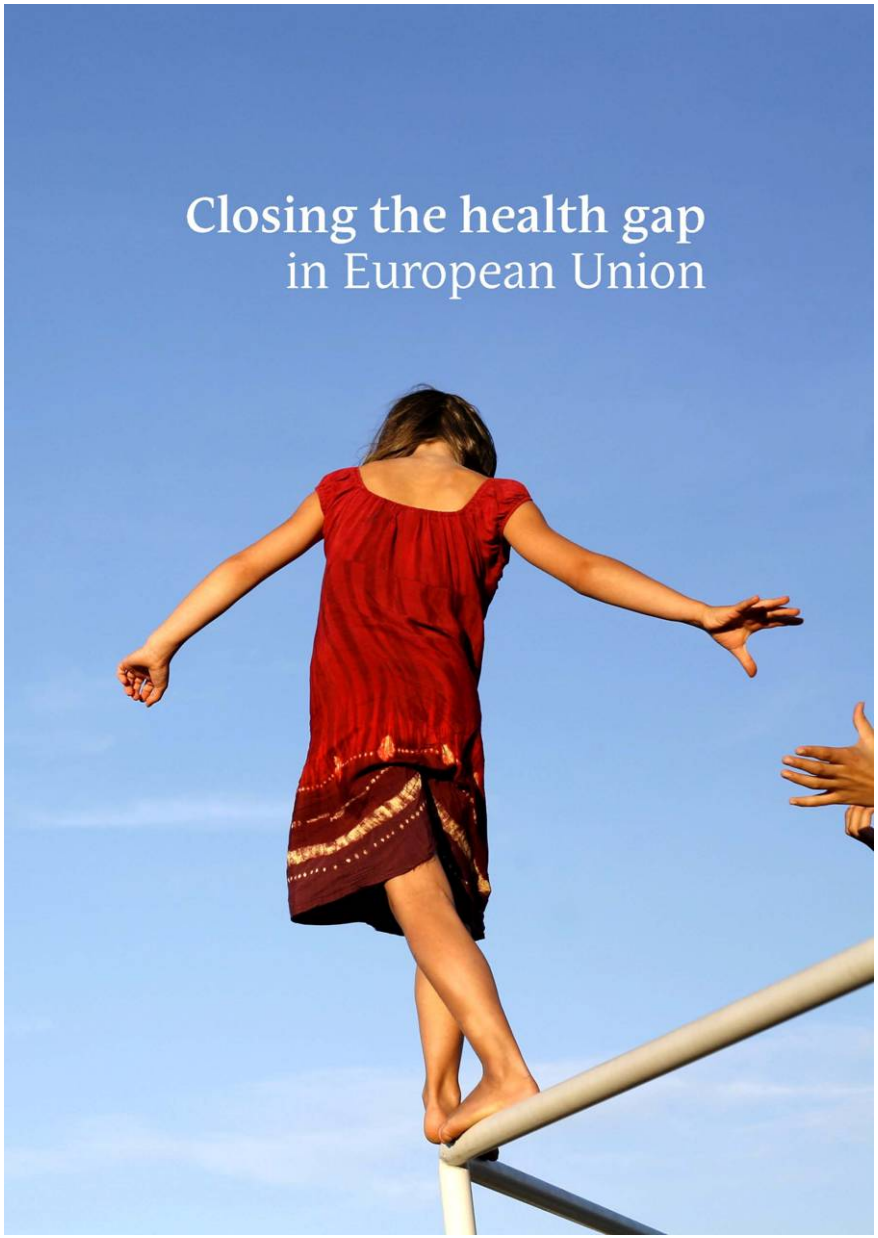

- *Closing the Gap - Reducing Premature Mortality. Baseline for Monitoring Health Evolution Following Enlargement* (HEM) – action no 2003121

- The final report will be available by the end of June 2008 at the project website:

  www.hem.waw.pl

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History of the project

- The project was submitted to the European Commission and has been accepted among other European Union programs in the field of public health for years 2003-2008 (grant agreement no 2003121)

- End of the project – April 2008

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Aims of the project

- To improve understanding of underlying causes of health differences between the new and old EU member states.
- To identify and quantify major health determinants responsible for the gap existing between the new and old EU member states.
- To define priorities for intervention: general (all accession countries) as well as country-specific;
- To produce a Blueprint including major indications for public health intervention /action plan for intervention/;
- To present the Blueprint to the European Commission and Governments of accession countries, in order to finalize priorities for intervention on a public health scale.
- To widely disseminate the evidence- and science-based data on health status and the possibilities for reducing premature mortality, especially in all accession countries in local languages.

- # Geographic scope:
  - The project includes 25 European Union countries with a special reference to EU10: Poland, Czech Republic, Slovakia, Slovenia, Latvia, Lithuania, Estonia, Hungary – EU members since May 2004 (Malta and Cyprus excluded from the analysis) + Romania, Bulgaria – EU members since January 2007; and to EU15 countries (EU members before 2004). The Russian Federation is included in some comparisons.

- # Age groups of interest:
  - Basic age groups : 20-44, 45-64, for some conditions 20-64 and for comparison 65+, 0+

- # Time scope:
  - Longitudinal epidemiological descriptive analyses: the period of interest consists mainly of time trends we have been using data for EU10 and EU15 countries since the year 1969 until the year 2002;
  - Cross sectional analyses: of attributable burdens the year of reference was 2002, for considered risk factors distributions and for mortality.

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History of health in Poland

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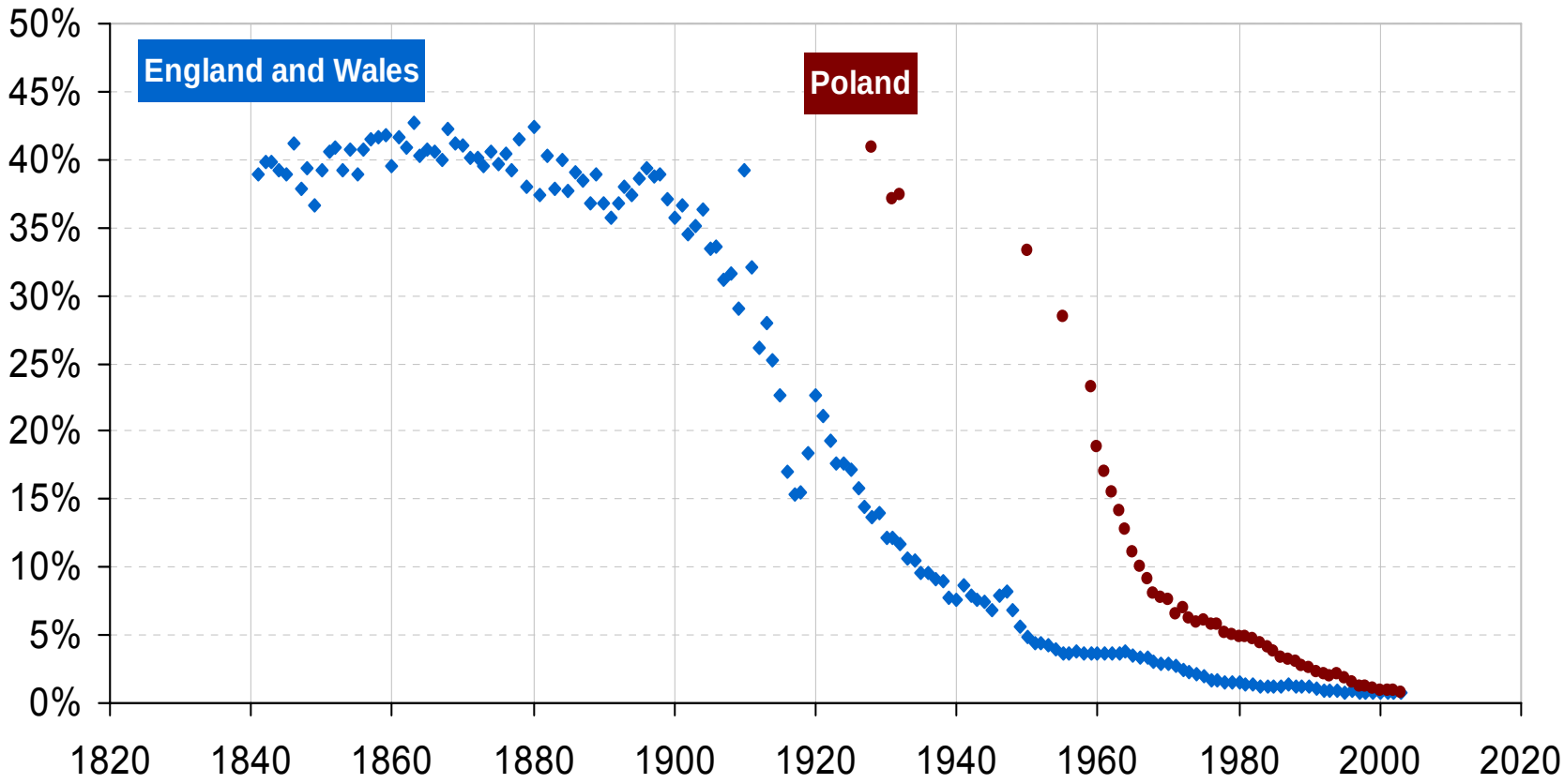
Percentage of deaths before the age of 5 years
Poland vs. England and Wales, both sexes



