New Zealand

Does the ‘Spirit Level’ hypothesis meet the causal test?

BSA MedSoc Conference 2015
9-11 September, York

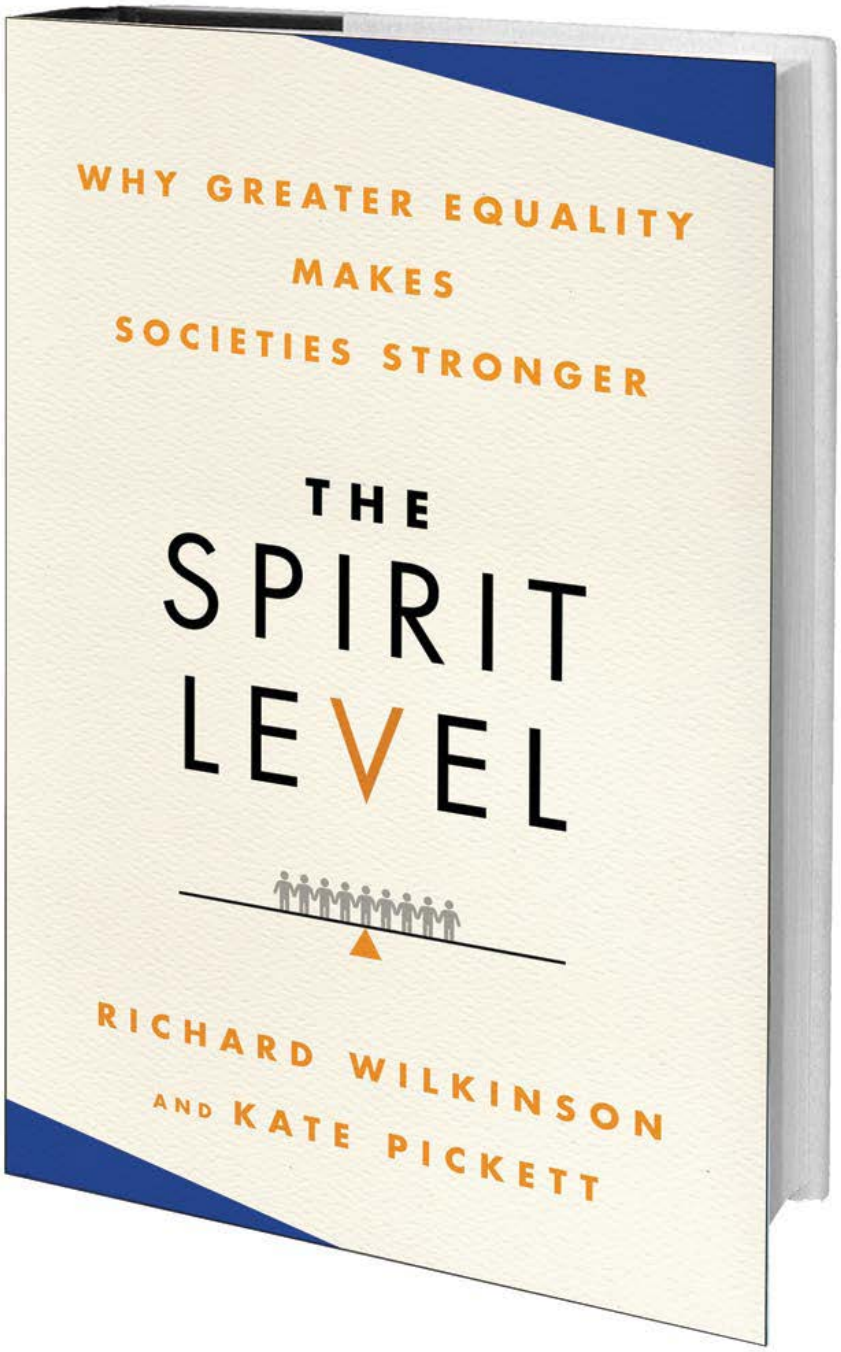
COMPASS RESEARCH CENTRE

FACULTY OF ARTS
THE UNIVERSITY OF AUCKLAND
Whare Wānanga o Tāmaki Makaurau

Peter Davis and Roy Lay-Yee

University of Auckland
pb.davis@auckland.ac.nz
and COMPASS Research Centre
www.compass.auckland.ac.nz

The University of Auckland



Richard Wilkinson
Emeritus Professor of
Social Epidemiology
University of Nottingham

&

Kate Pickett
Professor of Epidemiology
University of York

http://www.equalitytrust.org.uk

Outline

COMPASS RESEARCH CENTRE
FACULTY OF ARTS
THE UNIVERSITY OF AUCKLAND
Whare Wānanga o Tāmaki Makaurau

- The 'Spirit Level' - Preamble
  - Health sociology as "public" social science
  - Strengthening our policy relevance
    - Increasing "impact"
    - Making knowledge claims
    - Improving methods
- The 'Spirit Level' - causal assessment
  - Where to from here?
    - The counterfactual causal paradigm
    - The analytical sociology approach
  - Conclusions

New Zealand
The University of Auckland

Health Sociology as a "public" social science

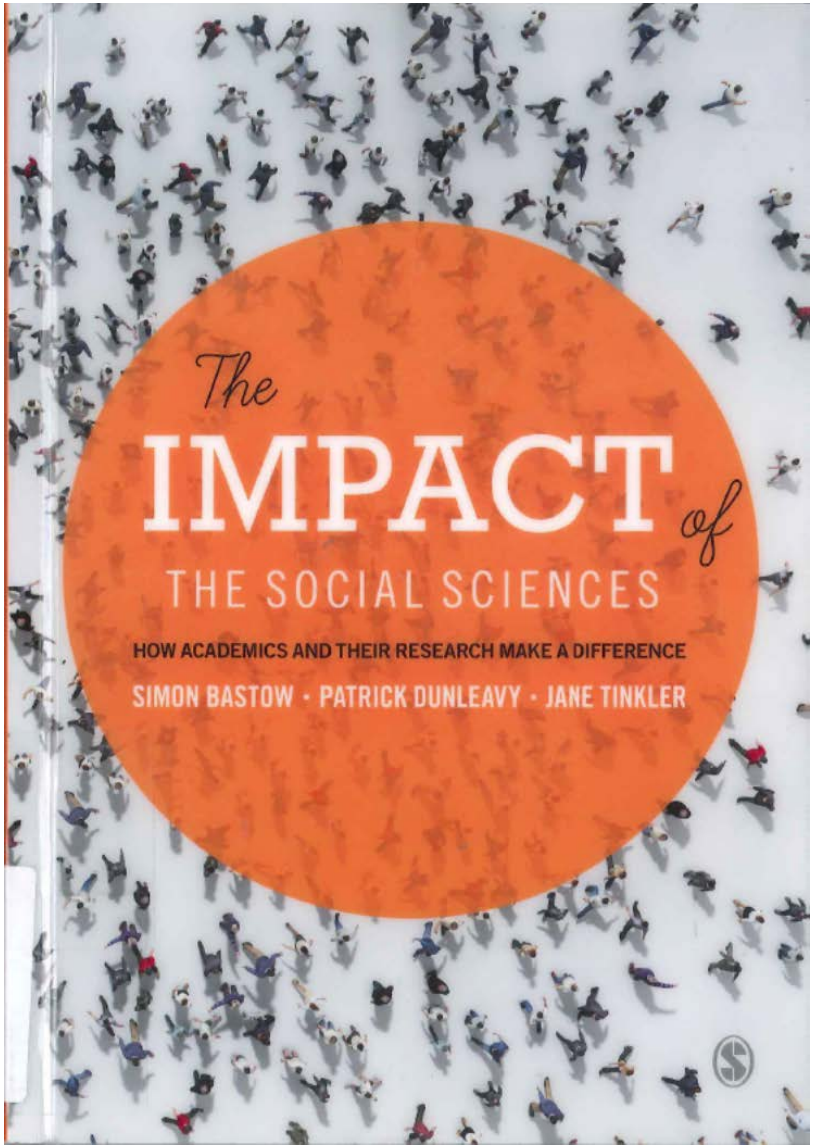
COMPASS RESEARCH CENTRE
FACULTY OF ARTS
THE UNIVERSITY OF AUCKLAND
Whare Wānanga o Tāmaki Makaurau

