Why life expectancy trends have changed; health inequalities are increasing; and what would be an appropriate response

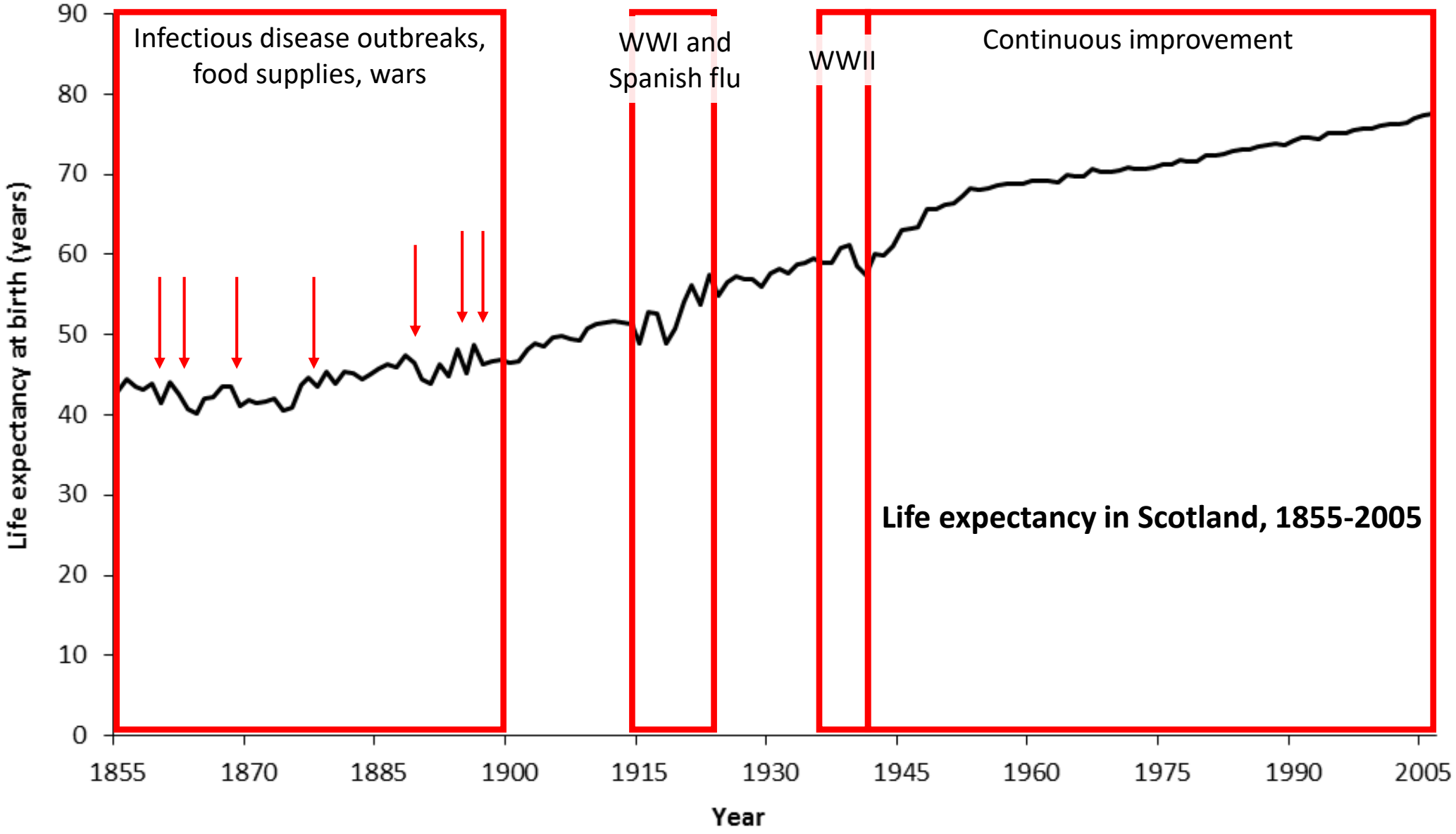
Dr Gerry McCartney
Consultant in Public Health and Head of the Public Health Observatory
NHS Health Scotland
October 2019

My objectives for the next 25 minutes:

1. To demonstrate that life expectancy trends changed from 2012
2. …that this is due to changes for almost all age groups and causes of death
3. …that this is leading to a rapid rise in unjust and avoidable health inequalities
4. …that the causes are most likely to be economic, working through a variety of pathways
5. To convince you that you all have a vital role in reversing these trends

Why does this matter?

1. Life expectancy is a very good marker of overall societal progress


Infectious disease outbreaks, food supplies, wars
WWI and Spanish flu
WWII
Continuous improvement
Life expectancy in Scotland, 1855-2005
Life expectancy at birth (years)
Year
0
10
20
30
40
50
60
70
80
90
1855
1870
1885
1900
1915
1930
1945
1960
1975
1990
2005

Why does this matter?

1. Life expectancy is a very good marker of overall societal progress
2. Underneath these numbers are personal and community tragedies
3. The First Minister is now explicit that population well-being is a top priority for the Scottish Government
4. We can change these trends