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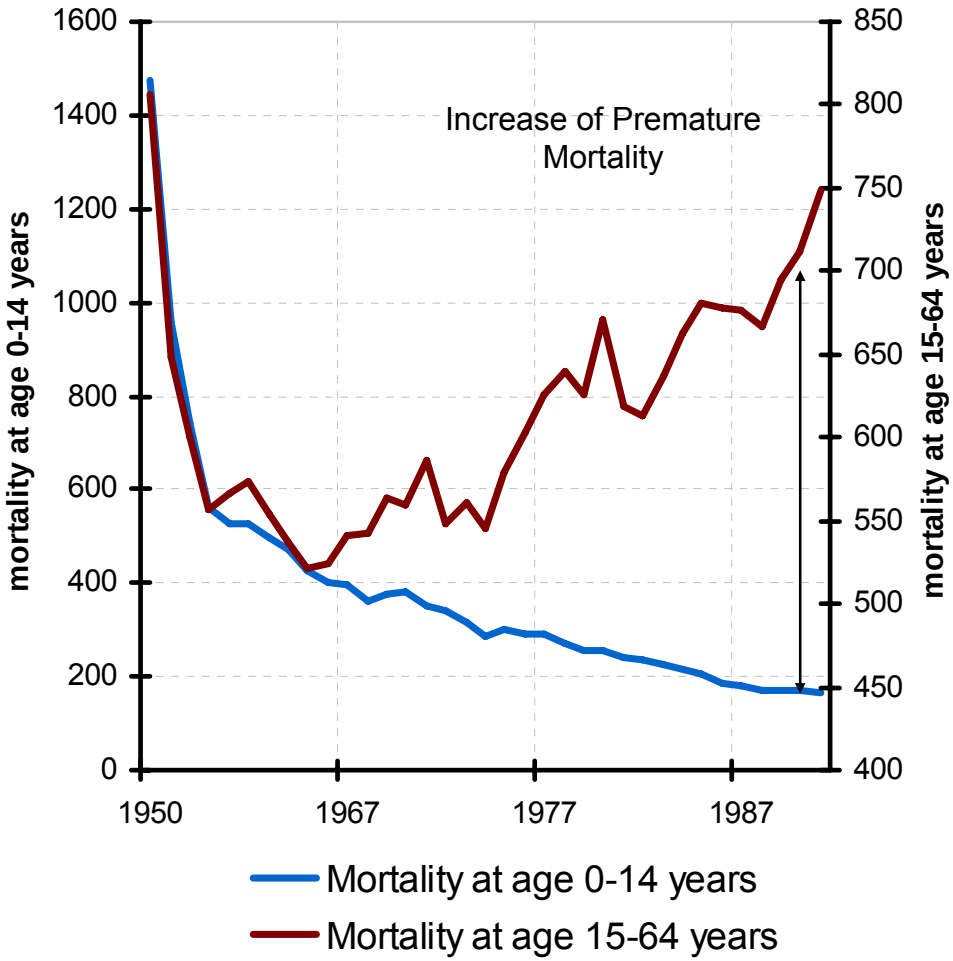
Total mortality trends in Poland at age 0-14 years at age 15-64 years, males



- Divergence of mortality trends in age groups in Poland
- Dramatic increase in young and middle-aged adults
- Systematic decline in age group 0-14 years

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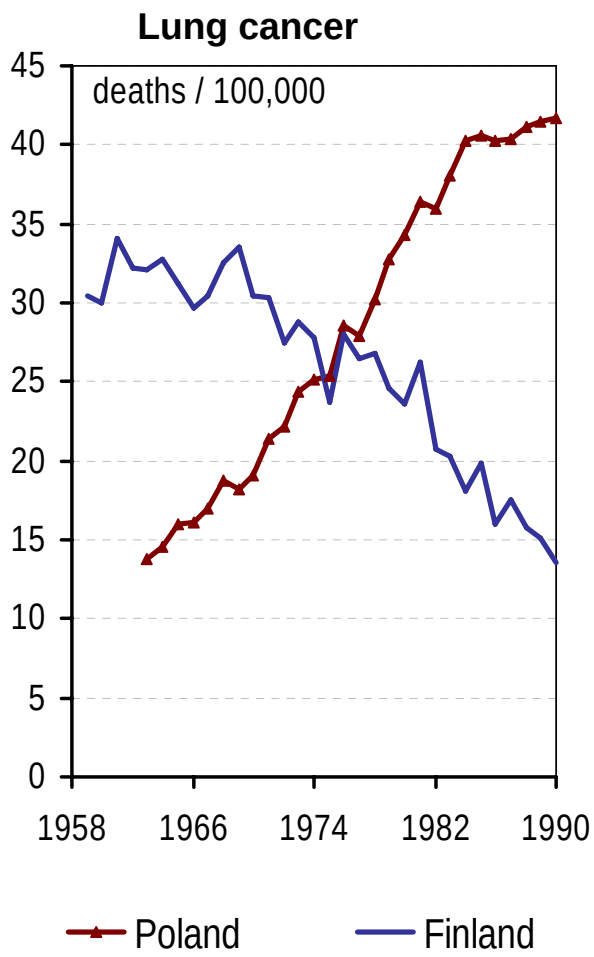
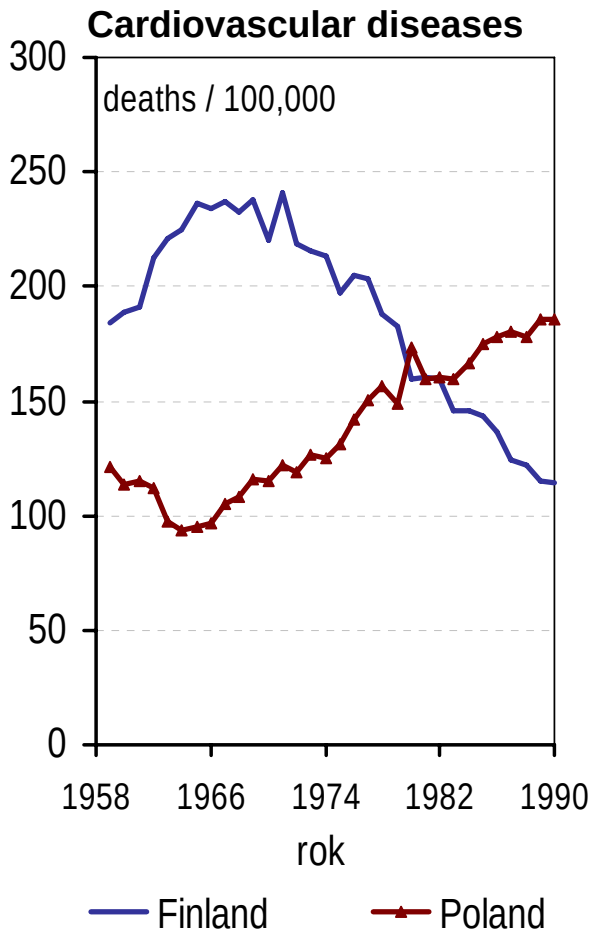
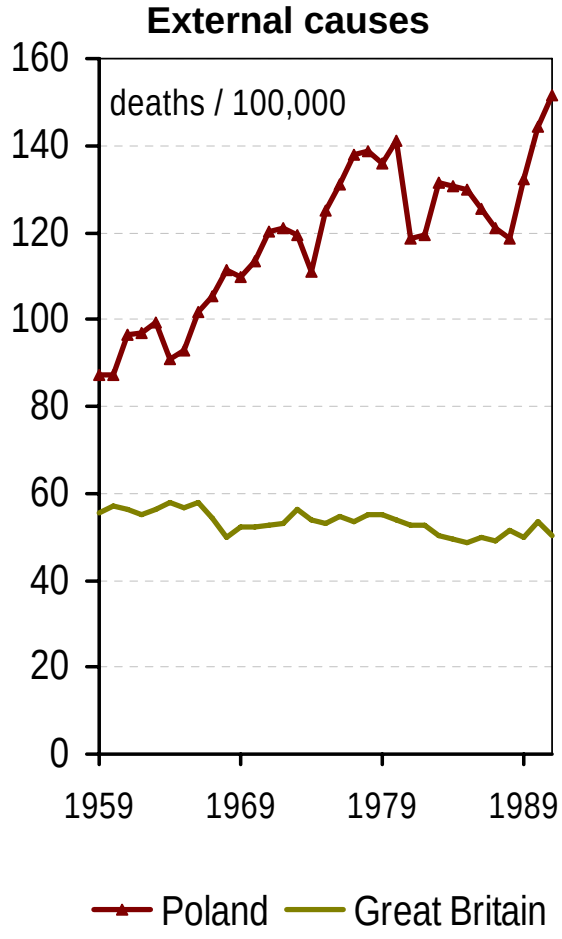
Male deaths at age 15-59, 1959-1990







