

**Will the recession be bad for our health?
A review of past experiences**

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Executive summary

There is understandable concern in the public health community and beyond that population health will suffer worldwide, as a result of the current, severe economic crisis. But can we really be certain, based on the experience and evidence from past crises that health will suffer as a result of the recession? Our answer, based on a preliminary review of the evidence, is: “*It depends!*” To illustrate some of the factors that the answer may depend on we structure the available evidence according to a number of key issues that likely play a critical role in the significance and direction of any resulting health consequences. Our tentative conclusions are as follows:

- (1) For high-income countries it is unlikely that the recession will have major negative effects on overall population health indicators, such as all cause mortality or life expectancy. If what a majority of the country level evidence - from past experience - says is true, then the effects may even be positive *on average*.
- (2) Nevertheless, those parts of the population particularly hard hit in economic terms, e.g. through lay-offs, are likely to suffer health-wise in absolute and/or relative terms (with respect to the wealthier ones), thereby potentially leading to an increase in health inequalities between socioeconomic groups.
- (3) It is also likely that specific diseases and cause-specific mortality rates will rise, such as suicide rates, reflecting a significant harmful mental health effect associated with the recession.
- (4) In low-income countries, by contrast, it is likely that the global economic crisis does pose a severe threat to overall population health, as people can hardly cushion themselves through own accumulated wealth, nor can they expect wide-ranging social protection support. In middle income countries, there may well be no effect in any direction.
- (5) From the combination of (1) and (4) follows that differences in health between rich and poor countries may well increase in the current recession.
- (6) Because large parts of the existing evidence focuses on the health effects of business cycle fluctuations, the actual transferability of those findings to the current, much more than ordinary fluctuation may indeed be limited. (We find tentative though not dramatic support for the idea that severity of an economic crisis may lead to [more] health damaging effects compared to a mere fluctuation that either has positive or no health effects.)
- (7) One might speculate that the true negative health effects of a recession only materialise with a time lag, possibly more than compensating any immediate beneficial health effects. This is, however, not widely confirmed by those studies that did consider the issue.
- (8) The potential foci of policy could be:
 - In high income countries: to prevent health from deteriorating in groups that are at risk of being harmed health-wise, such as the unemployed or other lower socioeconomic groups; to prevent specific health risks from arising in recessions, e.g. psychological health problems.
 - In low-income countries: to protect population health at large from suffering, presumably particularly among those below or near the poverty line (of which there will be many).

How precisely this could be done is a highly relevant question for further research. Some of the literature argues that social protection and more generally “the welfare state” could be one – admittedly very loosely defined – way of mitigating the harmful effects of recessions (as well as of economic booms).

- (9) If it is true that in high income countries, mortality behaves pro-cyclically, then an alternative, possibly highly controversial view would be that the welfare gain resulting from a health improvement during the recession could be seen as a way to compensate the welfare loss associated with the economic decline, in the same way as the welfare loss of worsening health in an economic boom would be compensated by the welfare gains resulting from economic growth. Hence, from an overall welfare perspective, though not from a distributional perspective, there may be no major need for intervention. . If there are reasons for interventions in high income countries, they may have to relate more specifically to single health conditions (e.g. mental health) or to specific socioeconomic groups that may suffer disproportionately healthwise.

Introduction

The current financial and economic crisis has raised major concerns in the public health community that death, illness and disability will surge in both rich and poor countries across the globe, and that the operation of health systems will be compromised both by increased demand for treatment and a reduced health budget. For instance, in Autumn 2008 the WHO's director-general Margaret Chan warned that health problems would increase as people struggle with unemployment and poverty: "*It should not come as a surprise if we continue to see more stresses, suicides and mental disorders*". In January 2009 the WHO released a report, *Financial Crisis and Global Health*, suggesting that "*the poor would be the hardest hit*", concluding that "*defending health budgets*" would become more difficult, and that declines in income and employment would worsen health in European countries. Such fears are supported by, among others, a wealth of epidemiological evidence on the strong and *positive* associations at the level of the individual between lower income, unemployment and poor health (Catalano 2005; McKee-Ryan et al 2005; Murphy and Athanasou 1999; Clark and Oswald 1994; Gallo et al 2004). The idea that the financial crisis will harm health also reflects the thinking of the major work of the Commission on Social Determinants of Health published in 2008 (Marmot et al 2008), as argued in a most recent BMJ article (Marmot and Bell 2009).