Life expectancy trends changed from 2012

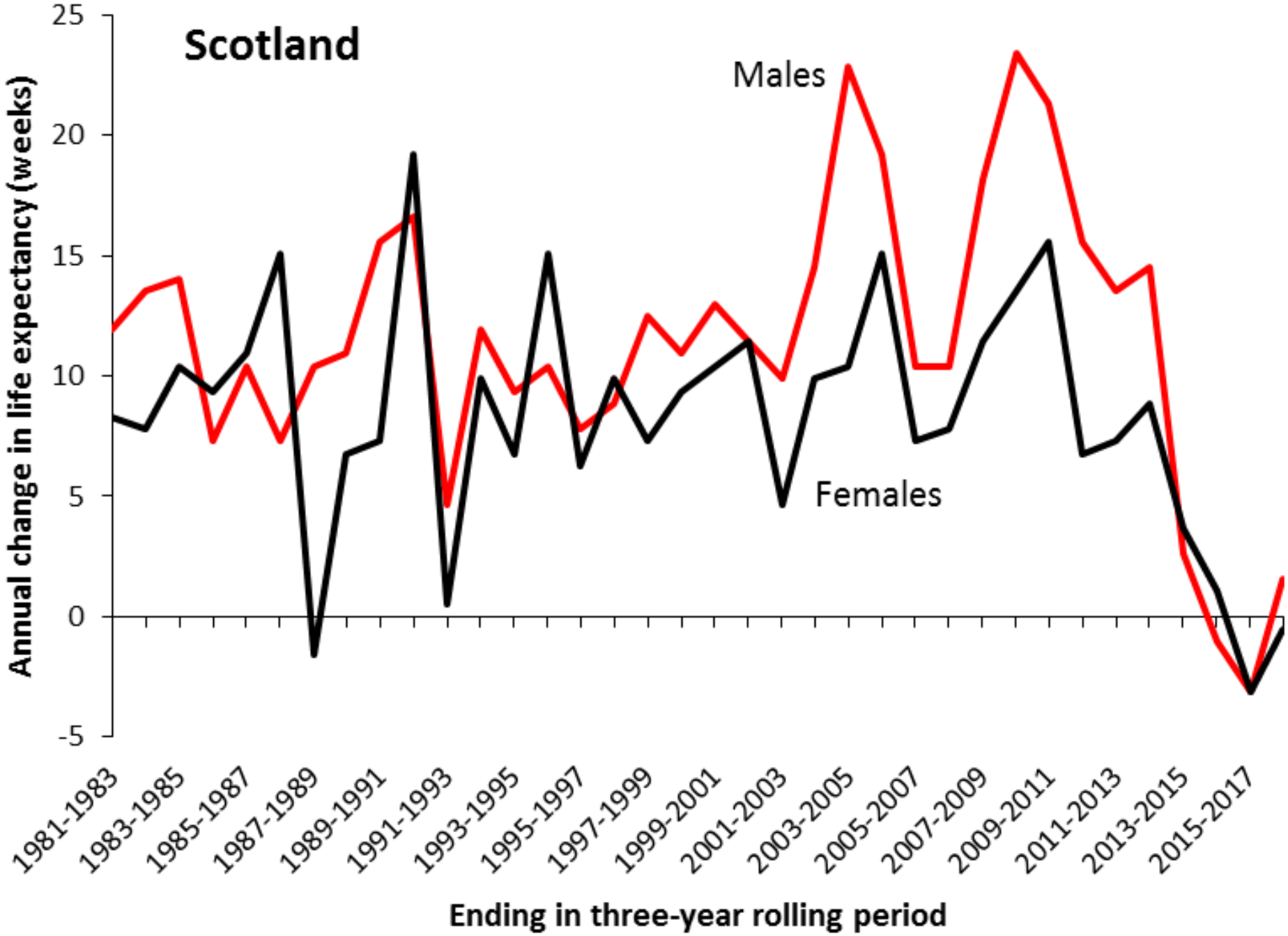
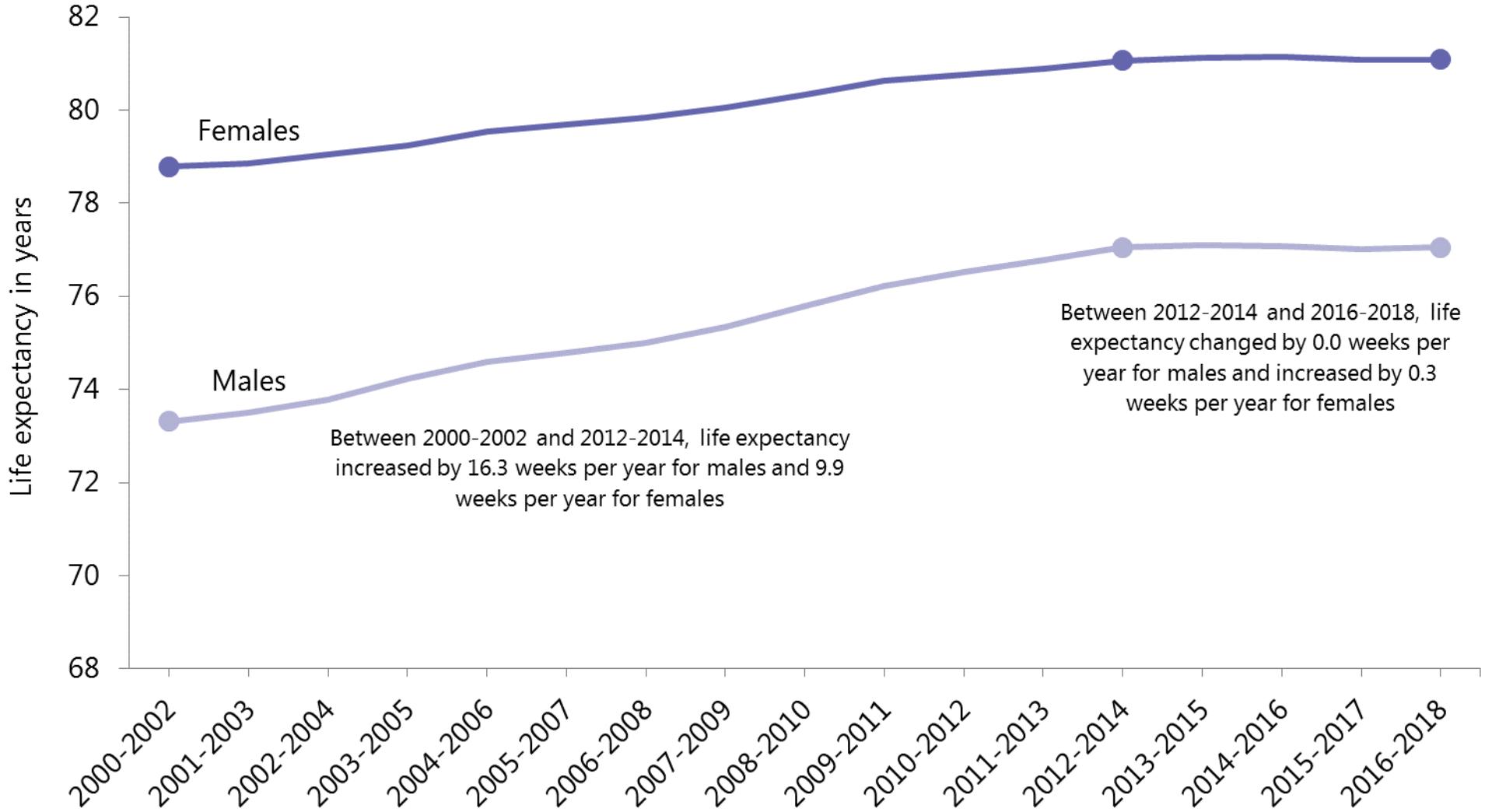
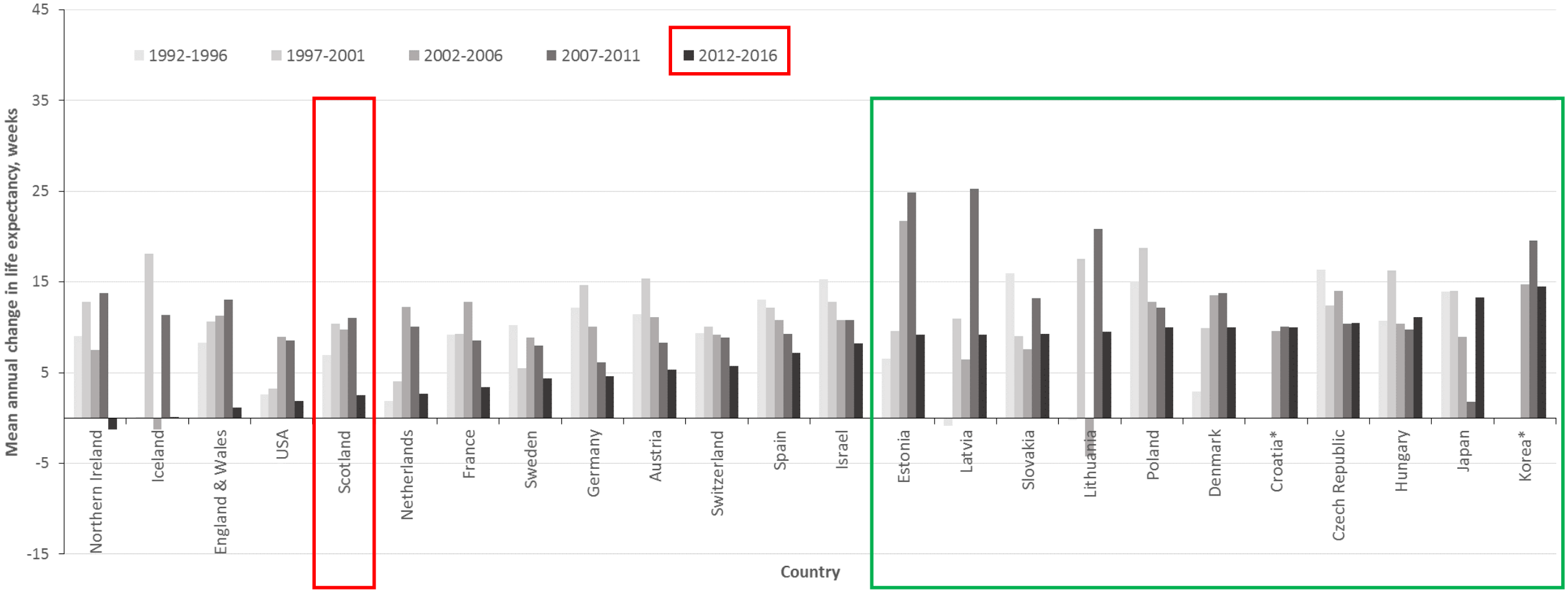

Scotland
Males
Females
Annual change in life expectancy (weeks)
25
20
15
10
5
0
-5
1981-1983
1983-1985
1985-1987
1987-1989
1989-1991
1991-1993
1993-1995
1995-1997
1997-1999
1999-2001
2001-2003
2003-2005
2005-2007
2007-2009
2009-2011
2011-2013
2013-2015
2015-2017
Ending in three-year rolling period

Figure 2. The slowing rate of improvement to life expectancy in Scotland.
2000-2002 to 2016-2018