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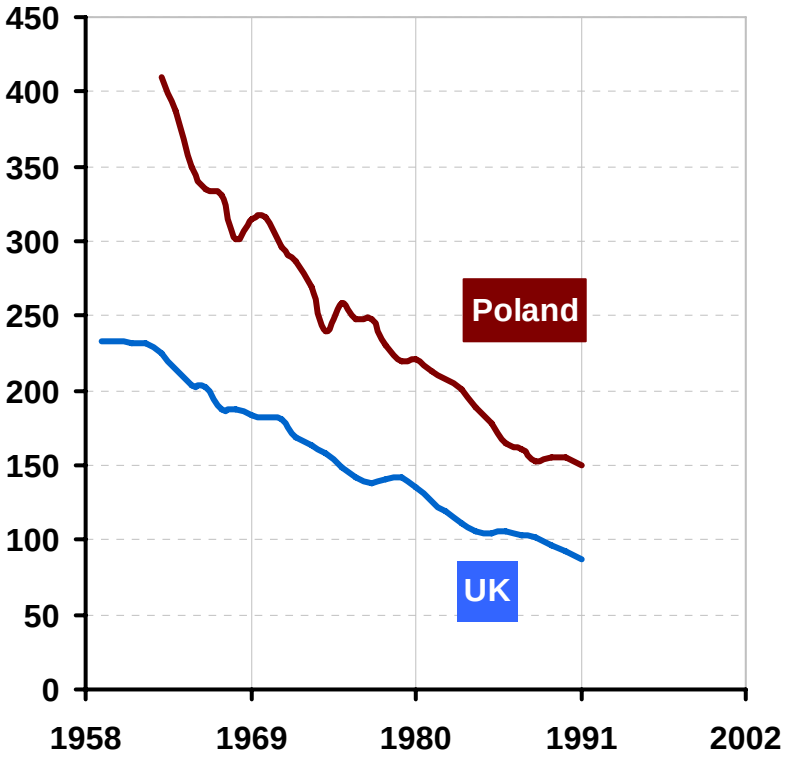
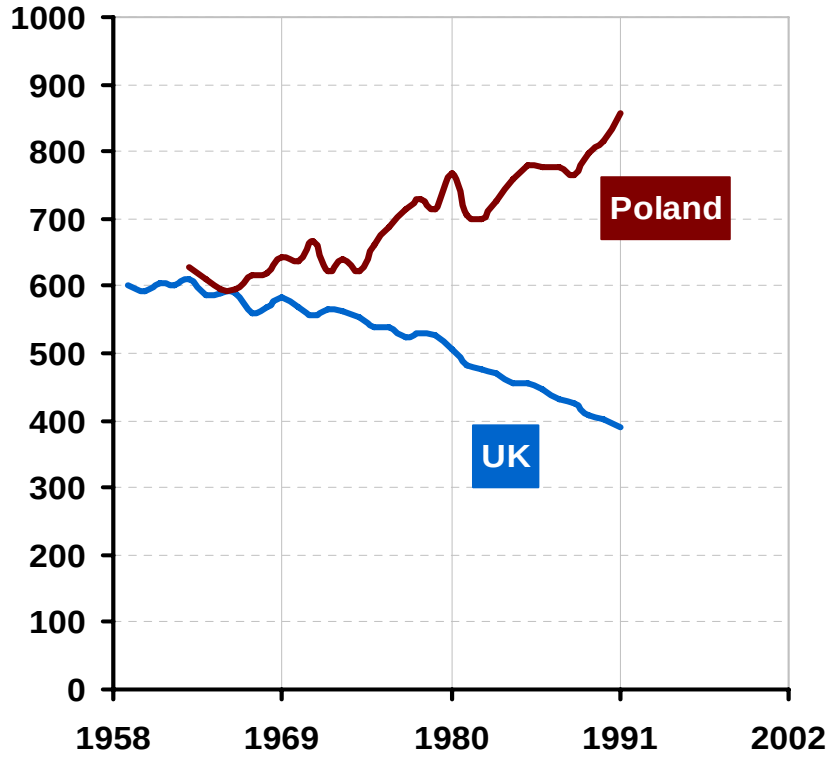
Total mortality in Poland and UK, 1963-1991

0-19



20-64



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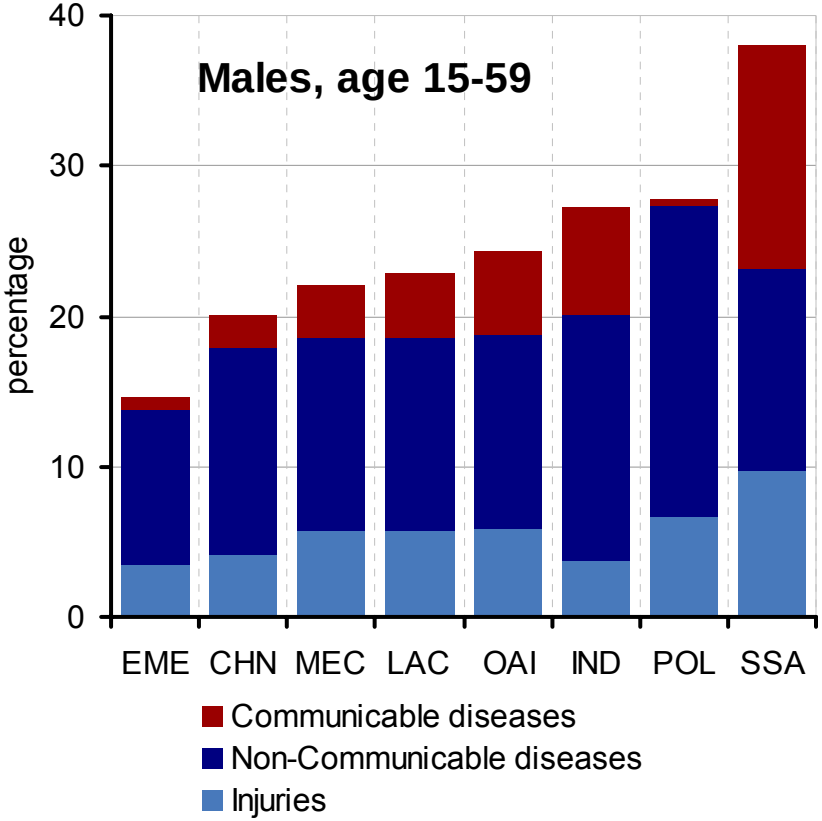
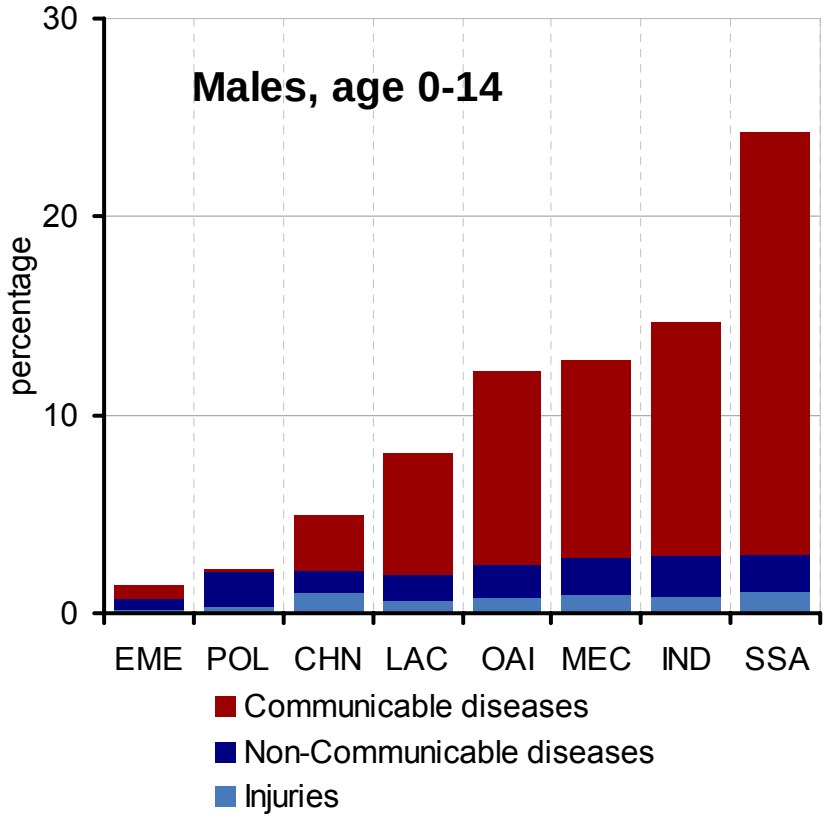
PROBABILITY OF DYING BY Region, 1990 (data adapted from Murray i Lopez, 1994)