Yet, several researchers, primarily economists, argue the opposite: recession might actually improve health, at least in the short run. Research in the USA and Europe finds pro-cyclical worsening of mortality during expansions and improvement during recessions, with recession associated with lower road-traffic injuries and alcohol-related deaths and hospital admissions (Tapia-Granados and Ionides, 2008; Ruhm 2007; Gerdtham and Ruhm, 2006). These studies have led some commentators to speculate "*Good News: Recession may make you healthier!*" (Bougerol 2009) and thus argue that "recession may be a lifestyle blessing in disguise" (Cohen 2009).

A perhaps drastic reminder that periods of economic hardship may even entail highly counter-intuitive, positive effects on health comes from selected evidence showing that during the World War II, deaths from coronary disease declined in Norway and other German-occupied countries as fats and calories were drastically cut in the diet, while in 1945 pre-war levels returned both in diet and coronary deaths (Dubos 1987). Similarly, Sen (1998) has documented how fluctuations in life expectancy behaved in almost exactly the opposite way as national per capita incomes in England and Wales for the largest part of the 20th century. What may seem as particularly striking to those who (like the authors of this paper) have tended to believe that economic hardship would be a key driver of adverse health conditions, life expectancy in England and Wales jumped upwards by nearly seven years per decade during the war decades 1911-21 and 1941-51. Sen attributes this success to "*a more effective use of public distribution systems associated with war efforts and more equal sharing of food through rationing systems*" (Sen, 1998)

Already this brief juxtaposition of highly diverse and seemingly contradictory evidence calls for an explanation, or at least for some sort of clarification, which is what the present note aims to achieve. The main focus of our contribution is to review the existing evidence on the actual and potential impact of recessions on health, in order to be able to distil some lessons as to the expected health effects of the current crisis and as to how policy should respond, if at all. If there is one main message emerging from our review, it is that there are no universal truths about the health impacts of recessions. The answer depends on a number of factors, some of which we would like to highlight. It also results that some of the seemingly contradictory findings alluded to above are not in all instances incompatible with each other.

What does the existing evidence tell us?

The relevant existing evidence on the subject is not only broad but also very heterogeneous in terms of data, time, methods and – not least – their findings. In order to structure the evidence base we reviewed we have selected a (non-exhaustive) list of key issues that are likely to matter when trying to answer the overarching question of whether and, if so, how recessions affect health.

Individual vs aggregate relationships

As described by Marmot and Bell (2009), the International Labour Organisation predicts that the global unemployment rate will rise from 5.7% in 2007 to somewhere between 6.1% and 7.1% in 2009, which may well be an optimistic assessment (ILO 2009). For the developed OECD countries alone recent OECD estimates, released in April 2009, forecast unemployment rates to approach 10% in the OECD area by 2010, compared with the recent low of 5.6% in 2007, which would amount to an increase in the absolute numbers of unemployed in the OECD by about 25 million, by far the largest and most rapid increase in OECD unemployment in the post-war period (OECD 2009).

At least two branches of the existing literature may inform us about what the health effects of such trends may be:

- (1) The primarily epidemiological research which has analysed the health effects of unemployment (or of other relevant socioeconomic factors likely to be affected in a recession) at the level of the individual and
- (2) The “ecological” research which focuses on relationships between unemployment (or other macroeconomic indicators affected by a recession) at the aggregate level, typically at the country or state level.

Both approaches provide seemingly contradictory predictions. At the risk of only a slight oversimplification, the former suggests health would deteriorate with increasing unemployment (and hence in a recession), while the latter tends to suggest the opposite: if anything, then recessions may well be

(largely) good for our health. We briefly summarise each of the two perspectives in turn before and discuss their compatibility.