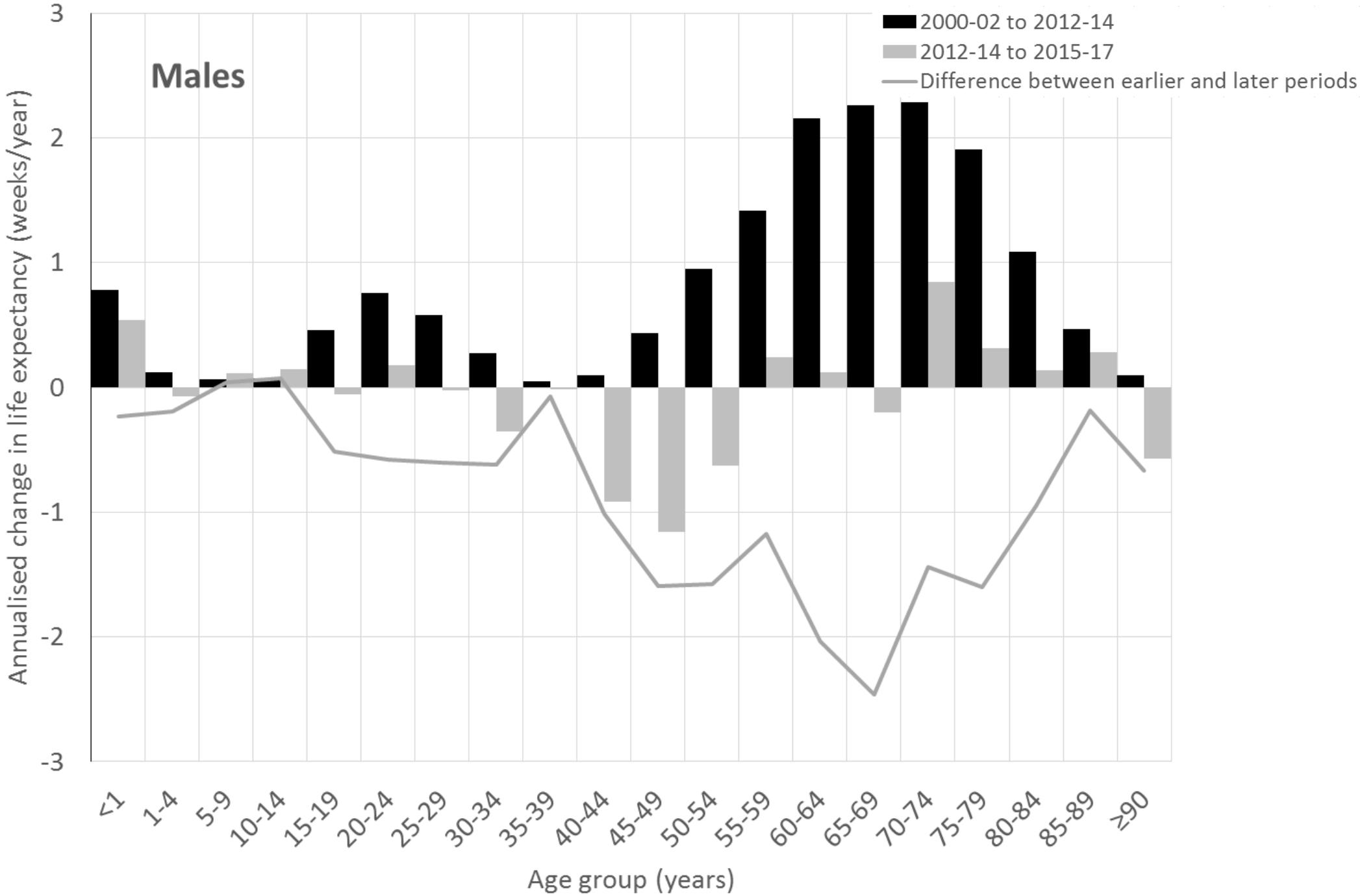


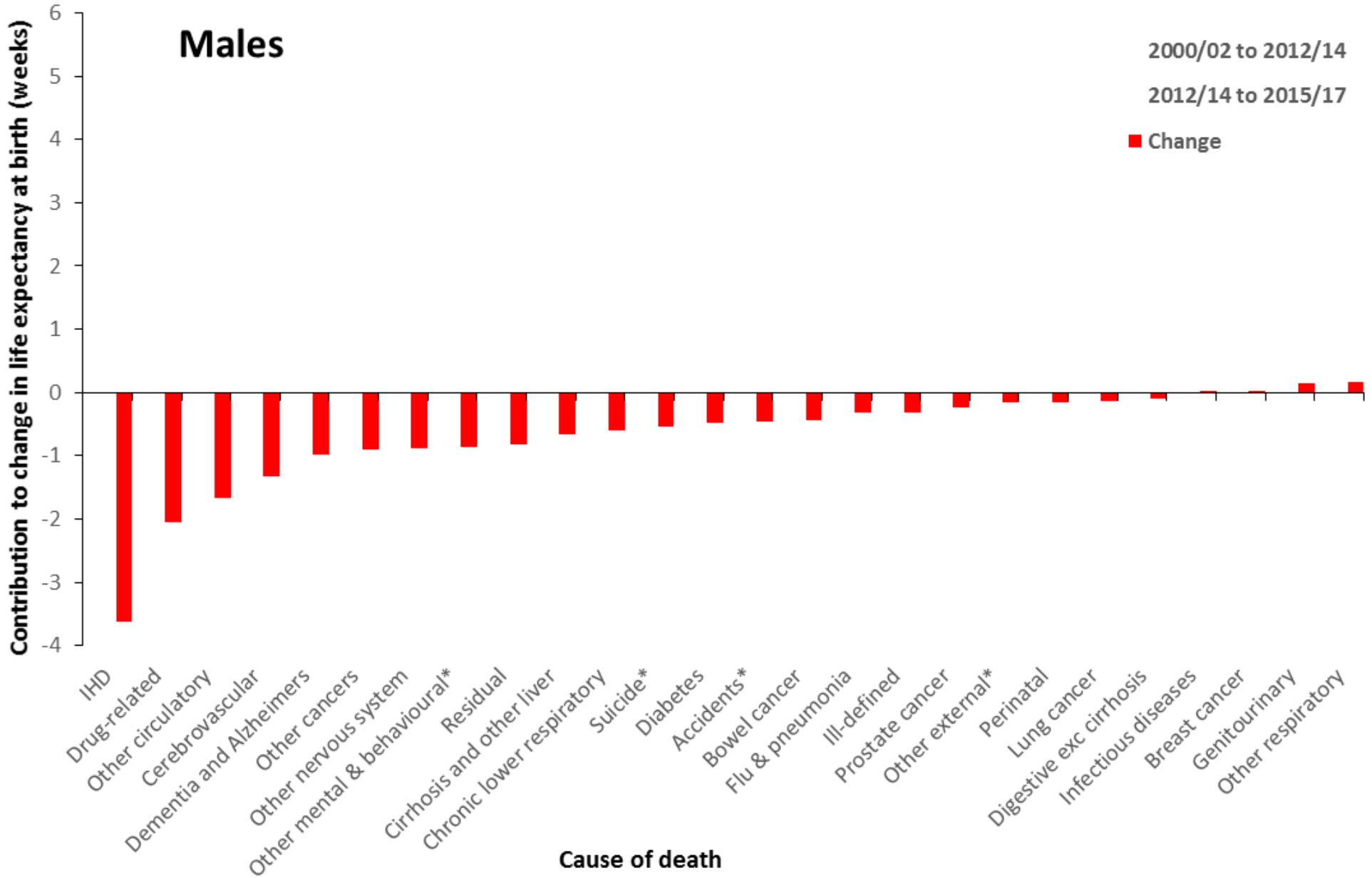
Source: National Life Tables for Scotland (NRS)