- Sociology OF health
  - Paradigmatic impacts on medicine
    - Goffman – Asylums
      - Deinstitutionalisation, health and human rights
    - Freidson – Profession of Medicine
      - Active, "interested" professions and professionals (neo-liberal?)
    - Conrad – Medicalisation
      - Alertness to over-diagnosis/over-treatment (see BMJ)
    - McKinlay – "manufacturers of illness", "refocus upstream"
      - Social determinants model (e.g. WHO)
- Sociology IN health
  - The policy task
  - Methods, credibility, causal plausibility

Outline - preamble

- Health sociology as “public” social science
- **Strengthening policy relevance**
  - **Increasing “impact”**
  - **Making knowledge claims**
  - **Improving methods**

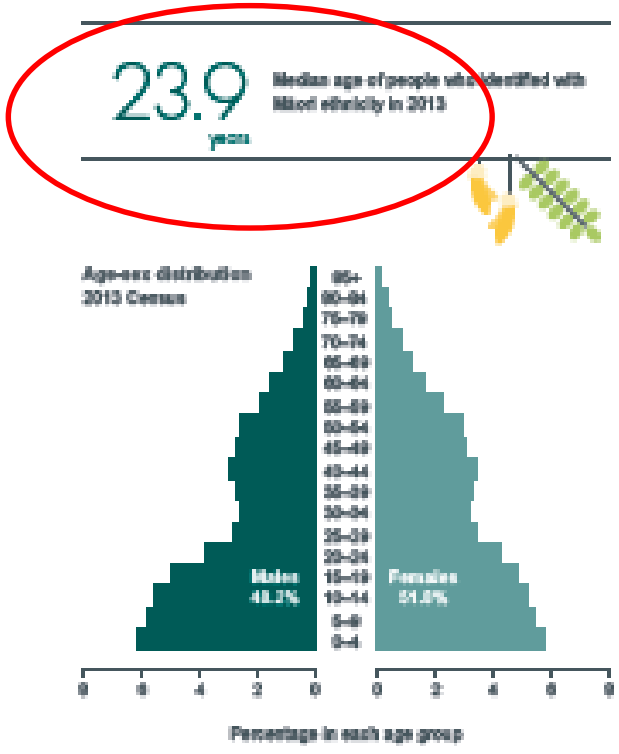
Increasing “impact”



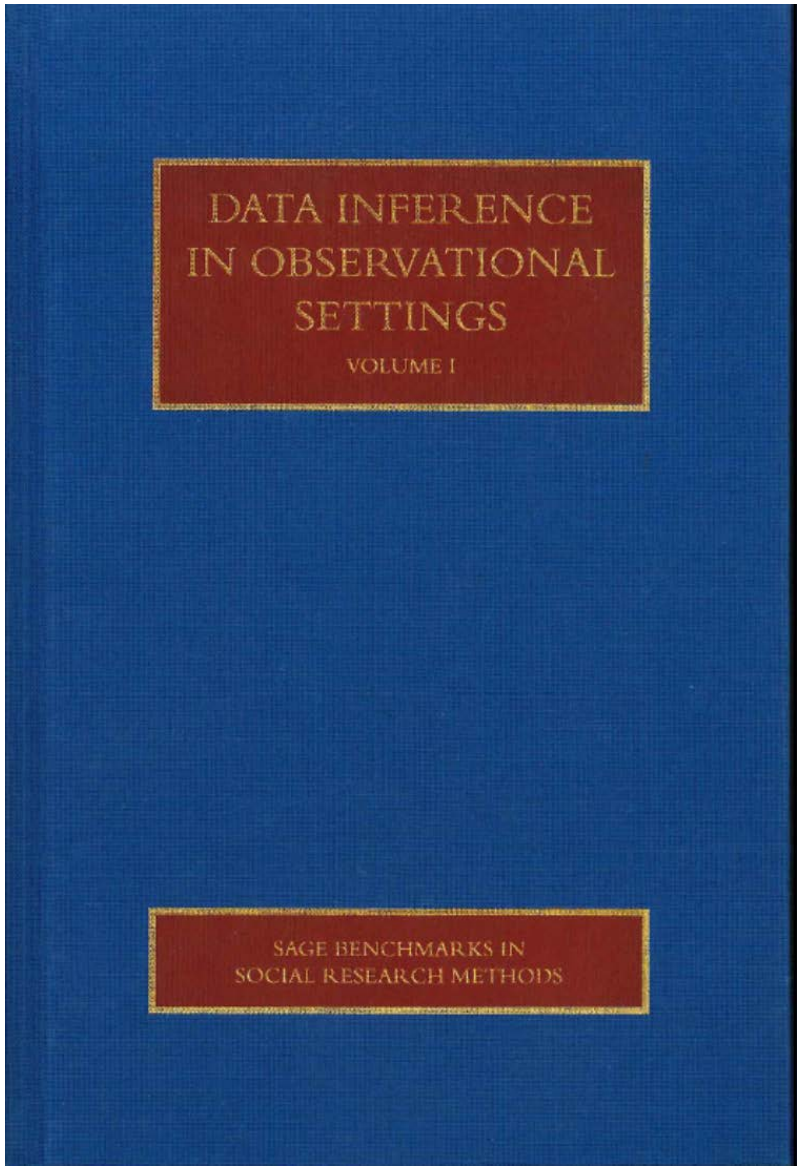
Taking Care with Knowledge Claims
3. Common mistakes in public debate

Closing gaps favour young (NZ Herald)
By Vaimoana Tapaleao, James Ihaka, Simon Collins, Harkanwal Singh
5:30 AM Monday Mar 17, 2014

Gaps that are barely budging
* Imprisonment rate - gaps may close in 1170 years.



Improving Methods – with Better Design



Outline

COMPASS RESEARCH CENTRE
FACULTY OF ARTS
THE UNIVERSITY OF AUCKLAND
Whare Wānanga o Tāmaki Makaurau

- The ‘Spirit Level’ - Preamble
  - Health sociology as “public” social science
  - Strengthening our policy relevance
    - Increasing “impact”
    - Making knowledge claims
    - Improving methods
- **The ‘Spirit Level’ - causal assessment**
  - Where to from here?
    - The counterfactual causal paradigm
    - The analytical sociology approach
  - Conclusions

New Zealand
The University of Auckland

Pickett and Wilkinson, Soc Sci Med 2015

COMPASS RESEARCH CENTRE
FACULTY OF ARTS
THE UNIVERSITY OF AUCKLAND
Whare Wānanga o Tāmaki Makaurau

Social Science & Medicine 128 (2015) 316–326

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Review

Income inequality and health: A causal review

Kate E. Pickett [a, *], Richard G. Wilkinson [b]

[a] Department of Health Sciences, University of York, York, UK
[b] Division of Epidemiology and Public Health, University of Nottingham, Nottingham, UK