EME – Established Market Economies
POL - Poland
CHN - China
LAC – Latin America and the Caribbean

OAI – Other Asia and Islands
MEC – Middle Eastern Crescent
IND - India
SSA – Sub-Saharan Africa

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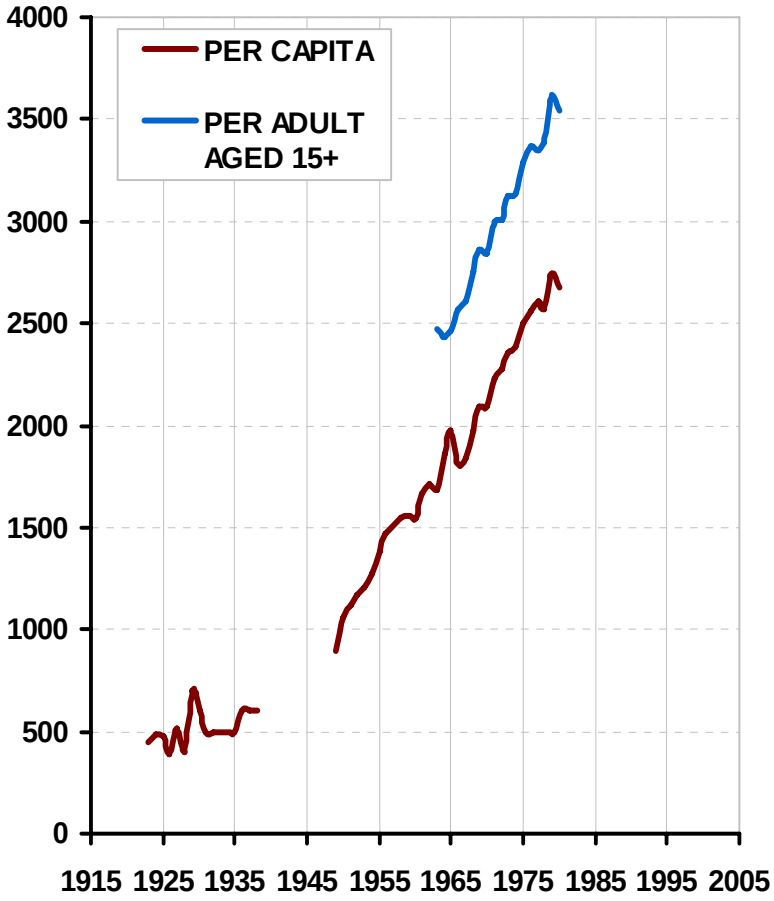
Cigarette consumption per capita, Poland 1923-1980



- Dramatic increase of cigarette consumption
- In the 1980s in Poland there was observed the highest tobacco consumption in the world

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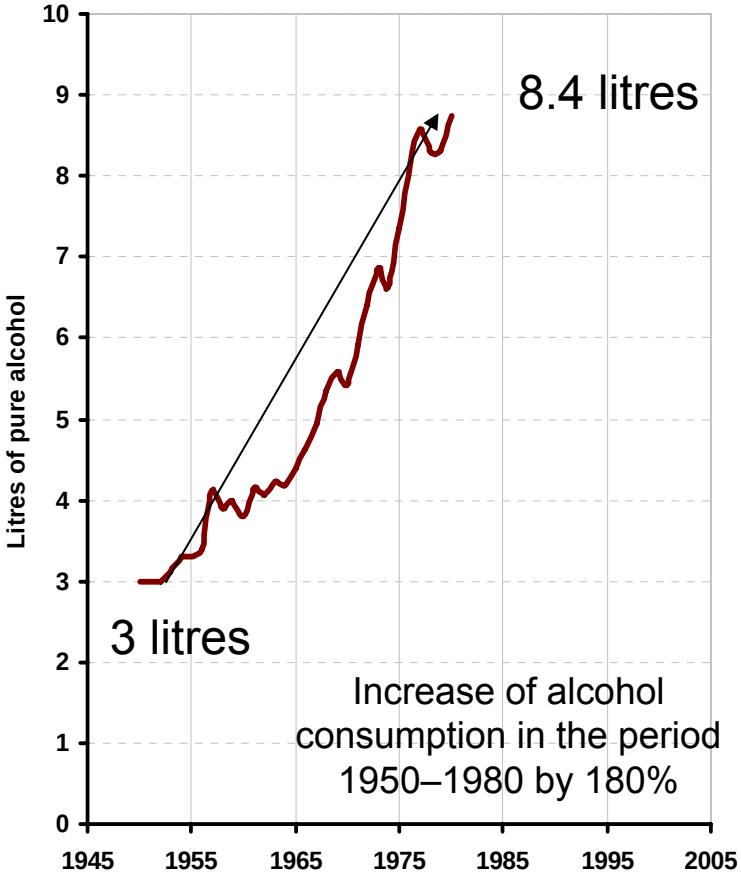
Recorded per capita consumption of alcohol, Poland 1950-1980



- In the post war period alcohol consumption had been increasing dramatically until 1980
- Form 3 to almost 9 litres of pure alcohol per capita per year

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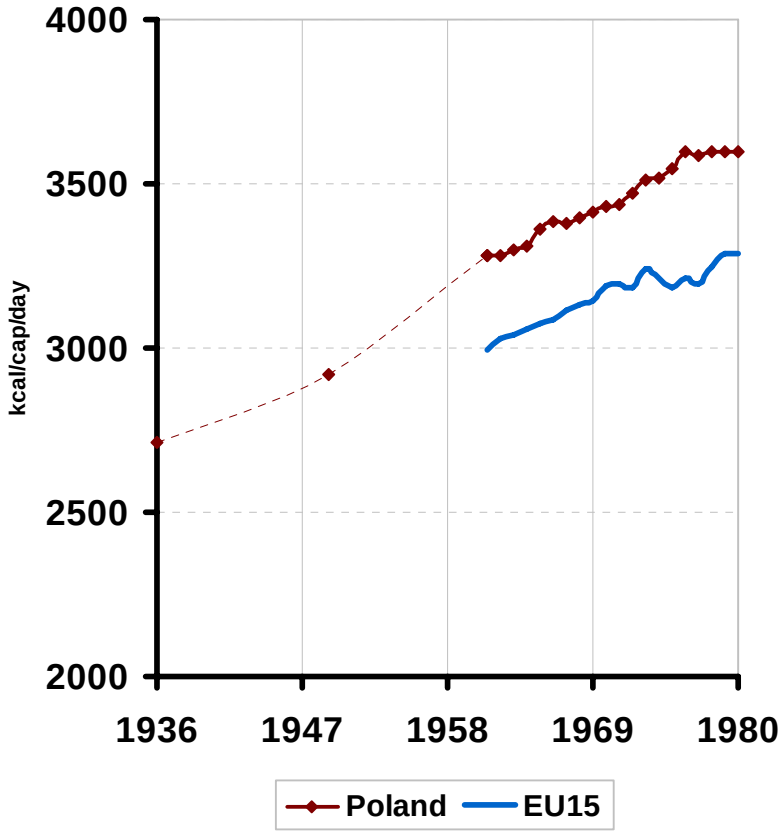
Caloric intake in Poland in the period 1936-1980 (kcal/cap/day)



- Linear increase of caloric intake in Poland
- Level appreciably higher than in the EU15