Individual level evidence

A large body of epidemiological research (as well as some economic and other social science research) has documented the detrimental effects of unemployment on health at the individual level, i.e. showing that those who are unemployed or enter unemployment suffer in terms of their health. For instance, studies on unemployment and mortality in Britain in the 1970s and 1980s showed that unemployed people had a mortality rate 20% to 25% higher than average for people of the equivalent socioeconomic group (Moser et al 1990, Bethune 1997). Beyond the UK, Stern (1983), Creed (1998), and Ungváry et al. (1999) review the existing evidence of the various pathways through which unemployment affects individual health. They find that unemployment is detrimental to the individual's standard of living and financial resources. Restricted financial resources can lead to poor nutrition and probable restriction to access to medical health care when needed. As Martikainen and Valkonen (1996 and 1998) indicate, this may cause increased physical morbidity and mortality. Martikainen and Valkonen (1996) show that individuals who experience unemployment are found to exhibit greater mortality rates compared to their employed counterparts, after controlling for demographic and socioeconomic indicators. Furthermore, Morris et al. (1994) show that not only unemployment experience, but also the duration of unemployment spells, increase the risk of mortality after controlling for potential confounders such as age, race, marriage, income, and occupational class.

Unemployment also appears to be associated with stress, adoption of unhealthy lifestyles such as increased smoking, arguably due to the increased psychological "burden" and the stress the unemployed individuals feel (Stern 1983). An extensive literature also documents the close association between lower socioeconomic status and a range of "poor health habits" (Mackenbach et al. 2007), at least in developed countries, but increasingly so in developing countries, too. Morris et al. (1992) for instance finds that bodyweight increases during unemployment. Other studies such as Hammarström (1994) and Morris et al. (1994) show that smoking and drinking are more common and nutrition is worse among the unemployed compared to those who are working. Finally, Morrell et al. (1994) and Theodossiou (1998) found high levels of unemployment rates to be accompanied by higher incidence of psychological and behavioural disorders. Moser et al. (1986), Junankar (1991), and Ungváry et al. (1999) find that higher unemployment rates are associated with increased risk of psychosomatic diseases, suicide or parasuicide.

More generally, other individual level analysis has repeatedly shown the detrimental health effects of low socioeconomic status, proxied e.g. by low income, poor education, lower-skilled jobs or indeed unemployment. Lower socioeconomic status, is associated with worse physical health (Blakely et al., 2002; Ecob and Davey-Smith, 1999; Grundy and Holt, 2000; Wagstaff et al., 2001), lower emotional and psychological health (Everson et al., 2002; Theodossiou, 1998), and increased risk of mortality (Gardner and Oswald, 2004; Goldman et al., 1995; Van Rossum et al., 2000).

Aggregate level analysis

This entire body of rather robust and consistent individual level evidence, much (but not all¹) of which likely can be interpreted as causal evidence, would lead one to conclude that a recession that is typically characterised by a significant increase in unemployment would be expected to also harm health at the aggregate, national level. Such has also been the conclusion of some early and influential work by Brenner (1975, 1977, 1979) and Brenner and Mooney (1982), who did use aggregate time series data.

Brenner's work, however, has been severely criticised, especially by econometricians that have expressed concerns both about the methodology and some of the data used by Brenner (for a review of the critique see Wagstaff 1985). The main criticisms about Brenner's approach relate to omitted variable bias, structural instability of the relationships, lag-misspecifications and data inconsistencies.

Subsequent to this critique, and in particular in recent years a still growing number of papers have tried to address or circumvent the methodological problems. In particular, extensive research by Christopher Ruhm (Ruhm 2000, 2003, 2006, 2008a,b) but subsequently also by others (Tapia Granados 2005, 2008; Gerdtham and Johannsson 2005; Neumayer 2004), also using aggregate data over time for a range of *high income countries*, has effectively turned the *Brenner Hypothesis* up-side-down by showing that negative deviations from the long term per capita GDP trend are closely associated with *reductions* in a wide range of cause-specific mortality rates (with the notable exception of suicide rates that quite consistently accelerate in recessions). So defined "recessions" would accordingly be good for overall health, at least in the short run, while positive deviations from the trend were generally shown to be associated with deteriorating average health status.

The contrasting results between the individual level and the aggregate level evidence appear puzzling at first sight, but can be reconciled upon closer inspection. In fact, the diverging results are consistent with a scenario in which those that do fall into unemployment during a recession are indeed likely to suffer worse health². At the population health level, however, this effect appears to be more than compensated by improvements in the average health of the rest of the population. Since the unemployed population commonly accounts for a rather small share of the entire population, it is the health response of the non-unemployed population that ultimately will be driving the average population health response.