ARTICLE INFO

Article history:
Available online 30 December 2014

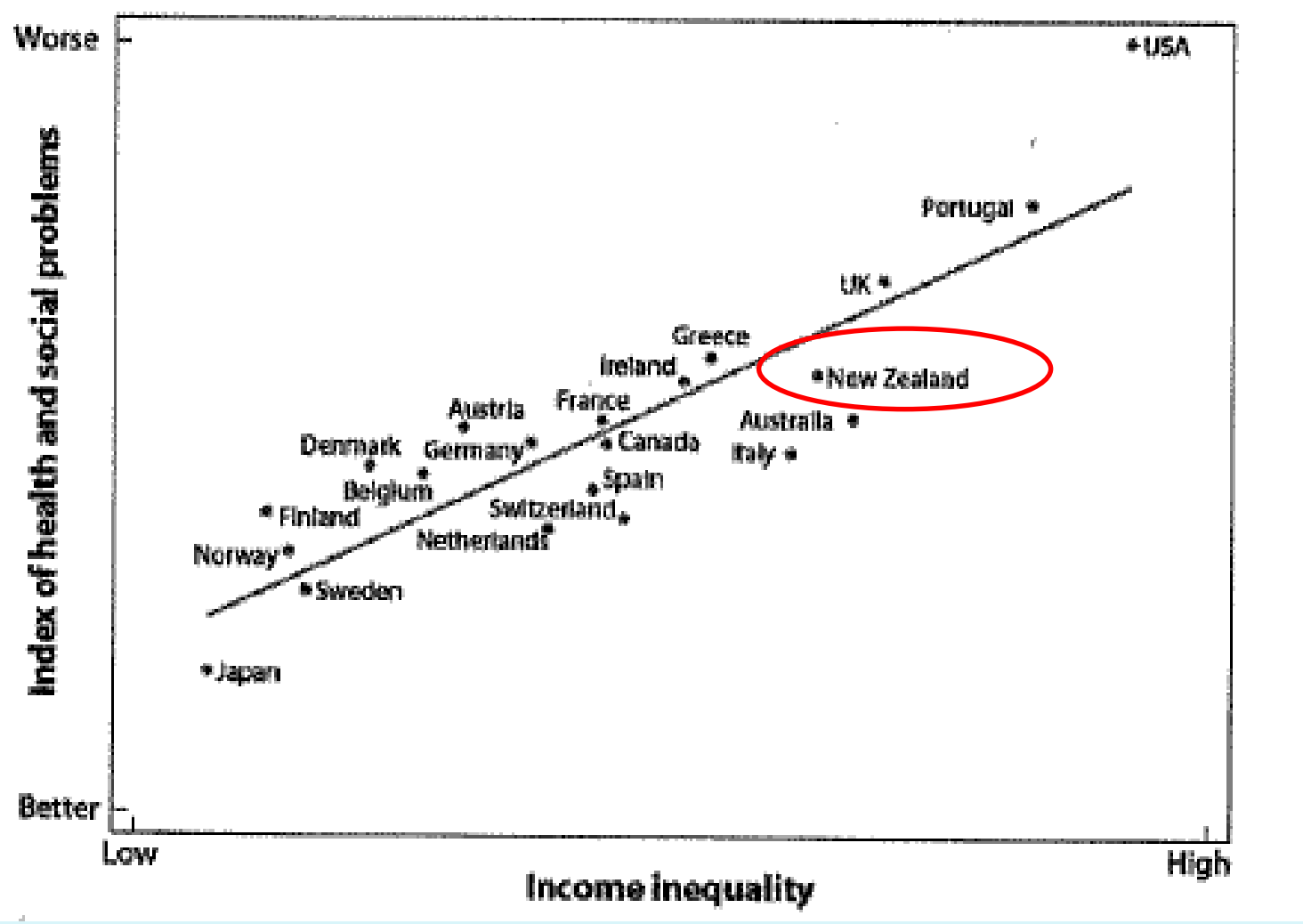
Keywords:
Income distribution
Review
Population health
Causality

ABSTRACT

There is a very large literature examining income inequality in relation to health. Early reviews came to different interpretations of the evidence, though a large majority of studies reported that health tended to be worse in more unequal societies. More recent studies, not included in those reviews, provide substantial new evidence. Our purpose in this paper is to assess whether or not wider income differences play a causal role leading to worse health. We conducted a literature review within an epidemiological causal framework and inferred the likelihood of a causal relationship between income inequality and health (including violence) by considering the evidence as a whole. The body of evidence strongly suggests that income inequality affects population health and wellbeing. The major causal criteria of temporality, biological plausibility, consistency and lack of alternative explanations are well supported. Of the small minority of studies which find no association, most can be explained by income inequality being measured at an inappropriate scale, the inclusion of mediating variables as controls, the use of subjective rather than objective measures of health, or follow up periods which are too short.

The evidence that large income differences have damaging health and social consequences is strong and in most countries inequality is increasing. Narrowing the gap will improve the health and wellbeing of populations.

Pickett and Wilkinson, Soc Sci Med 2015



Avendano article, Soc Sci Med 2012

Social Science & Medicine 75 (2012) 754–760

Contents lists available at SciVerse ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Short report

Correlation or causation? Income inequality and infant mortality in fixed effects models in the period 1960–2008 in 34 OECD countries

Mauricio Avendano [a, b, c, *]

[a] London School of Economics and Political Science, LSE Health and Social Care, London, UK
[b] Center for Population and Development Studies, Harvard School of Public Health, Cambridge, MA, USA
[c] Department of Public Health, Erasmus Medical Center, Rotterdam, The Netherlands

ARTICLE INFO

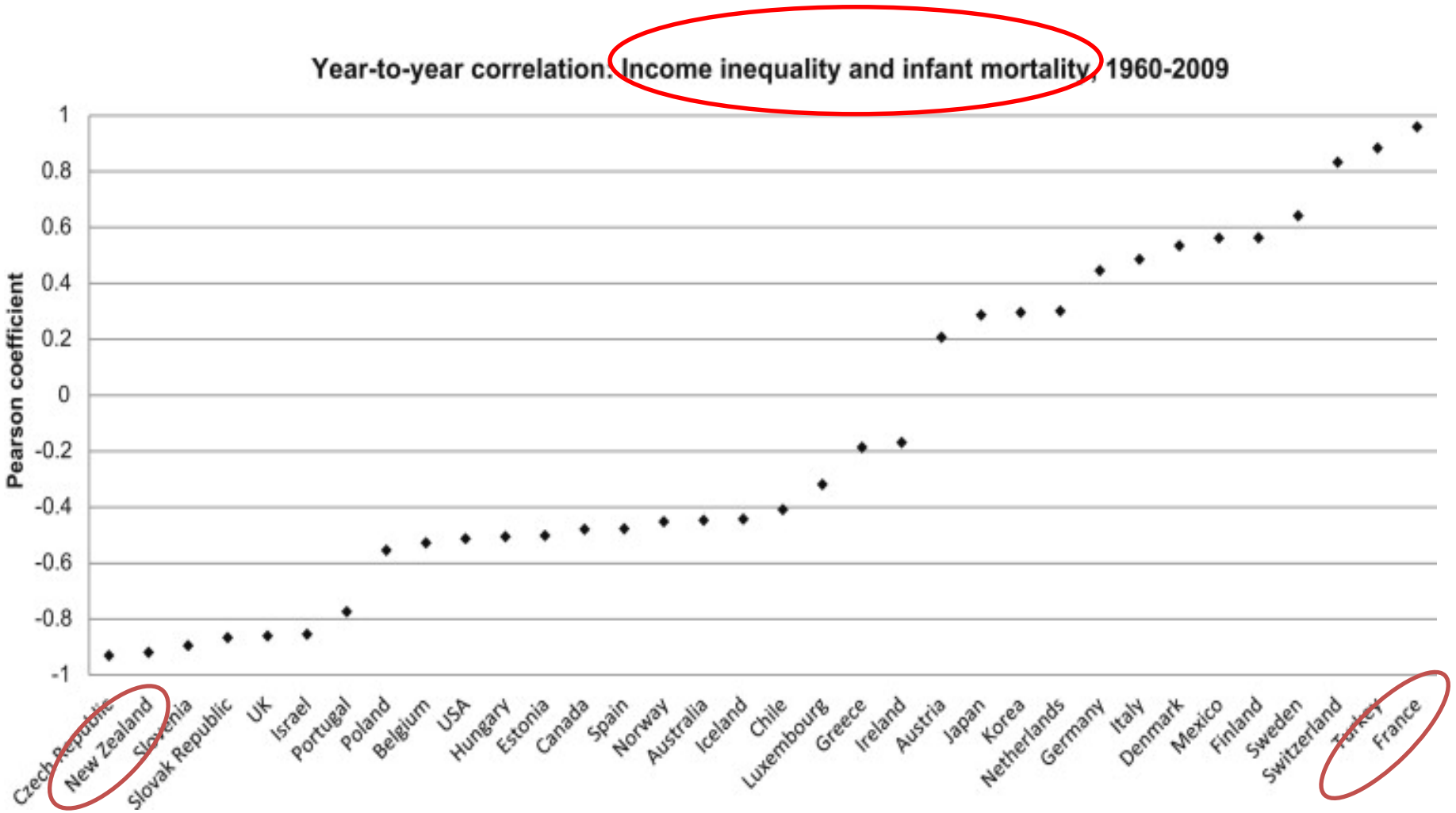
Article history:
Available online 11 May 2012