Source: for years 1936and 1949: Budzynski F. W. Przemiany i prognozy konsumpcji żywności. PWN, Warszawa, 1975, p. 183; for years 1961-1980: FAO Food Balance Sheets

1990

	FSE*	EME**
Number of physicians per 1,000 inhabitants	4,7	2,5
Number of hospital beds per 1,000 inhabitants	11	8

*** Former socialist economies**

**** Established market economies**

This dramatic increase of premature mortality took place during increased access to medical service

Source: Feachem R. Health decline in eastern Europe. Nature. 1994;367:313-314

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Democracy is healthier

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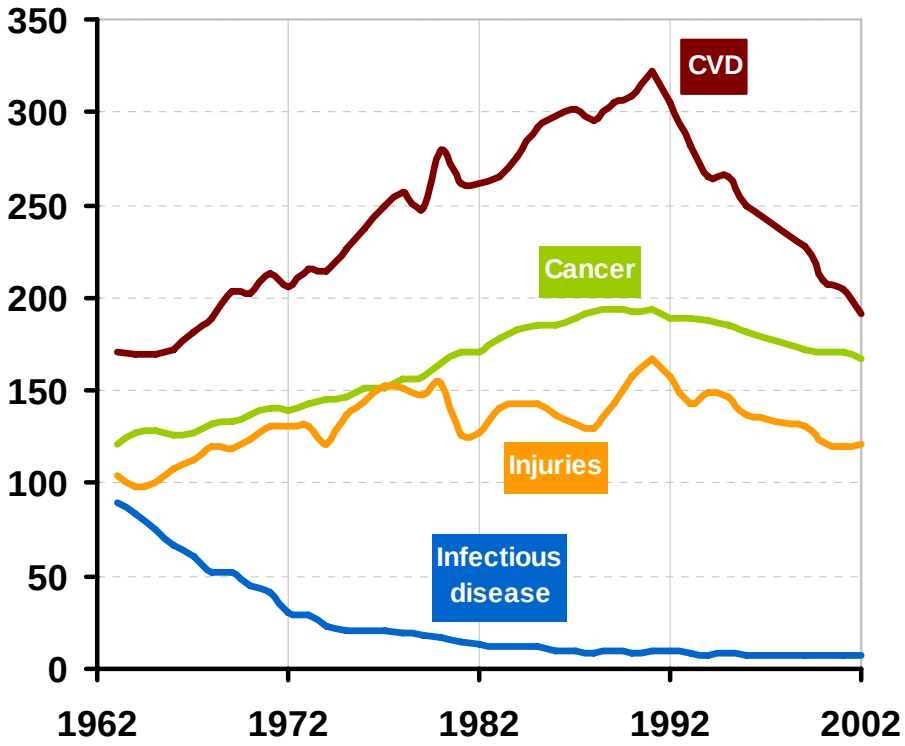
Time trends of mortality from selected causes, Polish men aged 20-64 years



- For 30 years, in the period 1960-1991 dramatic increase of premature mortality from non-communicable diseases
- Infectious diseases are fully controlled
- Since 1991 cardiovascular disease, cancer and injuries mortality has been declining

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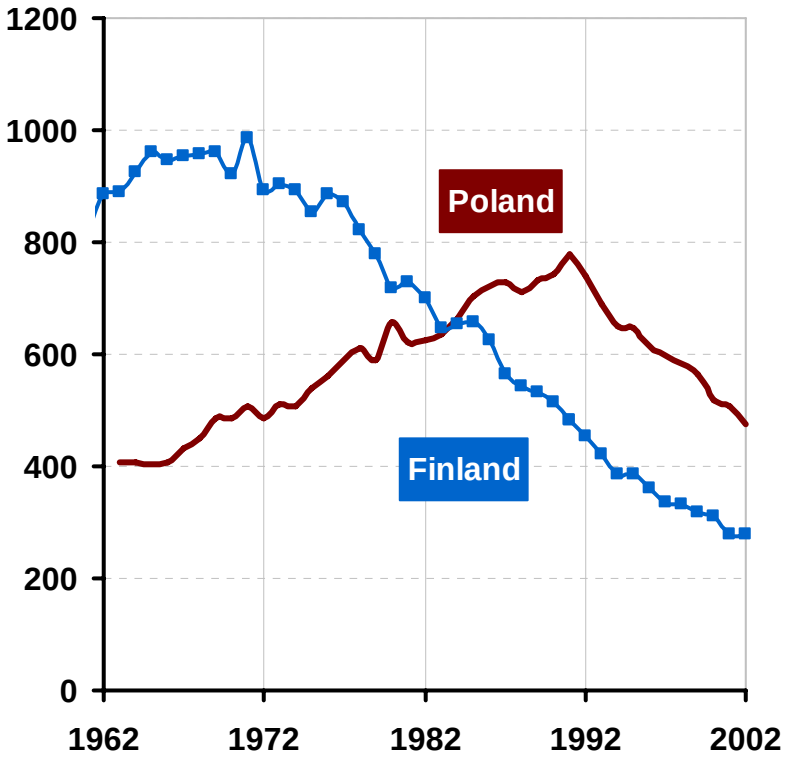
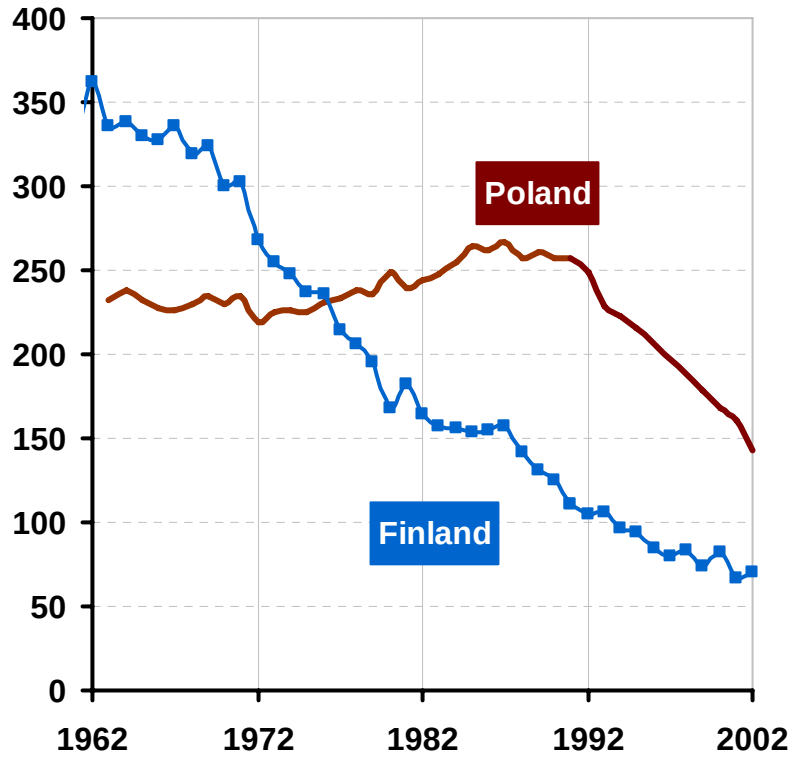
Cardiovascular disease mortality in Poland and Finland in the period 1963-2002

men



women



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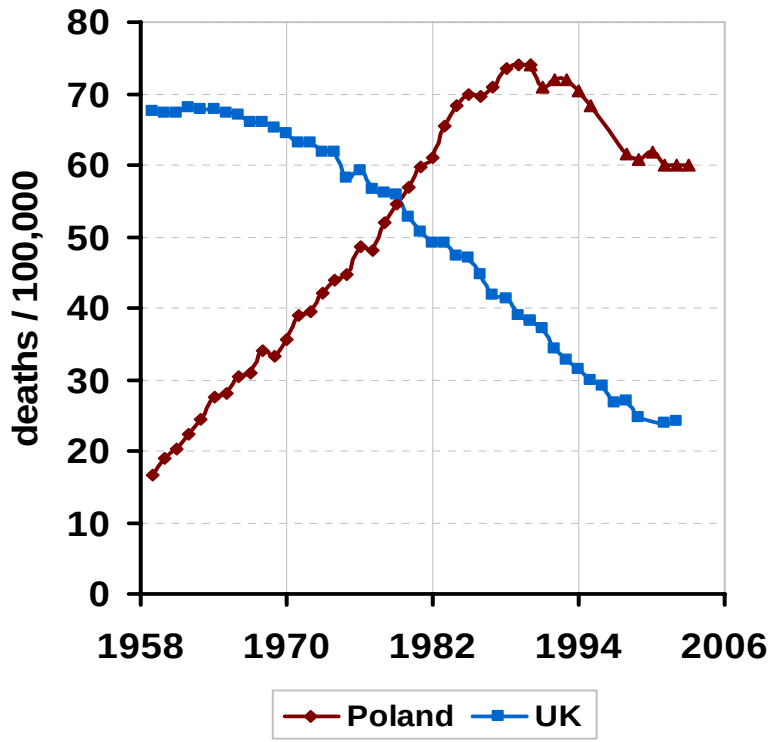
Lung cancer mortality in Poland and the UK, men aged 20-64 years, 1959-2003