¹ While causality may be tentatively inferred from longitudinal studies that show that job loss tends to precede the onset of illness, some authors have nevertheless cautioned that the relation may still be biased by self-selection, as severe illness in persons of working age may well have precursors, including absenteeism and health insurance claims, that employers notice. (Dooley, Fielding and Levi 1996; Böckerman and Ilmakunnas (2009)

² As reported in Tapia Granados (2003), some studies have, however, found that the relative risk of death among the unemployed compared to the employed decreases during recessions, when unemployment surges (Valkonen and Martikainen, 1995, 1996, 1998), suggesting that the mortality differential between unemployed and employed during economic upturns may be driven by selection factors (or reverse causation). Alternatively, the health effects of unemployment may be modified by the context in which unemployment occurs. For example, the stress related consequences of unemployment may be less in a recession context when unemployment is widespread (Blake Turner 1995).

Ruhm and others justify their empirical conclusions by arguing that during recessions health improves as individuals both improve their dietary habits and reduce lifestyle habits detrimental to health such as smoking and drinking (e.g. Ruhm, 2000). They identify at least three reasons as to why decreasing employment rates can positively affect population health: (i) leisure time increases, augmenting the possibility of health enhancing activities such as exercise; (ii) in a declining economy, there should be an decrease in hazardous working conditions, physical exertion and in working hours; (iii) reductions in people's incomes should reduce the propensity of individuals to take risks and to indulge in activities such as smoking drinking and excessive eating of high fat diets.

Ruhm finds some support for the predicted "lifestyle" responses when using micro data, but he also admits that a full elucidation of the channels is the task of future research. (In light of the evidence referred to above on the adverse health effects of unemployment, one might add the cautious note that the very relationship claimed by Ruhm and others requires further confirmation.) What this research also already flags is the importance of likely diverse responses within the population. Few studies have examined the distributional consequences – a point taken up further below.

To complicate matters further, it is important to emphasise that not all studies of the Ruhm et al type have found pro-cyclical mortality. A minority of recent studies, applying similar techniques, but using Swedish (Gerdtham and Johannesson, 2005; Svensson, 2007) and European data (Economou et al 2008), did not find such a pro-cyclical relationship between the business cycle and mortality.³ Gerdtham and Johannesson 2005, for instance, using a rare combination of aggregate and micro data, tested the effect of six alternative business cycle indicators on mortality risk: the unemployment rate, the notification rate, the deviation from the GDP trend, the GDP change, the industry capacity utilization, and the industry confidence indicator. For men they found a significant countercyclical relationship between the business cycle and the mortality risk for four of the indicators and a non-significant effect for the other two indicators. For women there was no statistically significant relationship with any of the business cycle indicators employed. Hence, recessions in Sweden may have been bad for men's health but did leave women's health untouched.

Further below we discuss briefly some of the factors that may help account for part of the observed differential health response across countries.

³ Economou et al, for instance, found unemployment rates exhibiting a positive and statistically significant effect on five of six causes of death examined, namely, ischaemic heart diseases, cancer of trachea, bronchus, and lung cancer, malignant neoplasm, homicide and purposeful injury and suicide and self-inflicted injury.

Poor countries vs rich countries

The above discussion has focused on rich countries. It is not hard to imagine that the effects of an economic crisis will have more serious consequences – health-wise and beyond – in those countries than in rich countries. The latter are, by definition, characterised by (1) populations whose average level of wealth may serve as a “cushion” against any income shocks and (2) by social safety nets that provide formal insurance mechanisms (if to varying degrees across countries). In poor countries, with large shares of the population living near or already below the poverty line, any aggregate income shock is likely to push many people below relevant subsistence levels. One may also hypothesise that the still rather different nature of the health problems in low vs high income countries also critically affects the health response to a crisis: malnutrition, nutritional deficiencies as well as infectious diseases tend to dominate the avoidable disease burden in poor countries, compared to overwhelmingly non-communicable diseases in rich countries.⁴ While a reduction in consumption, caused by an exogenous income shock, is likely to have even positive health effects in a rich country situation of “over-nutrition”, a further cut in available resources and hence in consumption in a mal- and under-nutrition setting is very likely to be health- and possibly life-threatening in poor countries.