Mean annual change in female life expectancy

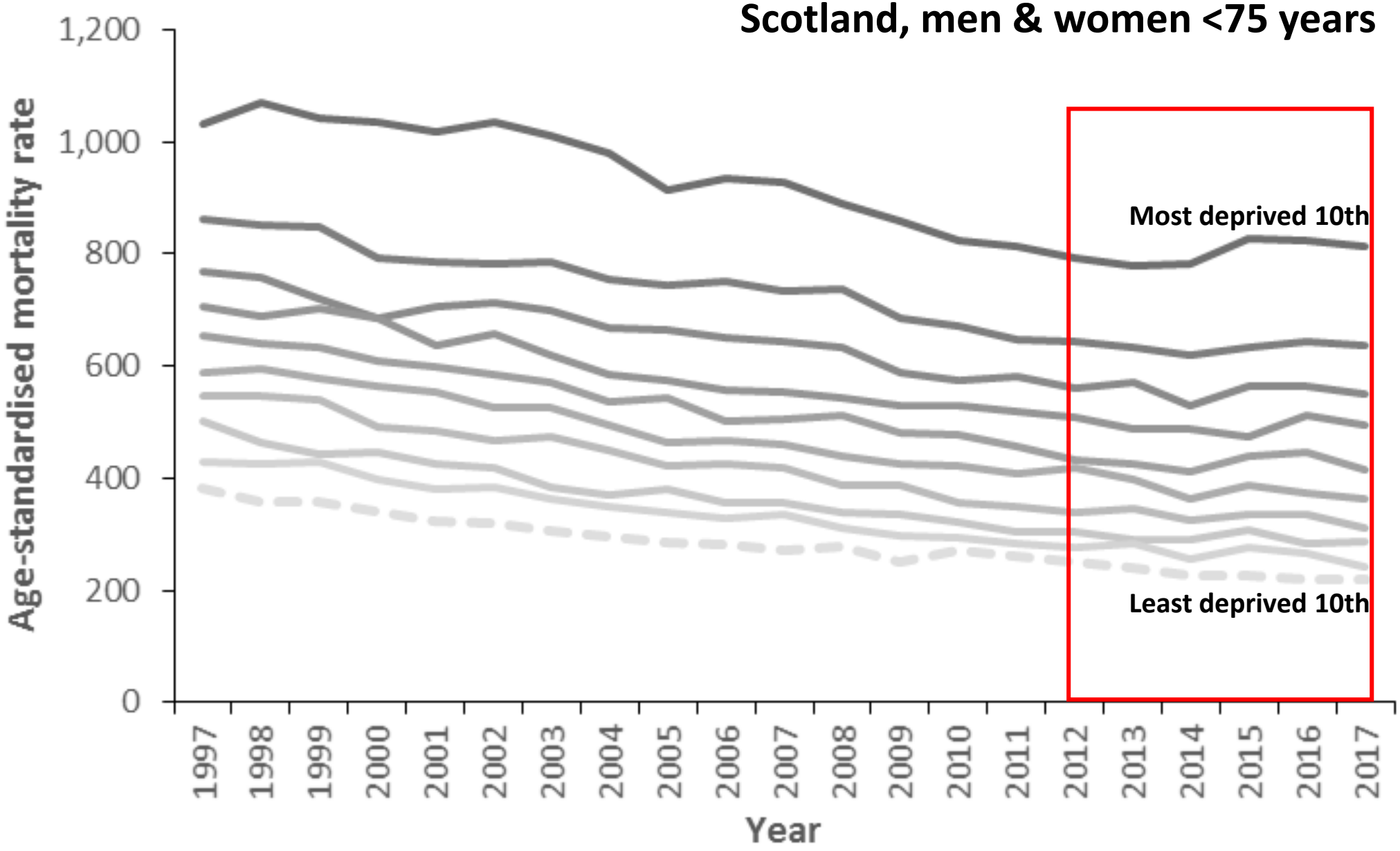


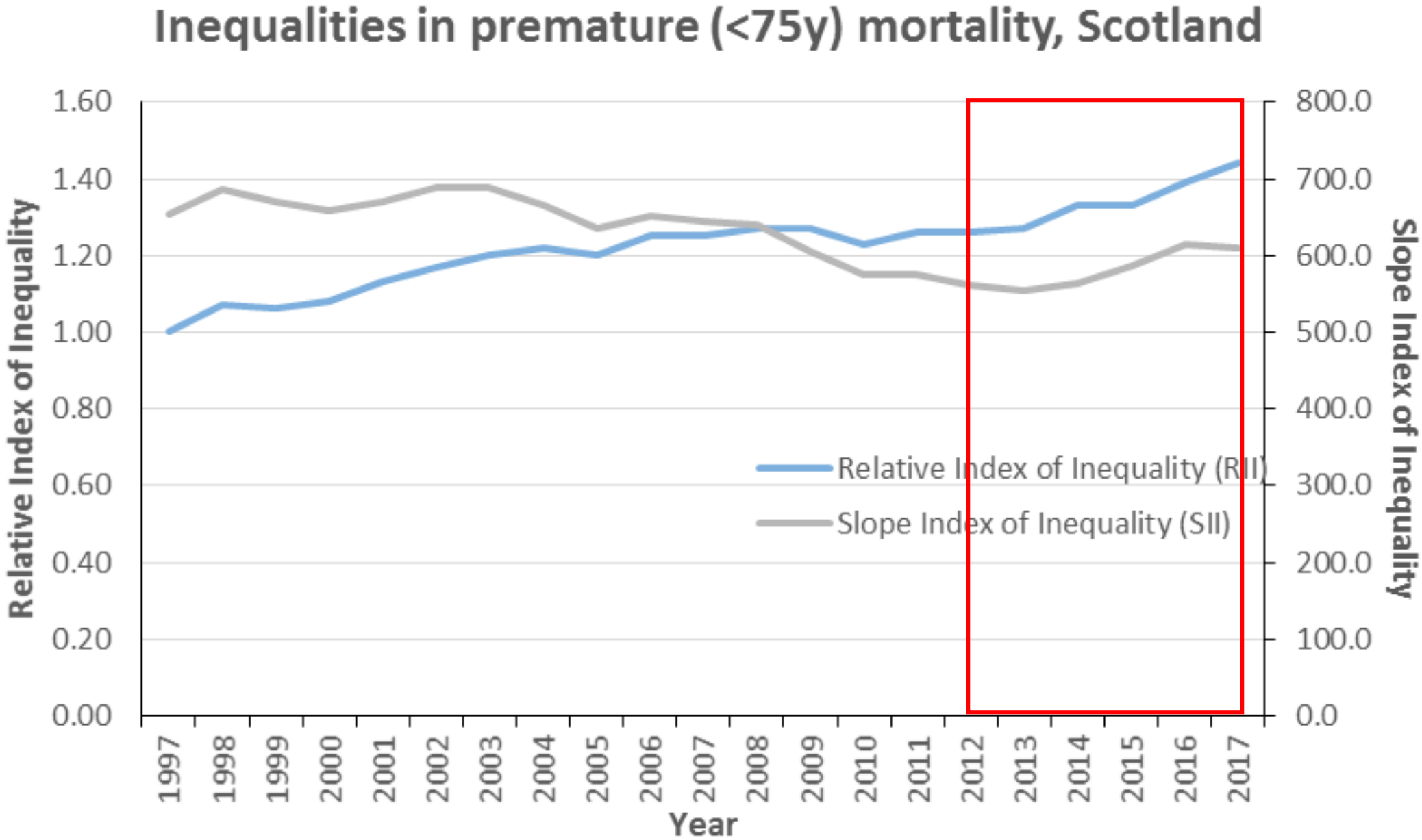
Almost all age groups and causes of death


Males
2000-02 to 2012-14
2012-14 to 2015-17
Difference between earlier and later periods
Annualised change in life expectancy (weeks/year)
3
2
1
0
-1
-2
-3
<1
1-4
5-9
10-14
15-19
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
≥90
Age group (years)


Males
2000/02 to 2012/14
2012/14 to 2015/17
Change
Contribution to change in life expectancy at birth (weeks)
6
5
4
3
2
1
0
-1
-2
-3
-4
IHD
Drug-related
Other circulatory
Cerebrovascular
Dementia and Alzheimers
Other cancers
Other nervous system
Other mental & behavioural*
Residual
Cirrhosis and other liver
Chronic lower respiratory
Suicide*
Diabetes
Accidents*
Bowel cancer
Flu & pneumonia
Ill-defined
Prostate cancer
Other external*
Perinatal
Lung cancer
Digestive exc cirrhosis
Infectious diseases
Breast cancer
Genitourinary
Other respiratory
Cause of death

A rapid rise in unjust and avoidable inequalities


Scotland, men & women <75 years
Age-standardised mortality rate
1,200
1,000
800
600
400
200
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Year
Most deprived 10th
Least deprived 10th


Inequalities in premature (<75y) mortality, Scotland
Relative Index of Inequality
Slope Index of Inequality
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
Relative Index of Inequality (RII)
Slope Index of Inequality (SII)
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Year

The causes are economic, working through a variety of pathways

What are the causes?

- Not due to influenza
  - > All causes of death impacted including implausible causes such as drug-related deaths
  - > Trends changed in 2012, not in the ‘flu-year’ 2015, and have been sustained subsequently
  - > All age groups impacted