- Extraordinary increase of lung cancer mortality in Poland until early 1990s (unlike as in the UK)
- After 1991 decline parallel to the one observed in the UK

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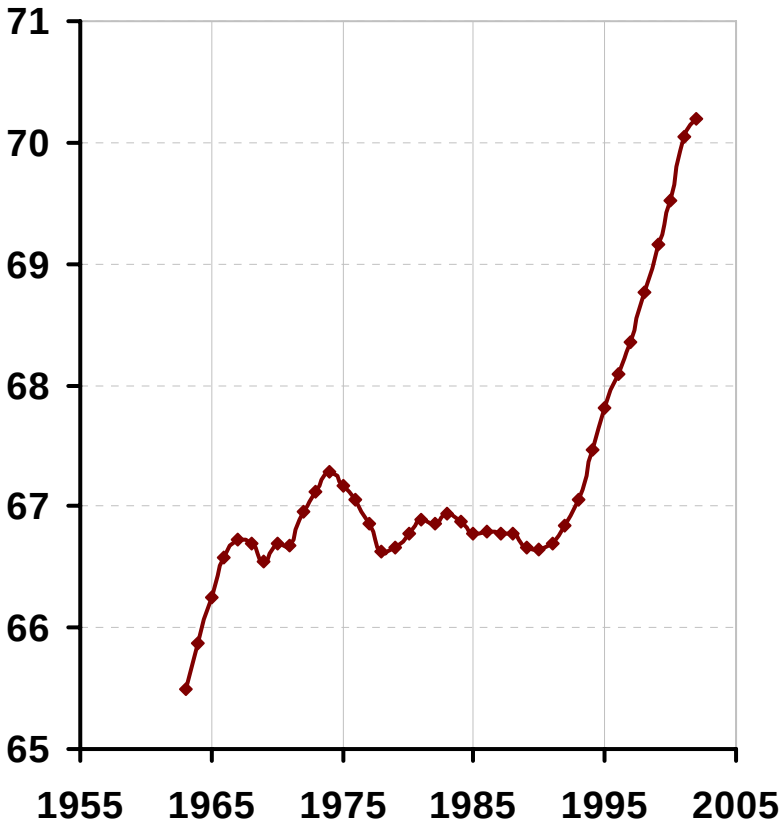
Life expectancy at birth, Poland, men, 1963-2002*



- Since the beginning of 1990s great systematic increase of life expectancy at birth in Poland

* 5-year moving average

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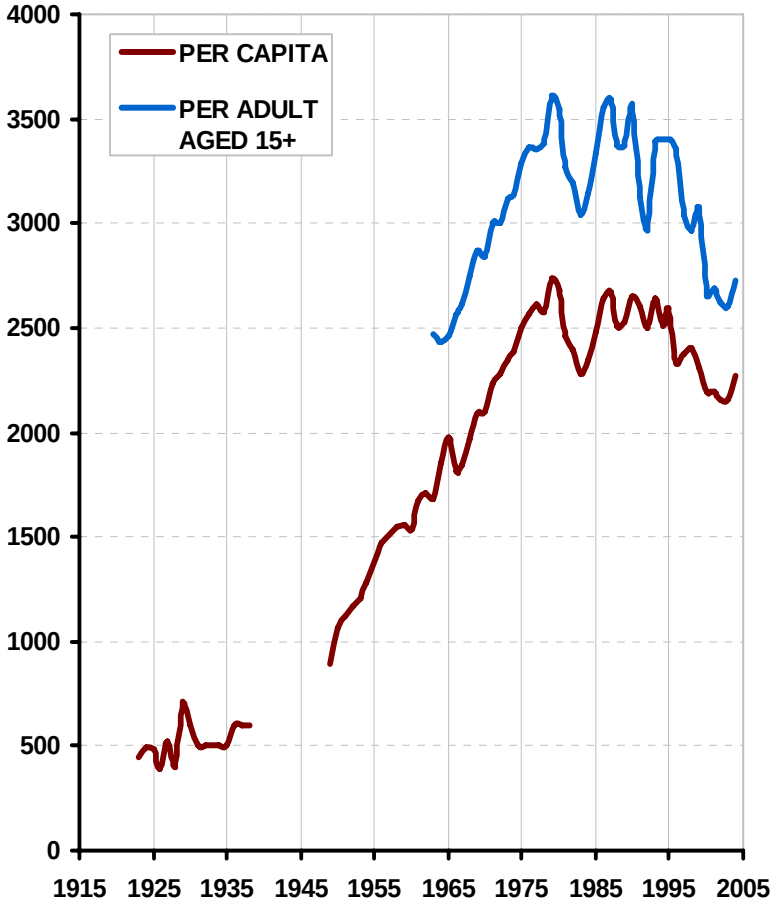
Cigarette consumption per capita, Poland 1923-2004



- In the 1980s in Poland there was observed the highest tobacco consumption in the world
- In mid 1990s the consumption of cigarettes began to fall down, first due to economic crisis and then due to health intervention

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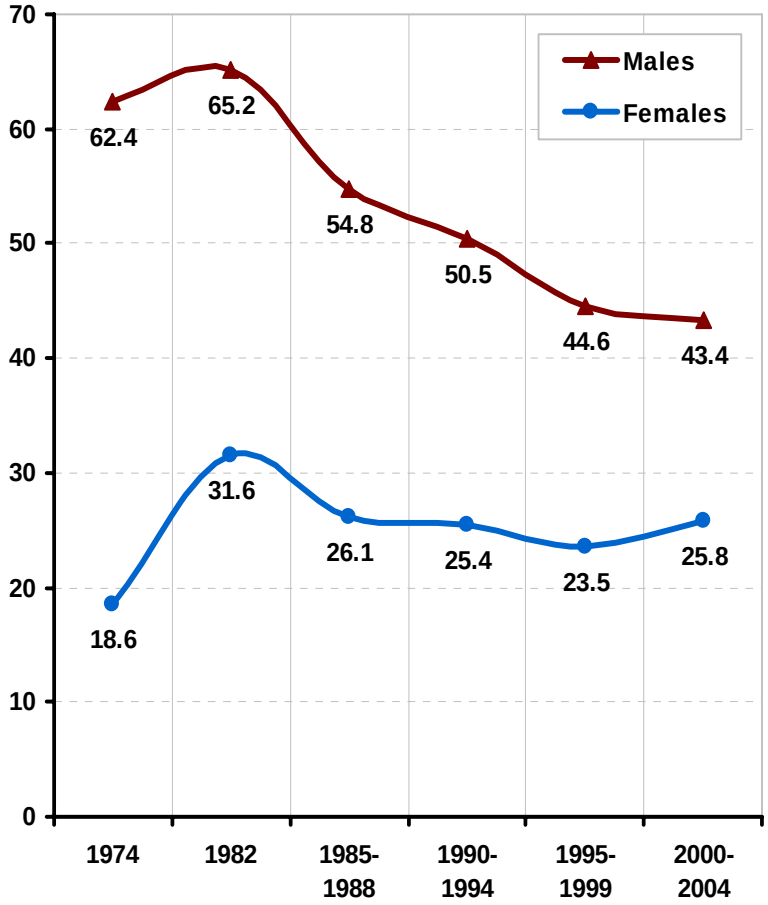
Daily smoking, males and females 20+ years Poland 1974-2004



- In early 1980s there was a very big proportion of smokers in Polish population: almost 70% of adult men and 32% of adult women were daily smokers
- Since then, the percentage of daily smokers has been declining, firstly due to economical crisis and then as a result of health intervention