Keywords:
Infant mortality
Income inequality
Socioeconomic
Population health
Social policy

ABSTRACT

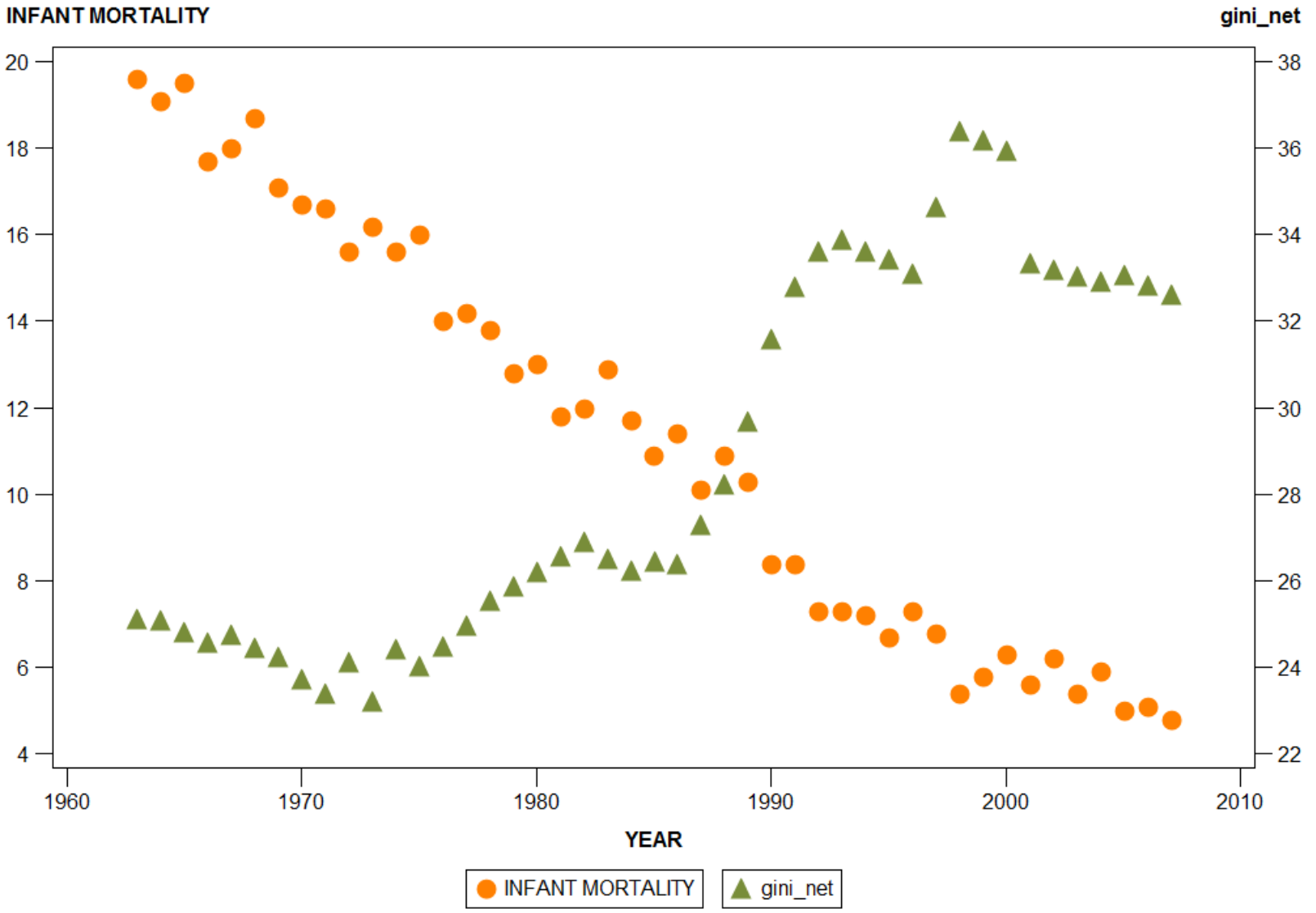
Income inequality is strongly associated with infant mortality across countries, but whether this association is causal has not been established. In their commentary in this issue of *Social Science & Medicine*, **Regidor et al. (2012)** argue that this association has disappeared in recent years, and question the premise of a causal link. This paper empirically tests the impact of income inequality on infant mortality in a fixed effects model that exploits the evolution of income inequality over a 38-year period, controlling for all time-invariant differences across countries. Data came from the Standardized World Income Inequality Database, containing yearly estimates for the period 1960–2008 in 34 countries member of the Organization for Economic Co-operation and Development (OECD), linked to infant mortality data from the OECD Health database. Infant mortality was modelled as a function of income inequality in a country and year fixed effects model, incorporating controls for changing economic and labour conditions. In a model without country fixed effects, a one-point increase in the Gini coefficient was associated with a 7% increase in the infant mortality rate (Rate ratio[RR] = 1.07, 95% Confidence Interval [CI] 1.04, 1.09). Controlling for differences across countries in a country fixed effects model, however, income inequality was no longer associated with infant mortality (RR = 1.00, 0.98, 1.01). Similar results were obtained when using lagged values of income inequality for up to 15 years, and in models that controlled for changing labour and economic conditions. Findings suggest that in the short-run, changes in income inequality are not associated with changes in infant mortality. A possible interpretation of the discrepancy between cross-country correlations and fixed effects models is that social policies that reduce infant mortality cluster in countries with low income inequality, but their effects do not operate via income. Findings highlight the need to examine the impact of more specific social policies on infant mortality.