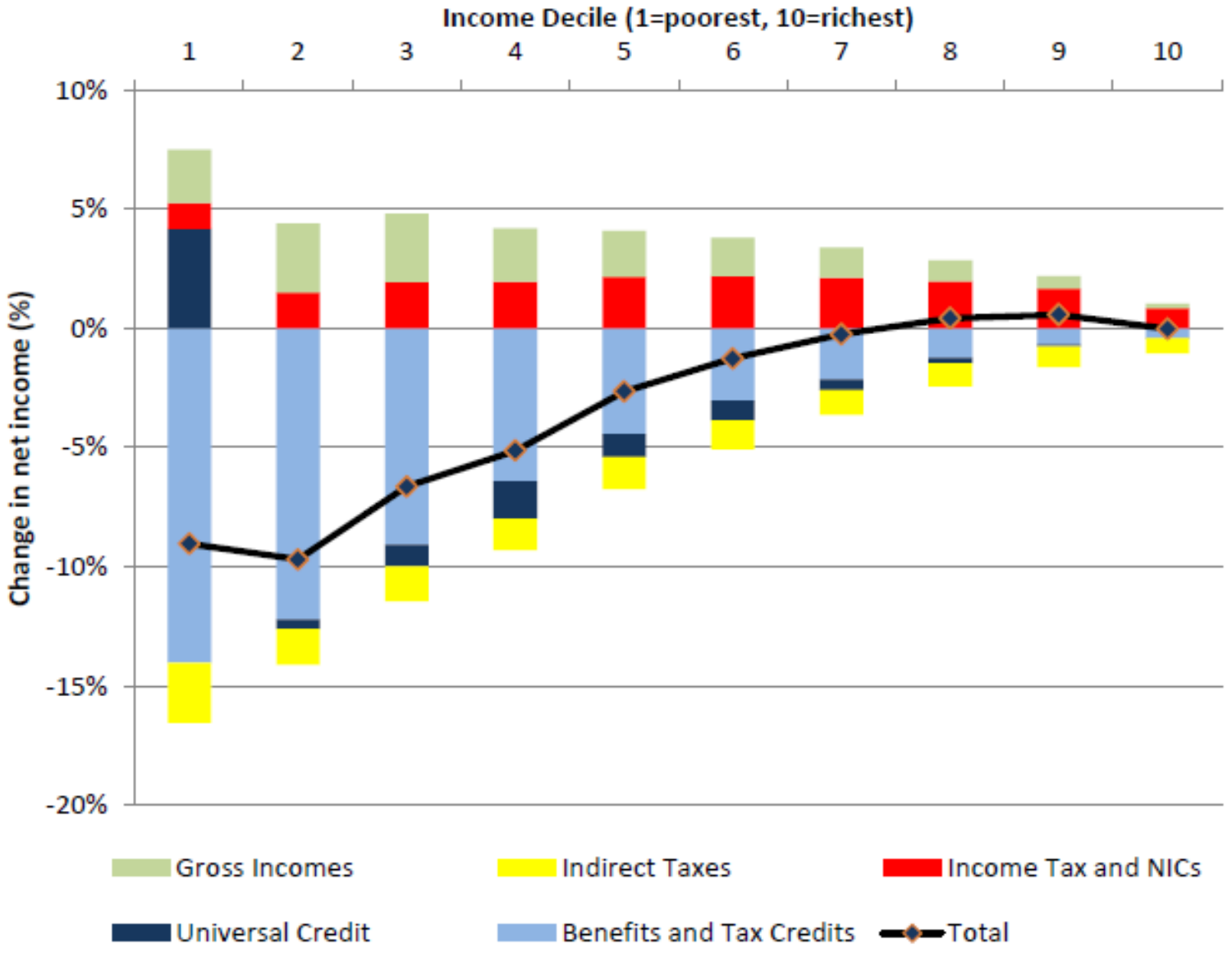
What are the causes?

- Not due to natural ‘biological’ limit
  > Trends have changed at all age groups, not just the oldest
  > Trends are worst in the most deprived groups where life expectancy is already lowest
  > Life expectancy continues to improve in countries who lead the world such as Japan

What are the causes?

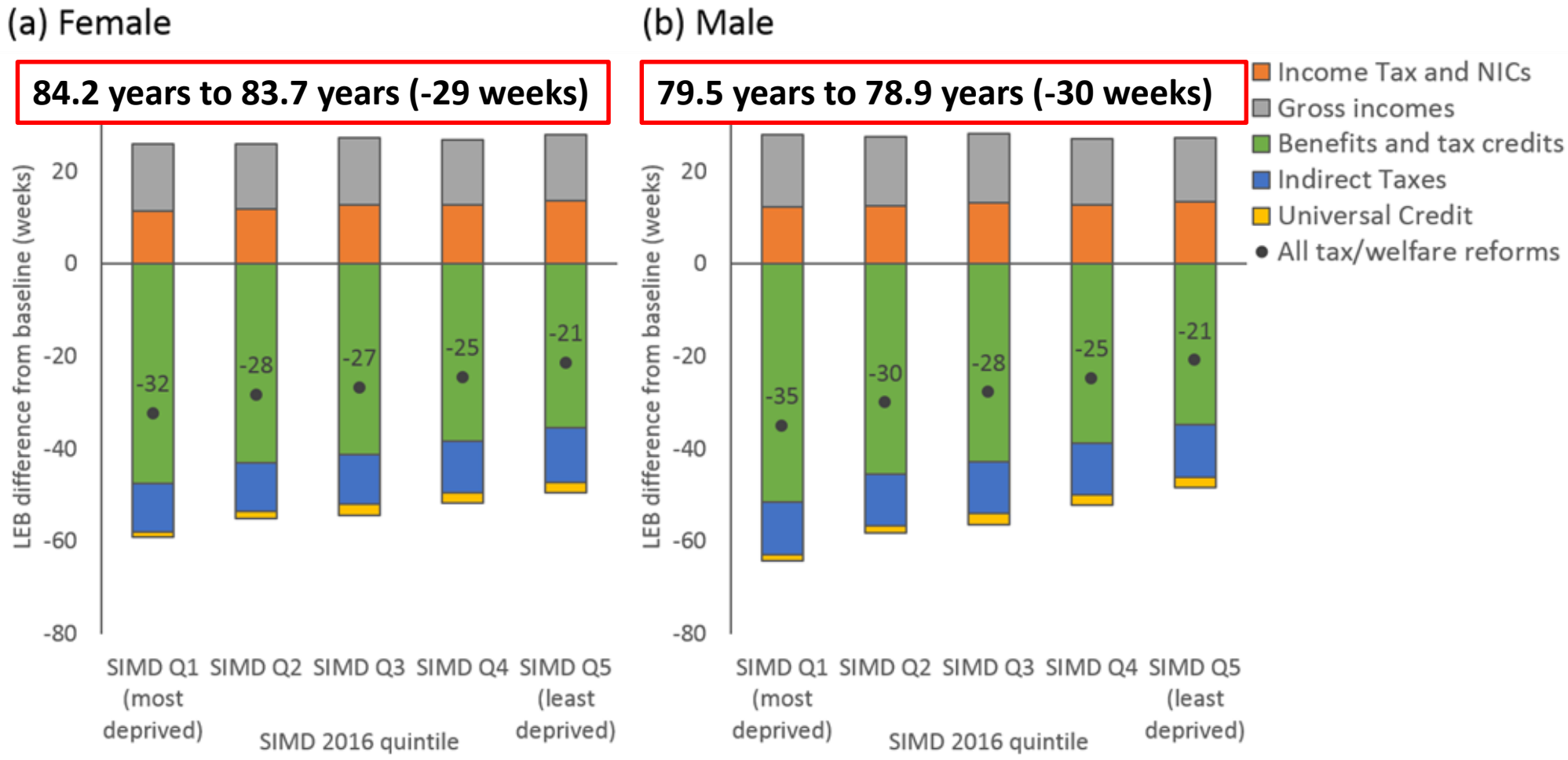
- ‘Austerity’
  > Yes, working through multiple pathways for different groups
  > Social security benefit cuts and increased conditions
  > Cuts to public services and pressures on health & social care services
  > Household incomes squeezed
  > Precarious work
  > Plethora of international and UK-based research

Percentage impact of reforms to taxes and transfer payments by household net income decile and type of reform 2010-2011 to 2021-22 tax year, Great Britain



Source: Portes et al. The cumulative impact of tax and welfare reforms. Manchester, Equality and Human Rights Commission, 2018.

Modelled impact of changes to taxes and transfer payments (2010-2011 to 2021-22) on life expectancy, Scotland (preliminary analysis using Triple I tool)



- Austerity measured as Cyclically Adjusted Primary Balance (CAPB) in terciles
- Europe (15 countries), 2011-2015
- Compared with countries in the low-austerity group, countries with intermediate austerity had excess mortality of 40 per 100,000 per year and those with high austerity had excess mortality of 31 per 100,000 per year.
- Generally good quality study
- No data beyond 2015 – likely to underestimate effects

RESEARCH AND PRACTICE

Austerity Policies and Mortality Rates in European Countries, 2011–2015

Luis Rajmil, PhD, and María-José Fernández de Sanamed, MD

Objectives. To assess time trends in mortality rates in European countries for the period 2011 to 2015 by level of austerity measures imposed by governments in response to the economic and financial crisis.

Methods. We analyzed standardized mortality rates (SMRs) for 2011 through 2015 in 15 European countries based on Eurostat data (http://ec.europa.eu/eurostat/data/database). We used the Cyclically Adjusted Primary Balance (CAPB) in terciles as an independent variable to represent the level of austerity adopted in each country. We conducted a longitudinal analysis of panel data using generalized estimating equation models of SMR. We included interaction terms to assess the influence of time period and level of austerity.

Results. SMRs generally declined in the study period, except in the last year of the study. In 2015, compared with countries in the low-austerity group, countries with intermediate austerity had excess mortality of 40.2 per 100 000 per year and those with high austerity had excess mortality of 31.22 per 100 000 per year.