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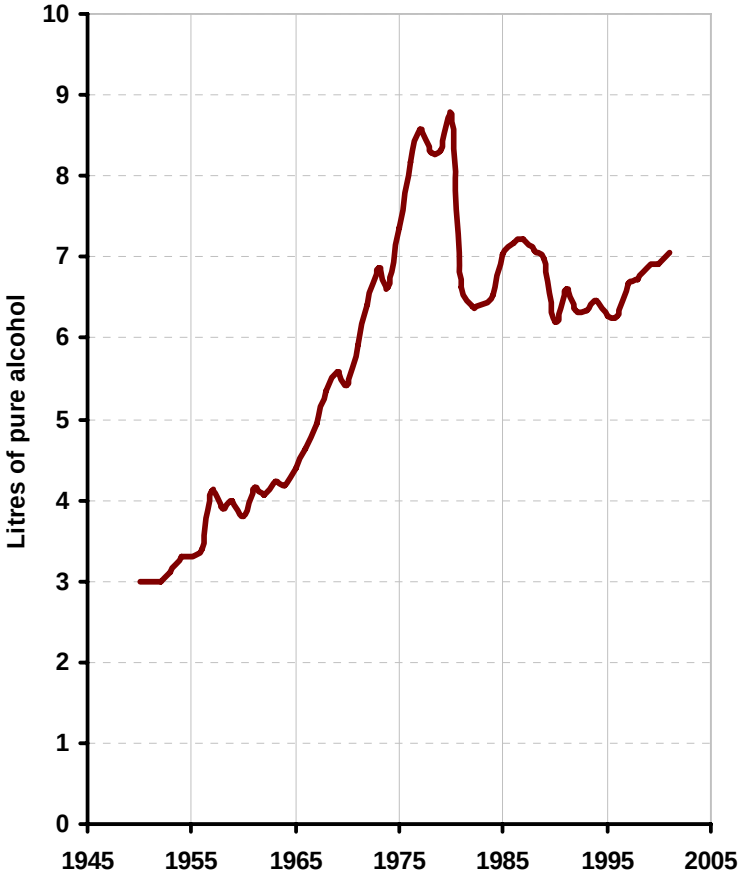
Recorded per capita consumption of alcohol Poland 1950-2001



- In the post war period alcohol consumption had been increasing dramatically until 1980
- When the martial law was introduced and alcohol was rationed, the consumption dropped and since then there has been stagnation observed

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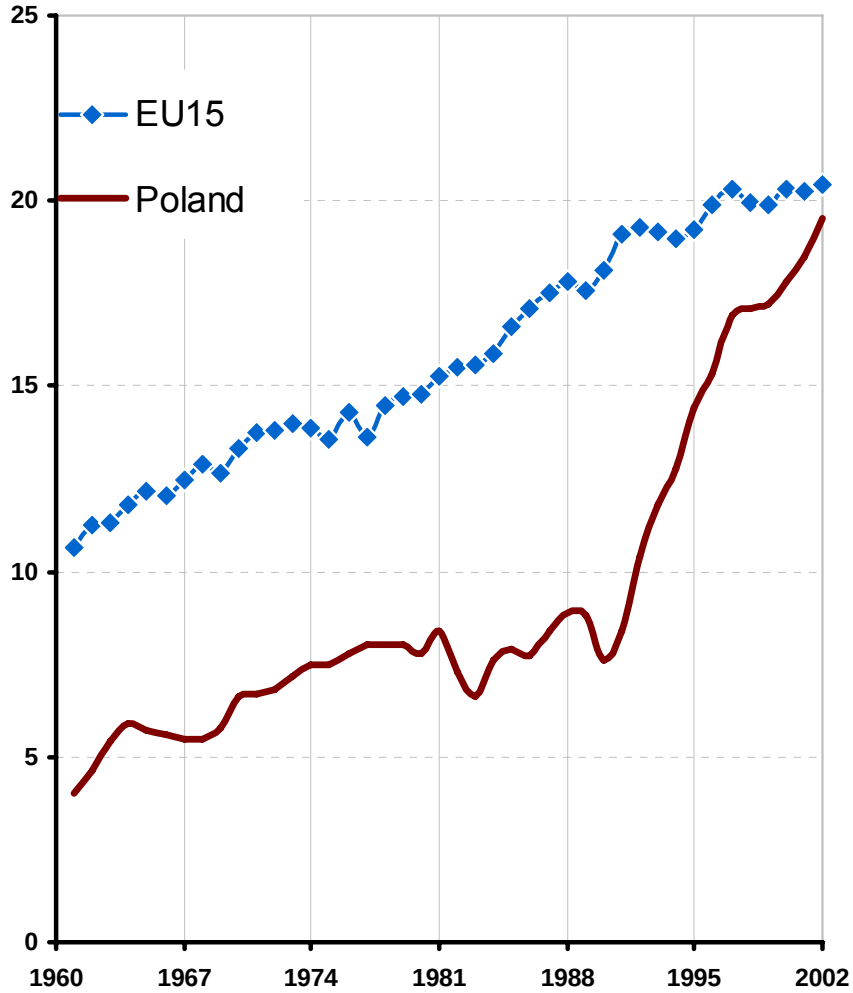
Consumption of vegetable oils in Poland and EU15 (kg/cap/year)



- Dramatic increase of vegetable oils consumption since early 1990s
- In 2002 consumption of vegetable oils reached the average level in the EU15 countries

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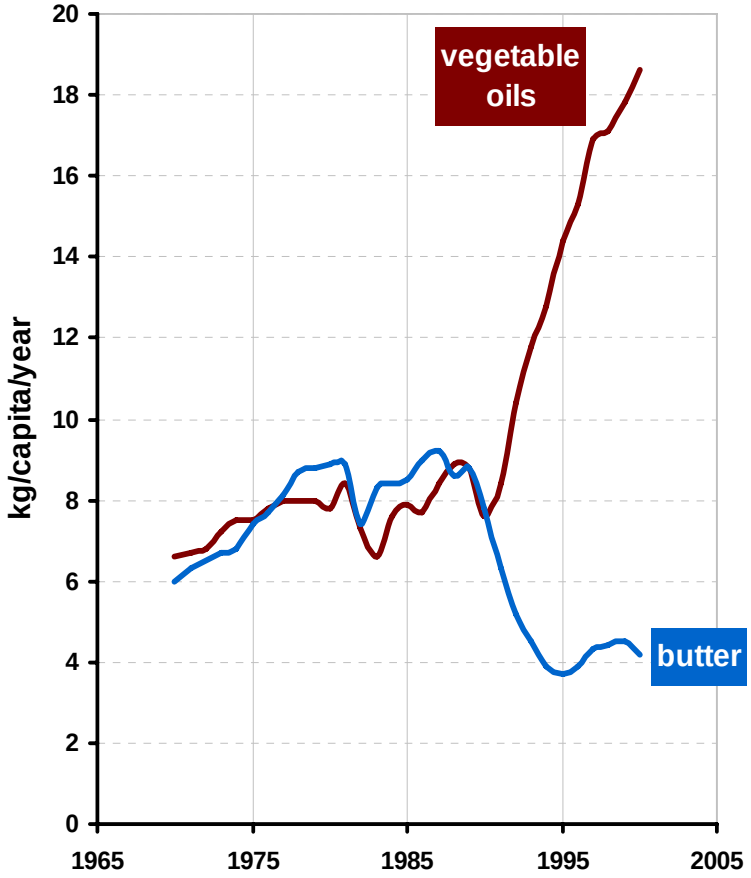
Consumption of vegetable oils and butter in Poland in 1970-2000 (kg/capita/year)



- One of the hypothesis, which tries to explain cardiovascular disease mortality decline, is change of fat consumption structure
- At the beginning of 1990s consumption of vegetable oil began to rise dramatically with simultaneous decline of butter consumption

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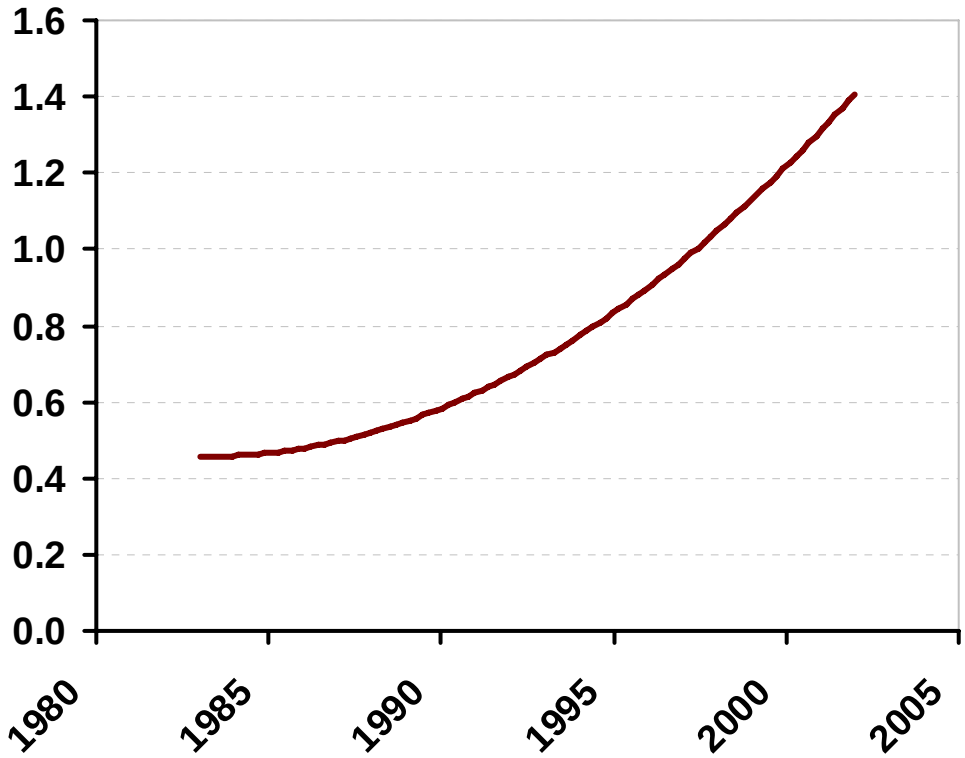
Availability of fruits and vegetables (antioxidants) whole year through