Avendano 2012



New Zealand

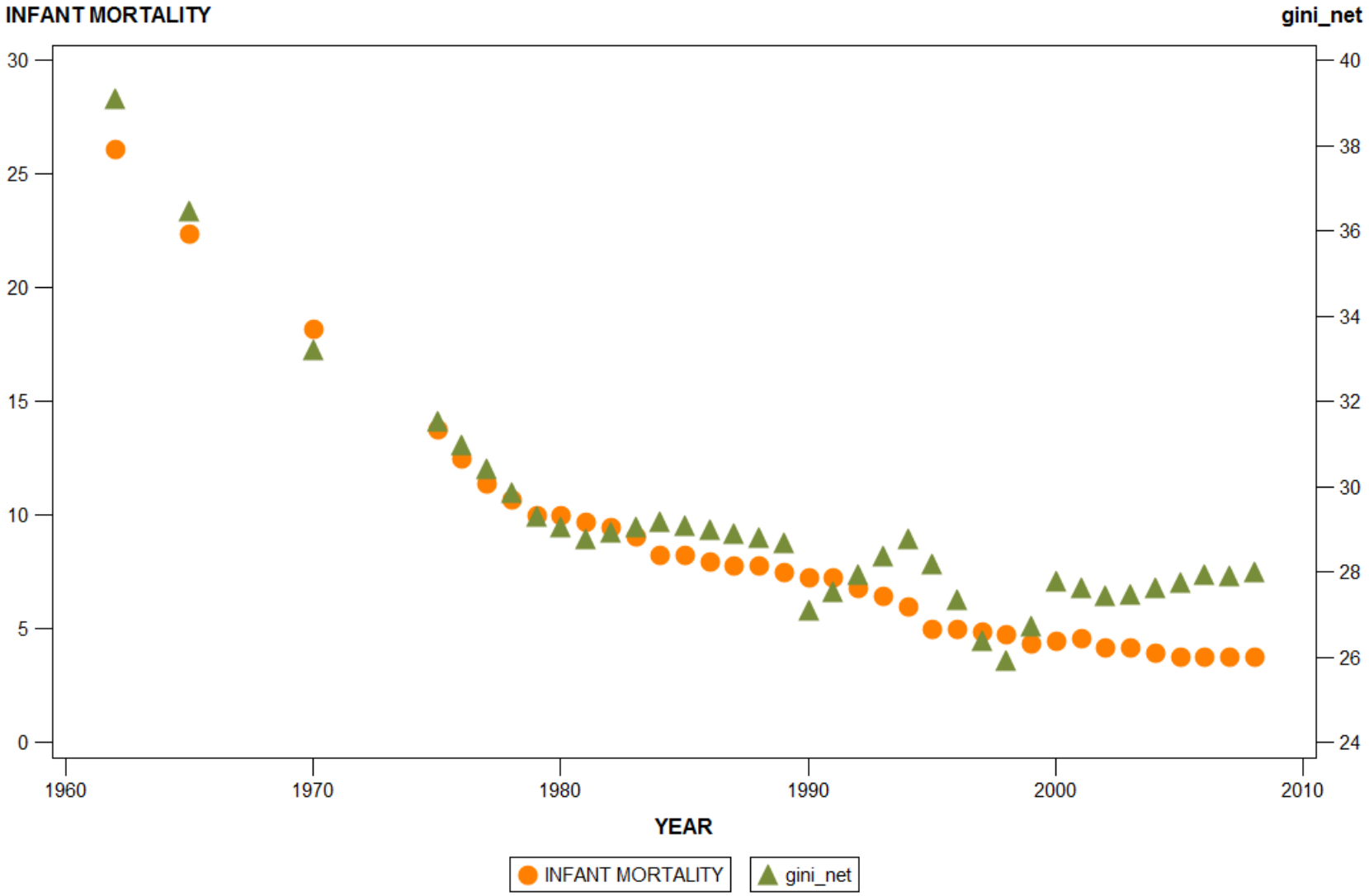
Correlation = -0.92



Source: Avendano data

France

Correlation = +0.96

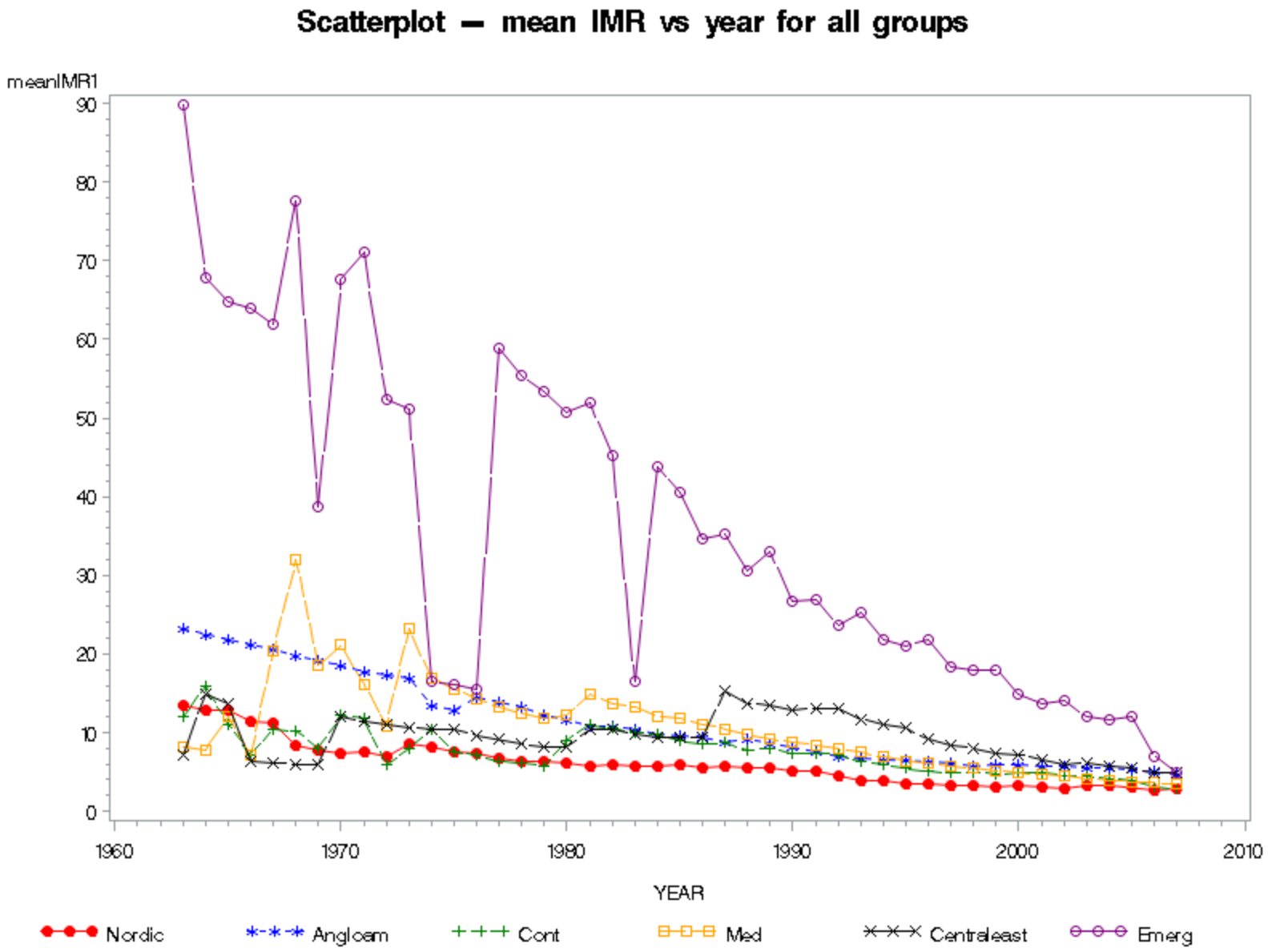


Source: Avendano data

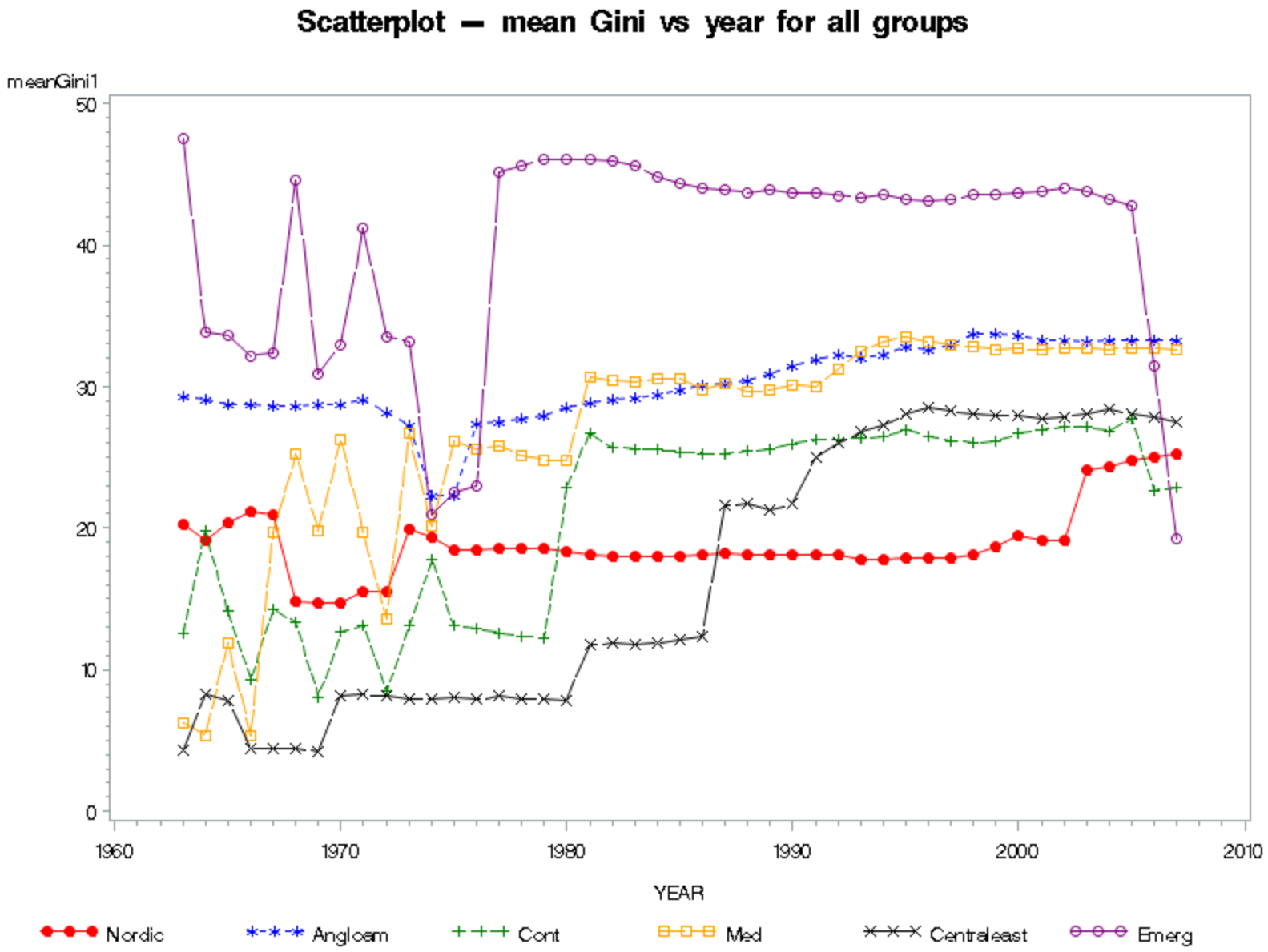
Groups (of OECD countries)