Conclusions. The results suggest a negative effect on mortality in those countries that apply a higher level of austerity. (*Am J Public Health.* Published online ahead of print March 21, 2019: e1–e3. doi:10.2105/AJPH.2019.304997)

The impact of the 2008 economic crisis on social determinants and population health at the country level depends on several factors, including the measures adopted by governments to deal with the crisis. From 2010 until the present, many global financial institutions pressed for the adoption of austerity measures, both within the European Union and elsewhere.[1]

Austerity refers to cutting unnecessary bureaucratic spending for deficit reduction, although it may also entail cuts in public sector programs such as education, health, and social welfare. Such cuts can have a range of detrimental consequences, including a negative impact on health and probably on mortality in the short to medium term, particularly for those in lower income brackets (see Additional References, available as a supplement to the online version of this article at http://www.ajph.org). Research carried out to date suggests that the economic crisis has had a range of harmful effects on health outcomes, with the evidence being most consistent for mental health and suicides.[2] A negative impact on social determinants of health, with strong effects in some countries, has also been reported.[3]

A recently published article[4] that compared trends in mortality rates in Spain and the United States reported an increase in mortality since 2011 in Spain. Although the authors attributed the increase to the austerity policies of the Spanish government, an editorial in the same edition of *AJPH* suggested that methodological problems deriving from a change in the reference population had led the authors to overestimate mortality rates.[5] There is an evident need to differentiate the impact of the crisis from the responses of governments and its consequences in terms of health and mortality.

In this study, we assessed time trends in mortality rates in 15 European countries for the period 2011 through 2015 by level of austerity measures imposed by governments in response to the economic and financial crisis.

METHODS

We carried out a longitudinal ecological study of trends in standardized mortality rates (SMRs) at the country level. We included 15 countries from the European Economic Area for which routinely collected and comparable data for the period 2011 to 2015 were available (http://ec.europa.eu/eurostat/data/database). We excluded postcommunist countries, as well as Luxembourg and Switzerland because of their high level of economic development, which does not necessarily reflect the real wealth of residents. We included Austria, Belgium, Denmark, France, Finland, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom.

We used the Cyclically Adjusted Primary Balance (CAPB) to categorize the severity of austerity policy responses to the crisis in each country. The CAPB, which was developed by the International Monetary Fund,[6] represents the cyclical component of the overall fiscal balance, computed as the difference between cyclical revenues and cyclical expenditures. A high score signifies a higher level of austerity. We stratified CAPB into terciles representing high, medium, and low levels of austerity, and we calculated CAPB differences within countries from 2009, the year of the major impact of the crisis, to 2013, the last year with major spending cuts.[7] Table

ABOUT THE AUTHORS

Luis Rajmil is a pediatrician and epidemiology and public health specialist, current position. María José Fernández de Sanamed is a primary care physician, currently retired.

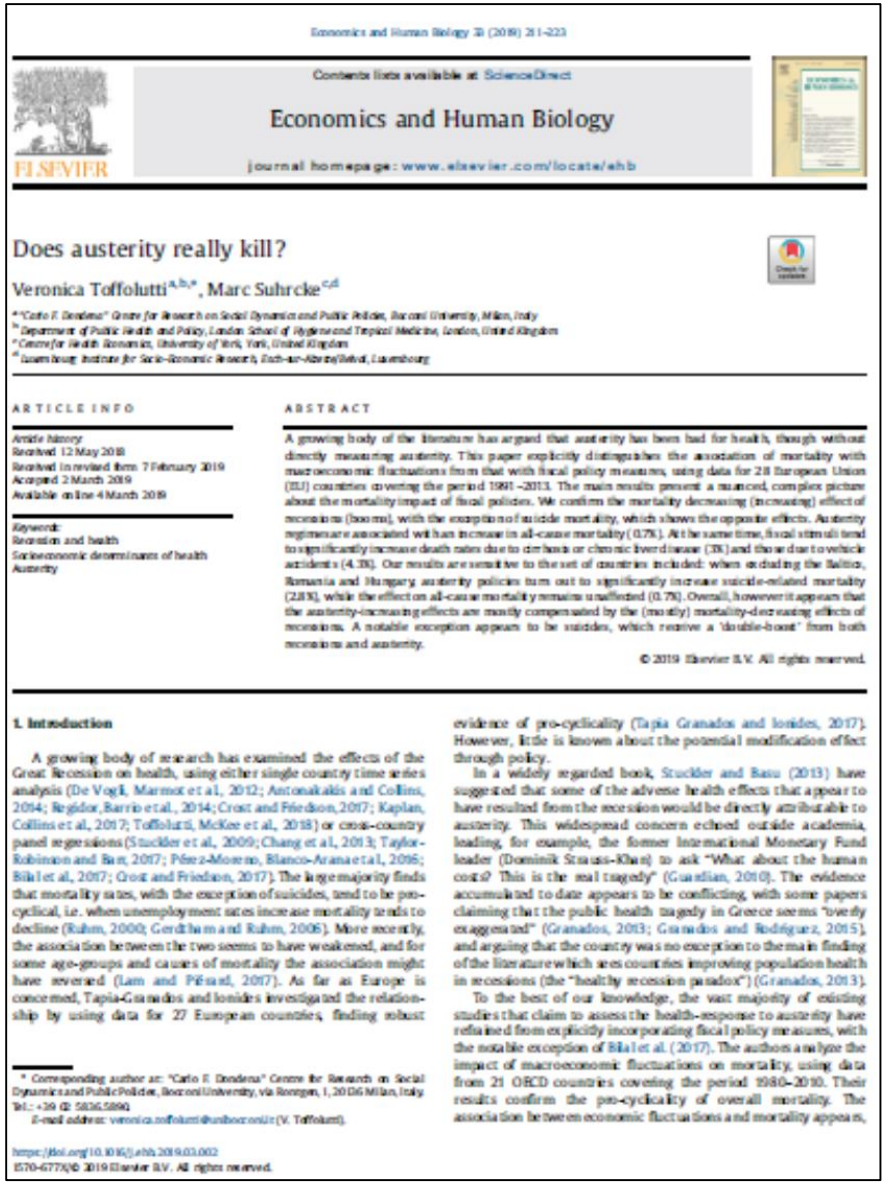
Correspondence should be sent to Luis Rajmil, Carrer Homer 22, bxs 1, Barcelona E-08023, Spain (e-mail: lrajmil@gmail.com). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

This article was accepted January 13, 2019.

doi: 10.2105/AJPH.2019.304997

Rajmil, Luis; Fernández de Sanamed, María-José. Austerity Policies and Mortality Rates in European Countries, 2011–2015. AJPH 2019; 109: 768-870, doi:10.2105/AJPH.2019.304997.

- Austerity measured using the Alesina-Ardagna Fiscal Index (AAFI) (also called ‘Blanchard Fiscal Index’)
- Europe (28 countries), 1991-2013 (many up to 2012)
- Austerity regimes are associated with an increase in mortality of 0.7% after adjusting for recession effects
- Good quality study
- No data beyond 2012/3 – likely to underestimate effects



Economics and Human Biology 33 (2019) 211–223

Contents lists available at ScienceDirect

Economics and Human Biology

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

Does austerity really kill?

Veronica Toffolutti[a,b,*], Marc Suhrcke[c,d]

[a] "Carlo F. Dondena" Centre for Research on Social Dynamics and Public Policies, Bocconi University, Milan, Italy
[b] Department of Public Health and Policy, London School of Hygiene and Tropical Medicine, London, United Kingdom
[c] Centre for Health Economics, University of York, York, United Kingdom
[d] Luxembourg Institute for Socio-Economic Research, Esch-sur-Alzette/Belval, Luxembourg

ARTICLE INFO

Article history:
Received 12 May 2018
Received in revised form 7 February 2019
Accepted 2 March 2019
Available online 4 March 2019

Keywords:
Recession and health
Socioeconomic determinants of health
Austerity

ABSTRACT

A growing body of the literature has argued that austerity has been bad for health, though without directly measuring austerity. This paper explicitly distinguishes the association of mortality with macroeconomic fluctuations from that with fiscal policy measures, using data for 28 European Union (EU) countries covering the period 1991–2013. The main results present a nuanced, complex picture about the mortality impact of fiscal policies. We confirm the mortality decreasing (increasing) effect of recessions (booms), with the exception of suicide mortality, which shows the opposite effects. Austerity regimes are associated with an increase in all-cause mortality (0.7%). At the same time, fiscal stimuli tend to significantly increase death rates due to cirrhosis or chronic liver disease (3%) and those due to vehicle accidents (4.3%). Our results are sensitive to the set of countries included: when excluding the Baltics, Romania and Hungary, austerity policies turn out to significantly increase suicide-related mortality (2.8%), while the effect on all-cause mortality remains unaffected (0.7%). Overall, however it appears that the austerity-increasing effects are mostly compensated by the (mostly) mortality-decreasing effects of recessions. A notable exception appears to be suicides, which receive a 'double-boost' from both recessions and austerity.