Consumption of exotic fruits in Poland, 1983-2002



- Exponential increase of exotic fruits consumption

Poland, women

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HEALTH INDICATOR			Best in EU10	Worst in EU10	Poland	Change	APC*	Rank of APC	BEST / Rank within EU10 / WORST 1	2	3	4	5	6	7	8	9	10
Life expectancy at birth (years)		1990	77.8	73.2	75.6		3.2#	1				●						
		2002	80.5	74.7	78.8													
Risk of dying, age group 20-64 years (%)		1990	12.2	19.2	15.5		-3.5&	3				●						
		2002	10.1	16.7	12.0													
Standardised mortality rates per 100,000 person-years, age group 20-64 years	All cause mortality	1990	232	383	298		-2.0	3				●						
		2002	189	327	227													
	Cardiovascular disease mortality	1990	55	127	105		-3.7	1					●					
		2002	33	122	58													
	Injuries mortality	1990	22	55	25		-1.3	5		●								
		2002	20	63	21													
	Suicide mortality	1990	5	20	6		-0.1	8		●								
		2002	4	12	6													
	Liver cirrhosis mortality	1990	3	33	4		1.9	6		●								
		2002	4	29	5													
	Lung cancer mortality	1990	6	16	10		3.9	8									●	
		2002	4	26	15													

* APC - Annual percentage change in the period 1990-2002
\# for life expectancy at birth it is the difference between value for 2002 and 1990 expressed in years
& for risk of dying it is the difference between value for 2002 and 1990 expressed in percentage points

Very good
Improvement
Worsening
Very bad

Poland, men

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HEALTH INDICATOR			Best in EU10	Worst in EU10	Poland	Change	APC*	Rank of APC	BEST / Rank within EU10 / WORST 1	2	3	4	5	6	7	8	9	10
Life expectancy at birth (years)		1990	69.8	64.2	66.5		3.8#	2						●				
		2002	72.6	64.7	70.3						●							
Risk of dying, age group 20-64 years (%)		1990	29.4	41.0	36.3		-6.8&	3					●					
		2002	23.8	43.1	29.5						●							
Standardised mortality rates per 100,000 person-years, age group 20-64 years	All cause mortality	1990	618	968	816		-1.9	3					●					
		2002	487	1040	628						●							
	Cardiovascular disease mortality	1990	163	371	309		-3.2	2						●				
		2002	104	371	192						●							
	Injuries mortality	1990	107	278	158		-2.0	2						●				
		2002	87	333	121								●					
	Suicide mortality	1990	18	71	32		0.6	6			●							
		2002	23	112	34								●					
	Liver cirrhosis mortality	1990	9	85	14		5.1	6				●						
		2002	22	97	22				●									
	Lung cancer mortality	1990	48	85	74		-1.6	6								●		
		2002	42	82	60												●	

* APC - Annual percentage change in the period 1990-2002
\# for life expectancy at birth it is the difference between value for 2002 and 1990 expressed in years
& for risk of dying it is the difference between value for 2002 and 1990 expressed in percentage points

Very good
Improvement
Worsening
Very bad

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The same phenomena which were observed in Poland apply as well to Katowice

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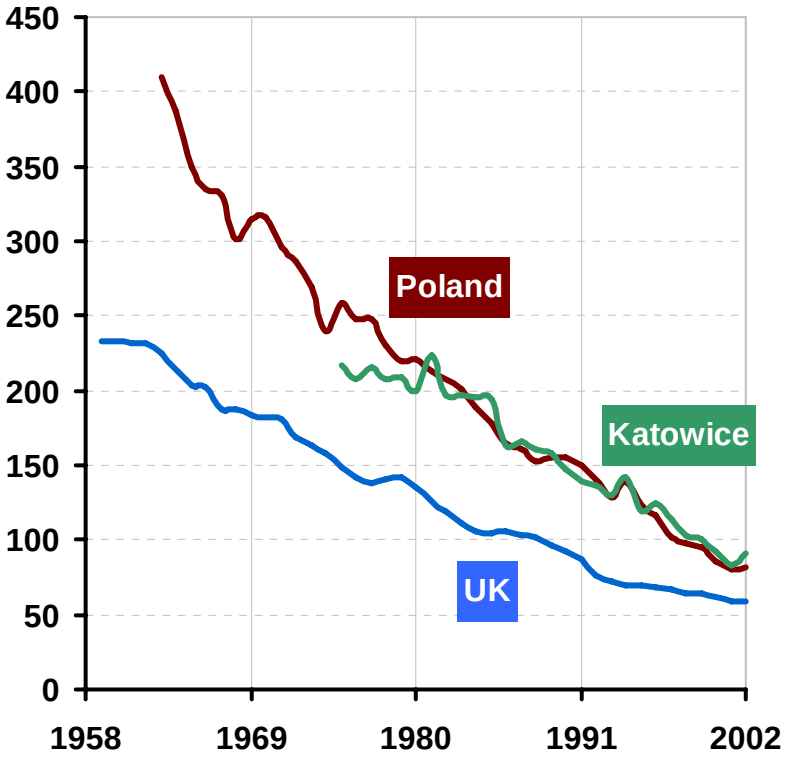
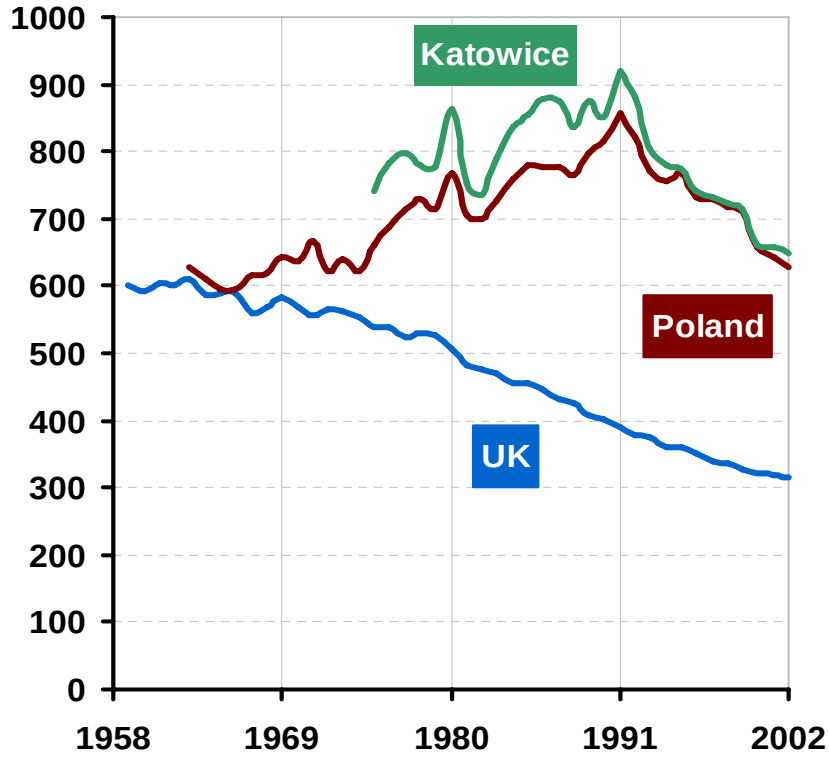
Total mortality in Poland (and Katowice) and UK, 1963-2002

0-19



20-64



HEM-Closing the Gap
Reducing Premature Mortality.
Baseline for Monitoring Health
Evolution Following Enlargement.

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Thank you

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