- **Nordic**: Denmark, Finland, Iceland, Norway, Sweden
- **Anglo-American**: NZ, Australia, USA, UK, Canada, Ireland
- **Continental Europe**: Austria, Belgium, Germany, Luxembourg, Netherlands, Switzerland
- **Mediterranean**: France, Greece, Italy, Portugal, Spain
- **Central-Eastern Europe**: Czech Republic, Estonia, Hungary, Poland, Slovak Republic, Slovenia
- **Emerging economies**: Chile, Korea, Mexico, Turkey

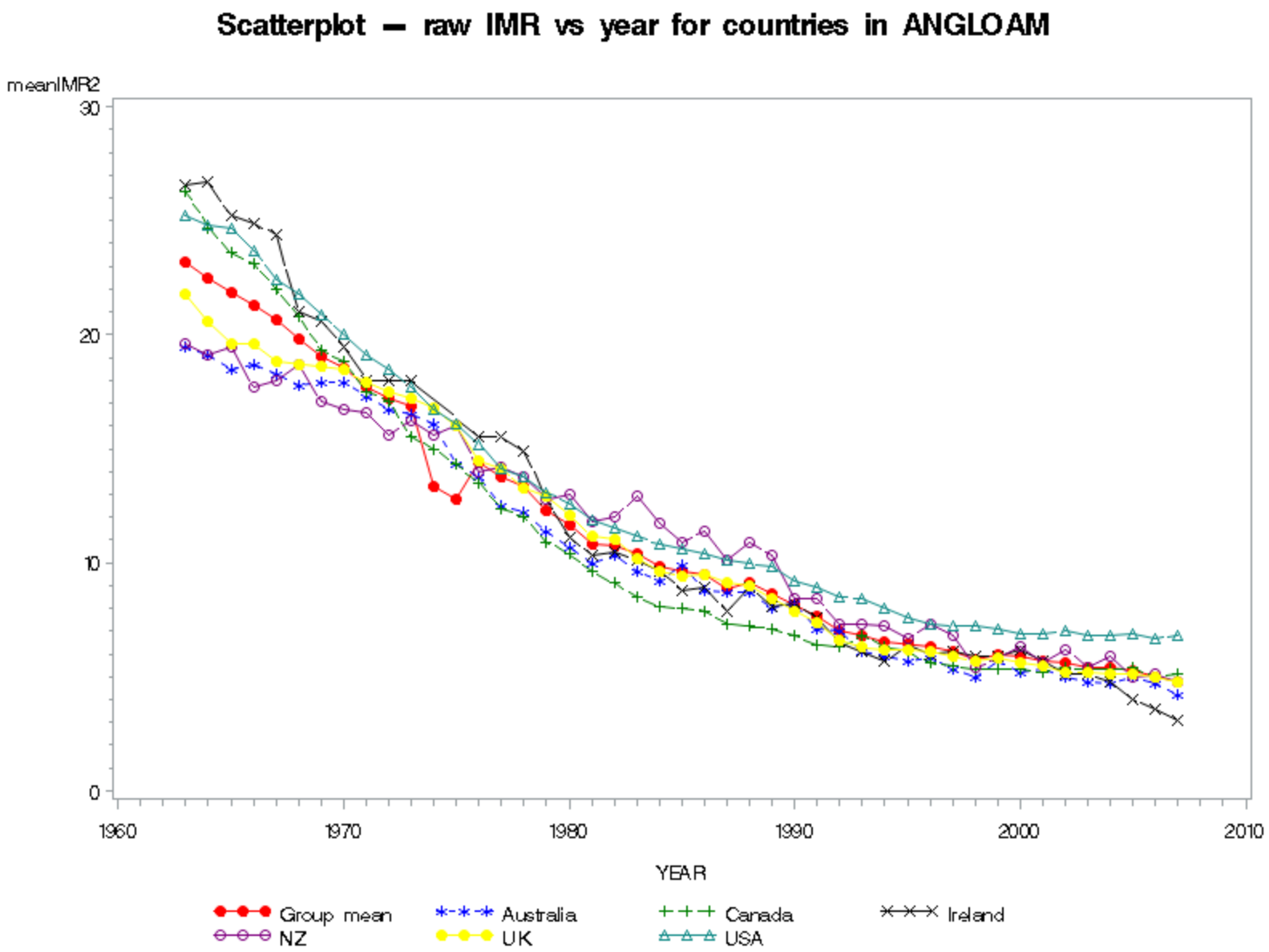
Mean IMR by country group – over years

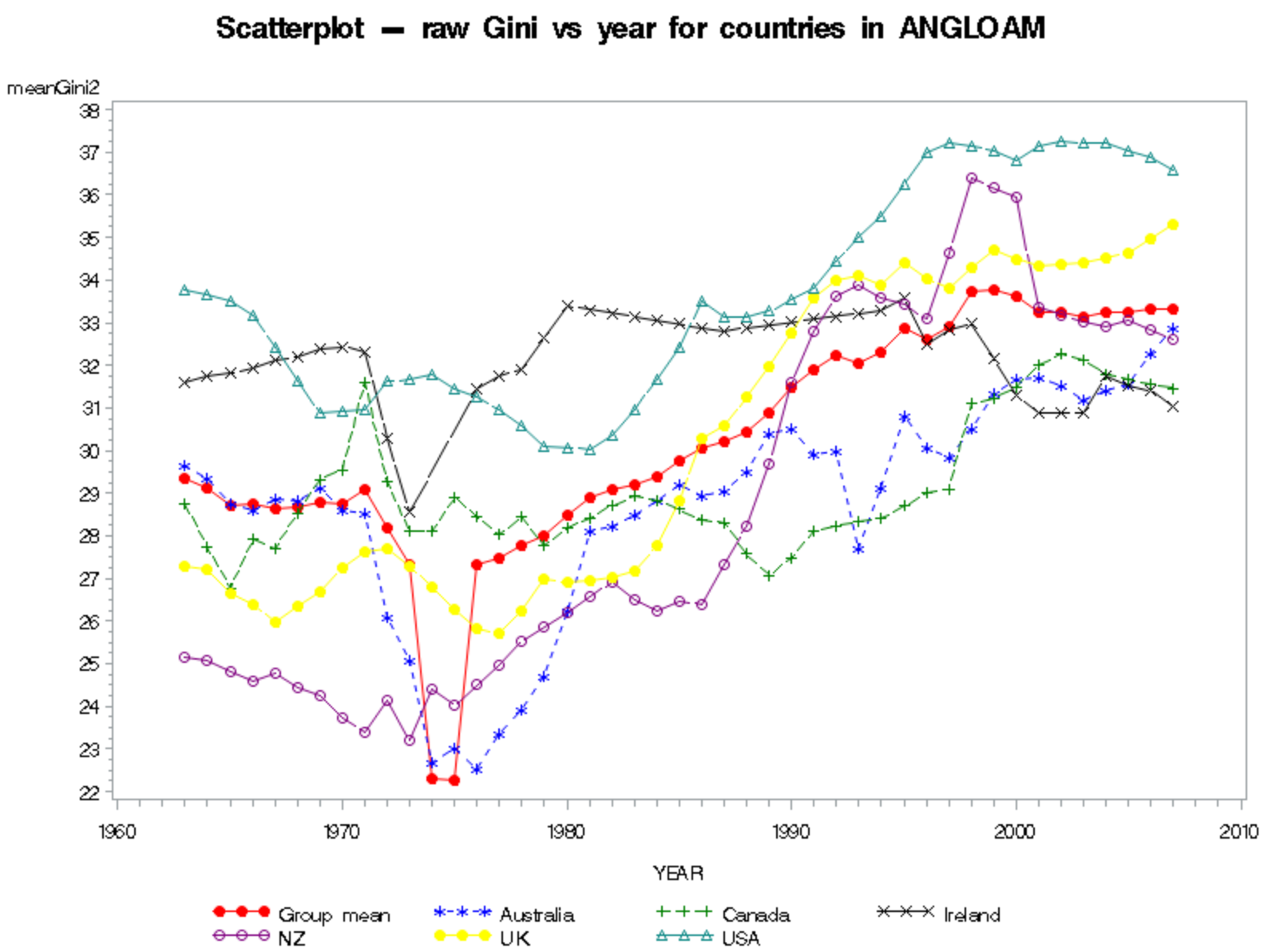

Scatterplot – mean IMR vs year for all groups
meanIMR1
90
80
70
60
50
40
30
20
10
0
1960
1970
1980
1990
2000
2010
YEAR
Nordic
Anglosax
Cont
Med