1. Introduction

A growing body of research has examined the effects of the Great Recession on health, using either single country time series analysis (De Vogli, Marmot et al., 2012; Antonakakis and Collins, 2014; Regidor, Barrio et al., 2014; Crost and Friedson, 2017; Kaplan, Collins et al., 2017; Toffolutti, McKee et al., 2018) or cross-country panel regressions (Stuckler et al., 2009; Chang et al., 2013; Taylor-Robinson and Barr, 2017; Pérez-Moreno, Blanco-Arana et al., 2096; Bilal et al., 2017; Crost and Friedson, 2017). The large majority finds that mortality rates, with the exception of suicides, tend to be pro-cyclical, i.e. when unemployment rates increase mortality tends to decline (Ruhm, 2000; Gerdtham and Ruhm, 2006). More recently, the association between the two seems to have weakened, and for some age-groups and causes of mortality the association might have reversed (Lam and Pérard, 2017). As far as Europe is concerned, Tapia-Granados and Ionides investigated the relationship by using data for 27 European countries, finding robust evidence of pro-cyclicality (Tapia Granados and Ionides, 2017). However, little is known about the potential modification effect through policy.

In a widely regarded book, Stuckler and Basu (2013) have suggested that some of the adverse health effects that appear to have resulted from the recession would be directly attributable to austerity. This widespread concern echoed outside academia, leading, for example, the former International Monetary Fund leader (Dominik Strauss-Khan) to ask "What about the human cost? This is the real tragedy" (Guardian, 2010). The evidence accumulated to date appears to be conflicting, with some papers claiming that the public health tragedy in Greece seems "overly exaggerated" (Granados, 2013; Granados and Rodriguez, 2015), and arguing that the country was no exception to the main finding of the literature which sees countries improving population health in recessions (the "healthy recession paradox") (Granados, 2013).

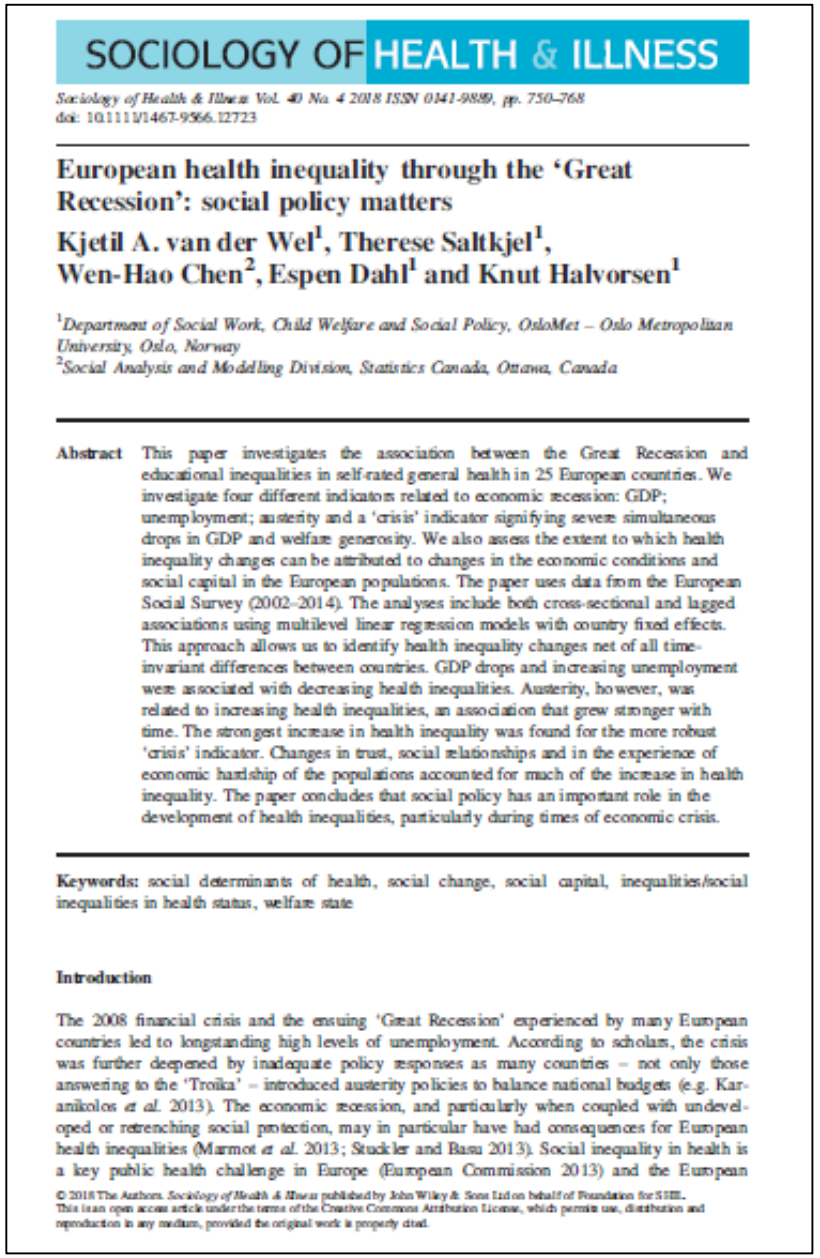
To the best of our knowledge, the vast majority of existing studies that claim to assess the health-response to austerity have refrained from explicitly incorporating fiscal policy measures, with the notable exception of Bilal et al. (2017). The authors analyze the impact of macroeconomic fluctuations on mortality, using data from 21 OECD countries covering the period 1980–2010. Their results confirm the pro-cyclicality of overall mortality. The association between economic fluctuations and mortality appears,

* Corresponding author at: "Carlo F. Dondena" Centre for Research on Social Dynamics and Public Policies, Bocconi University, via Roentgen, 1, 20136 Milan, Italy.
Tel.: +39 02 5836 5894.
E-mail address: veronica.toffolutti@unibocconi.it (V. Toffolutti).

https://doi.org/10.1016/j.ehb.2019.03.002
1570-677X/

Toffoluttia V, Suhrcke M. Does austerity really kill? Economics and Human Biology 2019; 33: 211-3.

- Austerity measured by welfare spending, adjusted for unemployment and GDP
- 2002-2014, Europe (25)
- GDP drops and increasing unemployment were associated with decreasing health inequalities. Austerity, however, was related to increasing health inequalities, an association that grew stronger with time.
- Good quality study though response rate for European Social Survey is highly variable across countries, and only self-rated health measures.
- No data beyond 2014 – likely to underestimate effects



SOCIOLOGY OF HEALTH & ILLNESS

Sociology of Health & Illness Vol. 40 No. 4 2018 ISSN 0141-9889, pp. 750–768
doi: 10.1111/1467-9566.12723

European health inequality through the 'Great Recession': social policy matters

Kjetil A. van der Wel[1], Therese Saltkjel[1], Wen-Hao Chen[2], Espen Dahl[1] and Knut Halvorsen[1]

[1]*Department of Social Work, Child Welfare and Social Policy, OsloMet – Oslo Metropolitan University, Oslo, Norway*
[2]*Social Analysis and Modelling Division, Statistics Canada, Ottawa, Canada*