Such predictions are indeed widely confirmed by the existing literature. In a recent review of the evidence on the effects of recessions on human capital across a range of income strata, Ferreira and Schader (2008) find that in richer countries (e.g. the US) child health and education outcomes are counter-cyclical: they improve during recessions. In poorer countries, mostly in Africa and low-income Asia, the outcomes are pro-cyclical: infant mortality rises, and school enrolment and nutrition fall during recessions. In the middle-income countries of Latin America, the picture is more nuanced: health outcomes are generally pro-cyclical, and education outcomes counter-cyclical.

In a similar vein, Baird, Friedman and Schady (2008), using data from Demographic and Health Surveys (DHS) in 59 countries, find that there is a strong, negative association between changes in per capita GDP and infant mortality. In a first-differenced specification the implied elasticity of infant mortality with respect to per capita GDP is approximately -0.56: for every one percent drop in per capita income, the infant mortality rate increases by more than half a percent. The association between infant mortality and per capita GDP is particularly pronounced for periods of large contractions in GDP, suggesting the inability of developing country households and/or health systems to smooth resources. Simple back-of-the-envelope calculations using those estimates suggest that there may have been more than 1 million “excess” deaths in the developing world since 1980 as a result of large, negative contractions in per capita GDP.

Paxon and Schady (2005) have assessed the effect of the macroeconomic crises on child health in Peru. They find an increase of about 2.5 percentage points in the infant mortality rate for children born during the crisis of the late 1980s, which implies that about 17,000 more children died than would have

⁴ This is again a slight over-simplification in that non-communicable diseases have already become a major, if not the major burden of disease at least in low and middle income countries outside Sub-Saharan Africa (Suhreke et al 2006).

in the absence of the crisis. The authors suggest (but do not claim to have proved) that the collapse in public and private expenditures on health may have been a key channel.

While the main health effects of recessions in developing countries may be related to infant mortality and nutritional deficiencies⁵, some evidence also supports the hypothesis that mental health is typically very seriously affected in developing countries. Friedman and Duncan (2008), for instance, demonstrate how the Indonesian financial crisis in 1997 adversely impacted on people's psychological health. Using micro data, the authors are able to disaggregate the effects, finding that those worst hit in terms of psychological health are low education groups, the rural landless, and residents in those provinces that were hit hardest by the crisis. Interestingly, elevated levels of psychological distress persisted even after indicators of economic well-being such as household consumption had returned to pre-crisis levels suggesting long-term deleterious effects of the crisis on the psychological well-being of the Indonesian population. On the whole though the available information on mental health in developing countries is very scarce indeed (Das et al 2008), which means that we don't know what the mental health effects of crises in other developing countries has been.

The evidence on the mental health costs of the Indonesian crisis is interesting in that mental health may be an area where the health response to a crisis is not too dissimilar between the rich and the poor countries. We have referred above to the rather consistent evidence showing a suicide increasing effect of recession in rich countries. Further below we discuss the potential differential impact of recessions by diseases in some more detail.

It is not, however, that all studies on the health effects of economic crises in developing countries detect harmful health effects. When comparing the effects of the East Asian crisis in Indonesia, Thailand and Malaysia, Hopkins (2006) finds that while the crisis was associated with (short-lived) increases in the mortality rate in the former two countries, there was little apparent impact on health in Malaysia. Hopkins attributes this differential impact to the fact that the Indonesian and Thai government followed the World Bank prescription for adjustment, which included a cut-back in government spending at a time when there were significant job losses, while Malaysia chose its own path to adjustment. If this is a correct assessment, this already raises the importance of the policy response to a crisis in possibly mitigating (or not) the health effects, a point taken up in more detail below.

In any case, there do appear to be different aggregate health responses to recessions in the rich vs the poor countries. This means, that for a global recession that hits the globe to the same extent, health differences between poor and rich countries are expected to widen in a recession. Presumably, in any recession that would be of a global nature (such as the current one), the sheer economic effects would be less pronounced in rich countries than in poor countries. If this is the case, the differential health effects between those countries would mean an even greater increase in health inequalities between those countries.