Centraleast
Emerg

Mean Gini by country group – over years


Scatterplot — mean Gini vs year for all groups
meanGini1
50
40
30
20
10
0
1960
1970
1980
1990
2000
2010
YEAR
Nordic
Anglosax
Cont
Med
Centraleast
Emerg

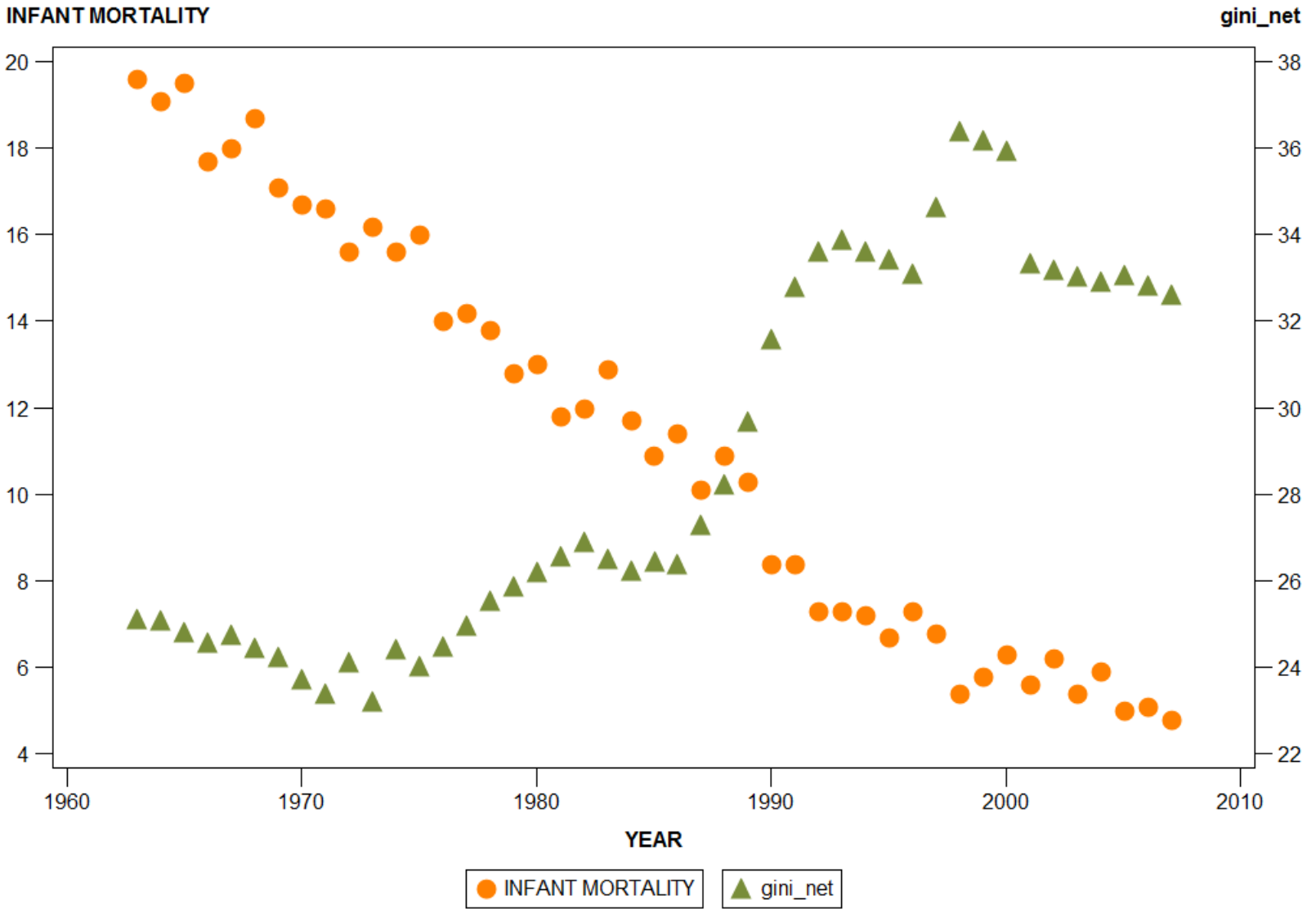
IMR/Gini trends for each country - over years by group (Anglo-American only)


Scatterplot — raw IMR vs year for countries in ANGLOAM
meanIMR2
30
20
10
0
1960
1970
1980
1990
2000
2010
YEAR
Group mean
NZ
Australia
UK
Canada
USA
Ireland


Scatterplot — raw Gini vs year for countries in ANGLOAM
meanGini2
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
1960
1970
1980
1990
2000
2010
YEAR
Group mean
NZ
Australia
UK
Canada
USA
Ireland