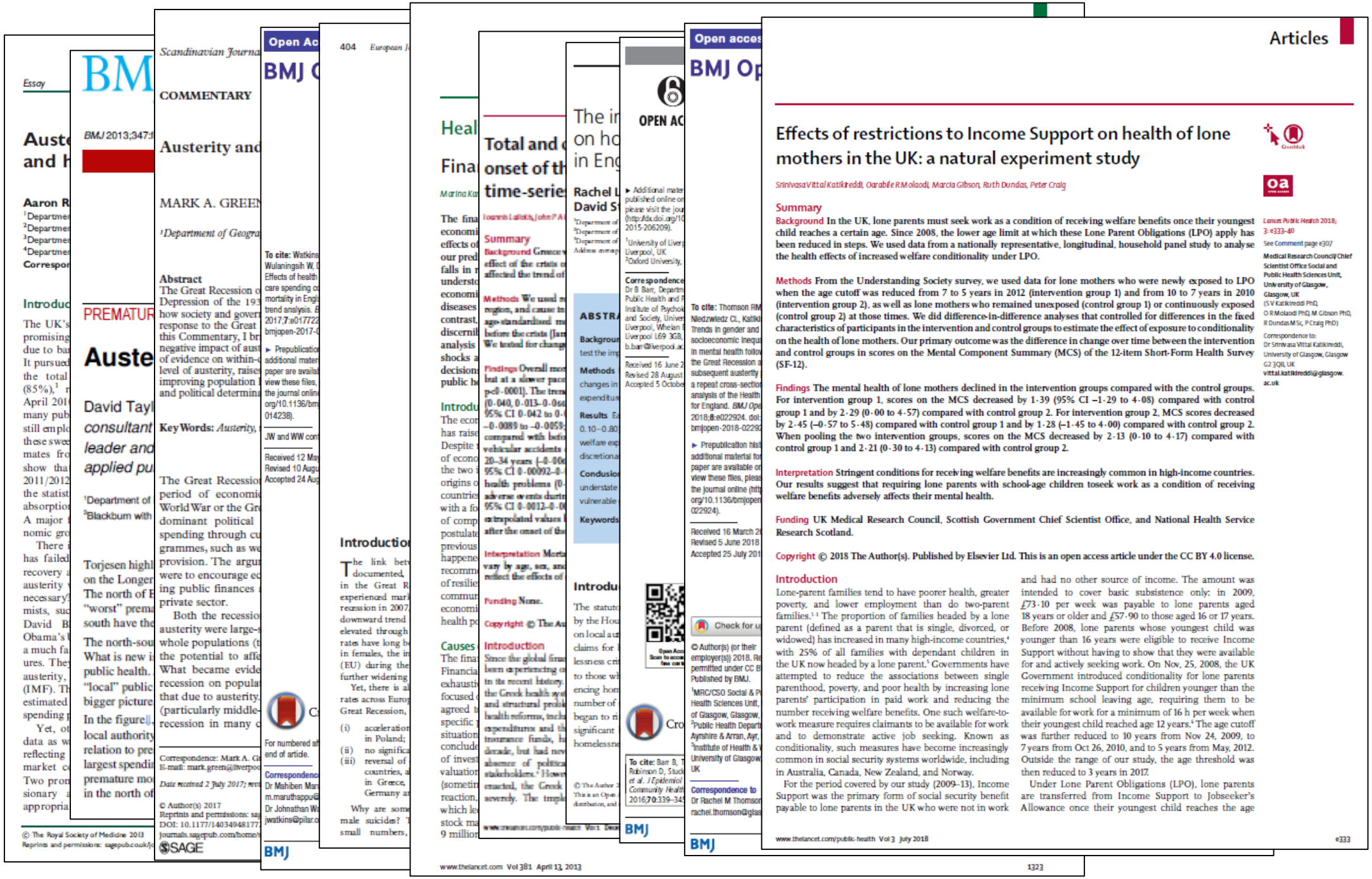
Abstract This paper investigates the association between the Great Recession and educational inequalities in self-rated general health in 25 European countries. We investigate four different indicators related to economic recession: GDP; unemployment; austerity and a 'crisis' indicator signifying severe simultaneous drops in GDP and welfare generosity. We also assess the extent to which health inequality changes can be attributed to changes in the economic conditions and social capital in the European populations. The paper uses data from the European Social Survey (2002–2014). The analyses include both cross-sectional and lagged associations using multilevel linear regression models with country fixed effects. This approach allows us to identify health inequality changes net of all time-invariant differences between countries. GDP drops and increasing unemployment were associated with decreasing health inequalities. Austerity, however, was related to increasing health inequalities, an association that grew stronger with time. The strongest increase in health inequality was found for the more robust 'crisis' indicator. Changes in trust, social relationships and in the experience of economic hardship of the populations accounted for much of the increase in health inequality. The paper concludes that social policy has an important role in the development of health inequalities, particularly during times of economic crisis.

Keywords: social determinants of health, social change, social capital, inequalities/social inequalities in health status, welfare state

Introduction

The 2008 financial crisis and the ensuing 'Great Recession' experienced by many European countries led to longstanding high levels of unemployment. According to scholars, the crisis was further deepened by inadequate policy responses as many countries – not only those answering to the 'Troika' – introduced austerity policies to balance national budgets (e.g. Karanikolos *et al.* 2013). The economic recession, and particularly when coupled with underdeveloped or retrenching social protection, may in particular have had consequences for European health inequalities (Marmot *et al.* 2013; Stuckler and Basu 2013). Social inequality in health is a key public health challenge in Europe (European Commission 2013) and the European

van der Wel, Kjetil A.; Saltkjel, Therese; Chen, Wen-Hao; Dahl, Espen; Halvorsen, Knut. European health inequality through the 'Great Recession': social policy matters. Sociology of Health & Illness 2018; 40(4): 750-768, doi:10.1111/1467-9566.12723



Articles

Effects of restrictions to Income Support on health of lone mothers in the UK: a natural experiment study

Srinivasa Vittal Katikireddi, Oarabile R Molaodi, Marcia Gibson, Ruth Dundas, Peter Craig

Summary

Background In the UK, lone parents must seek work as a condition of receiving welfare benefits once their youngest child reaches a certain age. Since 2008, the lower age limit at which these Lone Parent Obligations (LPO) apply has been reduced in steps. We used data from a nationally representative, longitudinal, household panel study to analyse the health effects of increased welfare conditionality under LPO.

Methods From the Understanding Society survey, we used data for lone mothers who were newly exposed to LPO when the age cutoff was reduced from 7 to 5 years in 2012 (intervention group 1) and from 10 to 7 years in 2010 (intervention group 2), as well as lone mothers who remained unexposed (control group 1) or continuously exposed (control group 2) at those times. We did difference-in-difference analyses that controlled for differences in the fixed characteristics of participants in the intervention and control groups to estimate the effect of exposure to conditionality on the health of lone mothers. Our primary outcome was the difference in change over time between the intervention and control groups in scores on the Mental Component Summary (MCS) of the 12-item Short-Form Health Survey (SF-12).

Findings The mental health of lone mothers declined in the intervention groups compared with the control groups. For intervention group 1, scores on the MCS decreased by 1·39 (95% CI −1·29 to 4·08) compared with control group 1 and by 2·29 (0·00 to 4·57) compared with control group 2. For intervention group 2, MCS scores decreased by 2·45 (−0·57 to 5·48) compared with control group 1 and by 1·28 (−1·45 to 4·00) compared with control group 2. When pooling the two intervention groups, scores on the MCS decreased by 2·13 (0·10 to 4·17) compared with control group 1 and 2·21 (0·30 to 4·13) compared with control group 2.

Interpretation Stringent conditions for receiving welfare benefits are increasingly common in high-income countries. Our results suggest that requiring lone parents with school-age children toseek work as a condition of receiving welfare benefits adversely affects their mental health.

Funding UK Medical Research Council, Scottish Government Chief Scientist Office, and National Health Service Research Scotland.

Introduction

Lone-parent families tend to have poorer health, greater poverty, and lower employment than do two-parent families.[1–3] The proportion of families headed by a lone parent (defined as a parent that is single, divorced, or widowed) has increased in many high-income countries,[4] with 25% of all families with dependant children in the UK now headed by a lone parent.[5] Governments have attempted to reduce the associations between single parenthood, poverty, and poor health by increasing lone parents' participation in paid work and reducing the number receiving welfare benefits. One such welfare-to-work measure requires claimants to be available for work and to demonstrate active job seeking. Known as conditionality, such measures have become increasingly common in social security systems worldwide, including in Australia, Canada, New Zealand, and Norway.

For the period covered by our study (2009–13), Income Support was the primary form of social security benefit payable to lone parents in the UK who were not in work and had no other source of income. The amount was intended to cover basic subsistence only: in 2009, £73·10 per week was payable to lone parents aged 18 years or older and £57·90 to those aged 16 or 17 years. Before 2008, lone parents whose youngest child was younger than 16 years were eligible to receive Income Support without having to show that they were available for and actively seeking work. On Nov, 25, 2008, the UK Government introduced conditionality for lone parents receiving Income Support for children younger than the minimum school leaving age, requiring them to be available for work for a minimum of 16 h per week when their youngest child reached age 12 years.[6] The age cutoff was further reduced to 10 years from Nov 24, 2009, to 7 years from Oct 26, 2010, and to 5 years from May, 2012. Outside the range of our study, the age threshold was then reduced to 3 years in 2017.

Under Lone Parent Obligations (LPO), lone parents are transferred from Income Support to Jobseeker's Allowance once their youngest child reaches the age

Lancet Public Health 2018; 3: e333–40

See Comment page e307

Medical Research Council/Chief Scientist Office Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK (S V Katikireddi PhD, O R Molaodi PhD, M Gibson PhD, R Dundas MSc, P Craig PhD)

Correspondence to: Dr Srinivasa Vittal Katikireddi, University of Glasgow, Glasgow G2 3QB, UK vittal.katikireddi@glasgow.ac.uk

What are the causes?

- Other factors could be playing a role
  > Mental health problems and social isolation as mechanisms linking economic factors and mortality
  > Obesity could be a mechanism linking economic factors to cardiovascular disease
  > Large programme of work underway to investigate all causes at present

Summary and implications

- This is the biggest public health challenge for many decades – encompassing the sub-plots on drug deaths, homelessness, poverty, etc.
- Austerity, social security cuts, service cuts/pressures all likely to be causal
- We need to reverse these economic and social policies and mitigate what we can
- We need to design our services to meet the unmet needs of the population and ensure accessibility to those who need those services most
- We need a public health approach to substance misuse
- We need your leadership to ensure all relevant policymakers and service managers at all levels understand the contribution they can make
- We have a duty to explain and champion action for our population/patients

All the data and evidence is summarised at:
www.scotpho.org.uk/population-dynamics/recent-mortality-trends/

The programme of research and dissemination is detailed here:

https://www.scotphn.net/groups/public-health-mortality-monitoring/mortality-sig-introduction/

Contact me at:

Email: gmccartney@nhs.net

Twitter: @gerrymccartney1