New Zealand

Correlation = -0.92



Source: Avendano data

Outline

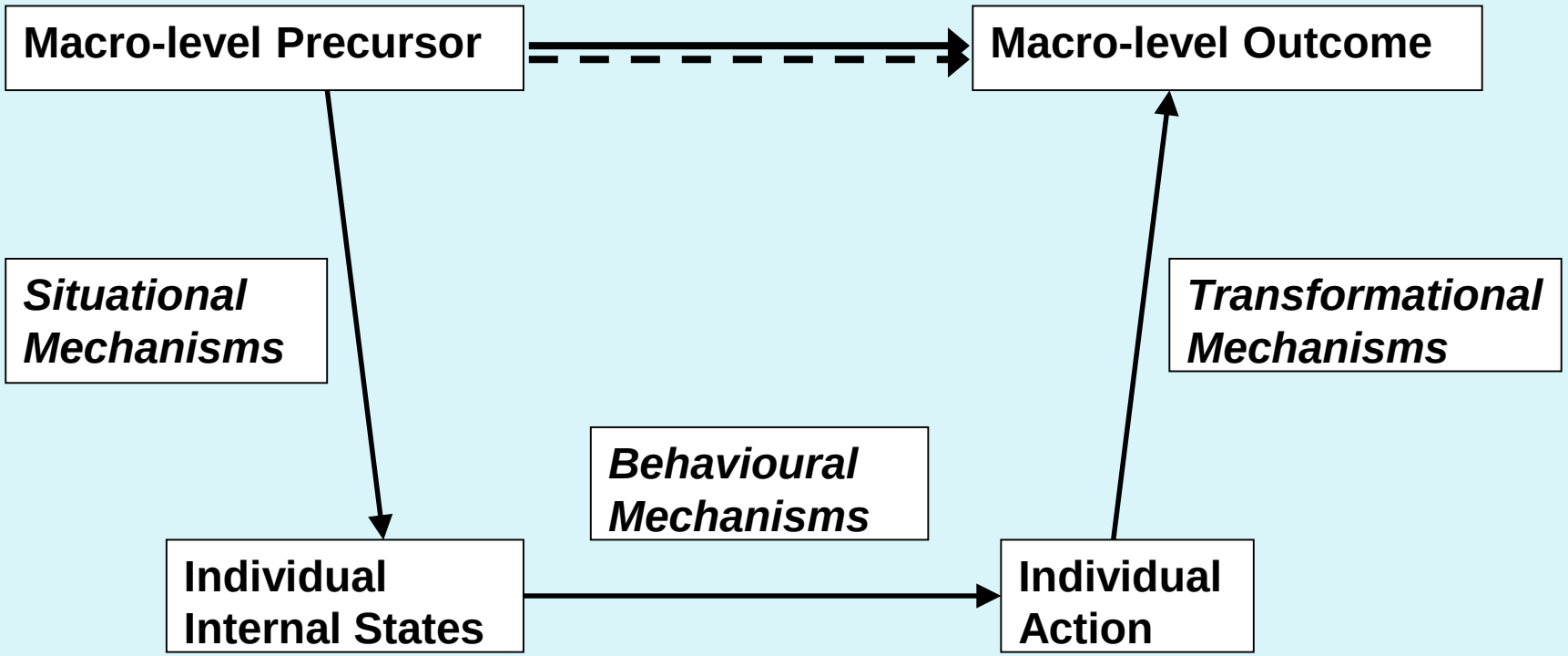
- The 'Spirit Level' - Preamble
  - Health sociology as "public" social science
  - Strengthening our policy relevance
    - Increasing "impact"
    - Making knowledge claims
    - Improving methods
- The 'Spirit Level' - causal assessment
  - **Where to from here?**
    - **The counterfactual causal paradigm**
    - **The analytical sociology approach**
  - **Conclusions**

Assessing causal claims - counterfactual approach

- **Counterfactual paradigm of causal reasoning**
  - If the putative causal factor had not been present, we would not have observed the recorded outcome.
    - Randomised Controlled Trials (RCTs)
    - Experimental and quasi-experimental methods
    - Observational designs and statistical analysis
  - **Simulation techniques**

Analytical sociology building blocks: The macro-micro dynamic

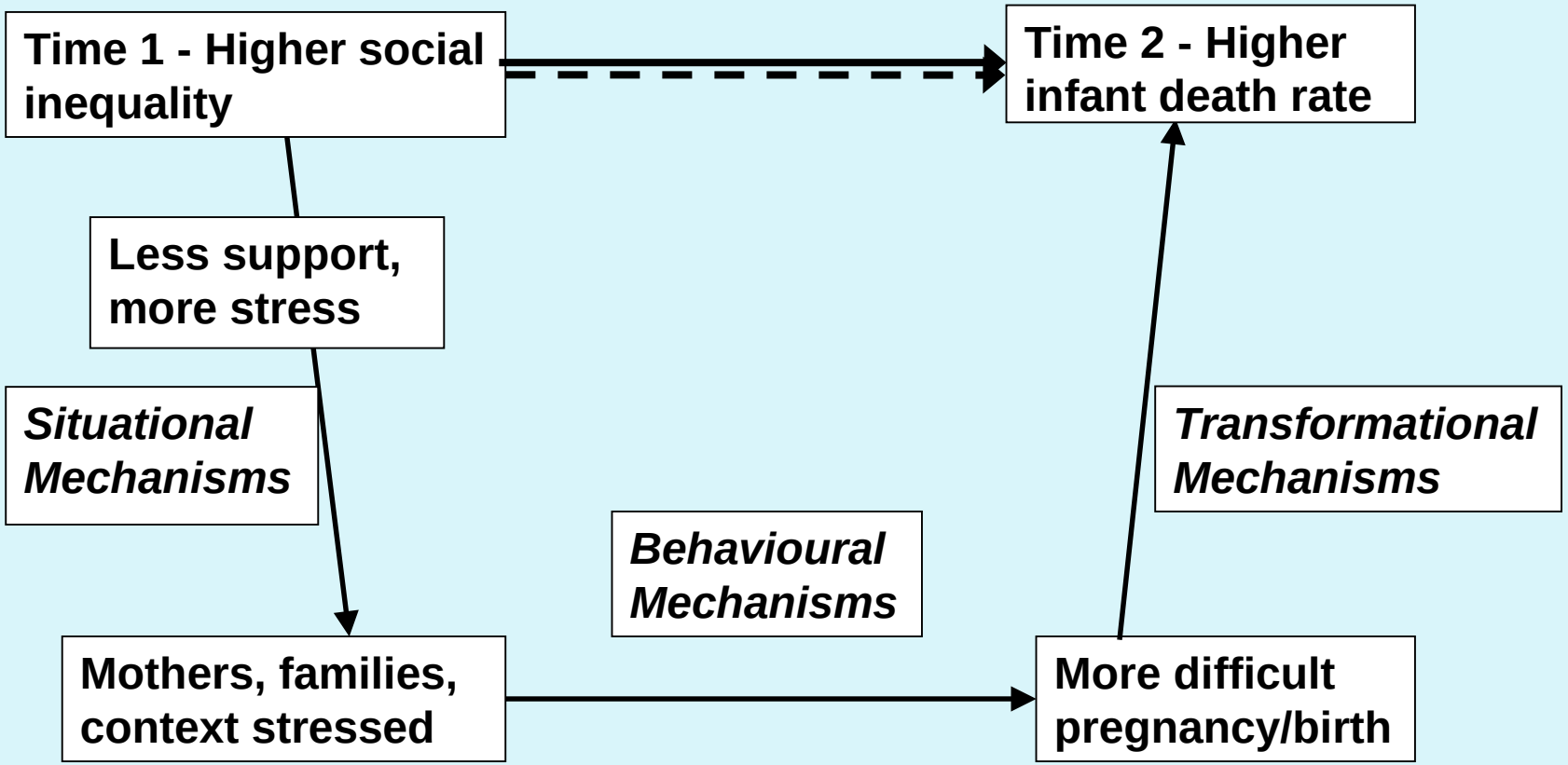
COMPASS RESEARCH CENTRE
FACULTY OF ARTS
THE UNIVERSITY OF AUCKLAND
Whare Wānanga o Tāmaki Makaurau



Adapted from Hechter and Horne (2003)

The macro-micro dynamic: Social inequality and early life

COMPASS RESEARCH CENTRE
FACULTY OF ARTS
THE UNIVERSITY OF AUCKLAND
Whare Wānanga o Tāmaki Makaurau



Conclusions

- The ‘Spirit Level’ has many of the qualities of exemplary “public” social science.
- However, the central thesis – societal inequality is linked to health and social problems – while plausible and intuitive, is only associational
- It is likely this is due to the ecological fallacy.
- More work on research design and causal mechanisms is needed to develop the theory

New Zealand

Does the ‘Spirit Level’ hypothesis meet the causal test?

BSA MedSoc Conference 2015
9-11 September, York

COMPASS RESEARCH CENTRE

FACULTY OF ARTS
THE UNIVERSITY OF AUCKLAND
Whare Wānanga o Tāmaki Makaurau

Peter Davis and Roy Lay-Yee

University of Auckland
pb.davis@auckland.ac.nz
and COMPASS Research Centre
www.compass.auckland.ac.nz

The University of Auckland