⁵ See also Pongou, Salomon and Ezzati (2006) who document the harmful impact of economic crisis and adjustment programmes on malnutrition in Cameroon in the 1990s.

Average health effects vs health equity effects

The bulk of the studies on the health effects of recessions (or of economic upturns) has focused on population averages, mainly due to constraints in the available data. This is clearly a potentially important deficit, in that, as we alluded to above, it is very likely that the health of different subgroups of the population respond very differently to a given economic crisis. We mentioned above that it is easy to imagine that while those who are actually falling into unemployment (or find themselves at immediate risk of doing so) are likely to suffer health-wise, while the rest of the population – at least in high income countries – may respond in ways that promote their health. If the net effect of those responses is an improvement or no change in health in the population on the whole, this may lead policymakers to infer that no specific action is needed to counter the health effects. Upon closer inspection, however, there may well be a good reason for intervention if the health of specific groups is at risk or if health inequities would be rising during recessions.

One recent study that did examine the impact of the long lasting economic crisis in Japan during the 1990s on health inequalities between socioeconomic groups (Kondo et al 2008). The authors analyse two repeated cross-sectional surveys⁶, first from 1986 and 1989 and second from 1998 and 2001, and examine changes over time. Looking first at changes in the average self-reported health measure, the findings of Ruhm and others are confirmed in that health appears to have improved. Perhaps surprisingly, self-rated health improved in absolute terms for all occupational groups even after the economic recession. However, when breaking up the aggregate figures, and after controlling for confounding factors, health inequalities are shown to have widened. The odds ratio for poor self-rated health (95% confidence intervals) among middle-class non-manual workers compared with the highest class workers was 1.02 (0.92 to 1.14) before the crisis but increased to 1.14 (1.02 to 1.29) after the crisis. The association was stronger among males.

Edwards (2008) also provides some of the scarce relevant insights on the distributional implications, by examining mortality by individual characteristics during the 1980s and 1990s using the U.S. National Longitudinal Mortality Survey. While he admits that his results do not allow for a perfectly consistent picture, overall individuals with extremely low education and presumably very low wages and wealth are at risk of declining health during bad economic times when jobs are lost. Those with a high school degree or more, who presumably have some buffer-stock savings and decent prospects of avoiding long-term unemployment, rather seem to benefit during recessions, perhaps from working less hard or being exposed to less pollution. Those that make up the middle socioeconomic groups tend not to be affected (health-wise) by recession.

Then again, other findings caution the extent to which unambiguous predictions can be made. Valkonen et al (2000) document the evolution of inequalities in mortality (by occupational category) in the 1980s – a period of economic boom – and in the 1990s – over a severe and prolonged recession. While health mortality inequalities widened in both periods, the increase in health inequalities was clearly smaller during the recession of the 1990s than in the 1980s.

⁶ The absence of panel information that would have followed the same individuals throughout the period may be seen as a (small) limitation of the exercise.

Clearly, more research is needed to understand the health equity implications of recessions (and economic upturns). In order to develop at least a more informed hypothesis as to the expected health equity consequences for the current economic crisis, it is perhaps worthwhile to begin by understanding the past impact of recessions on the distribution of incomes in any one country. After all, the distribution of income (just as the distribution of other socioeconomic proxies) is one potentially important determinant of socioeconomic inequalities in health⁷. Since recessions are characterised by surges in unemployment and since lower socioeconomic groups are at higher risk of unemployment, one might expect that – other things equal – income inequality will increase. This is apparently what has been observed in Japan over the 1990s (OECD 2006).

Often though, “other things” are commonly not equal. Government policies, e.g. in terms of social protection, have been shown to make a difference. For instance, the reason why income inequality remained remarkably stable during the economic crisis that hit the Scandinavian countries in the early 1990s has been partly attributed to those countries’ generous levels of welfare support (Aaberge et al 2000). At the same time Aaberge et al point out that increased welfare benefits during the crisis do not fully account for the stability in the income distribution.

While current income inequality remained stable, the authors do not exclude the possibility that a recession such as the one experienced in Scandinavian countries may have adverse long term distributional repercussions. First, many unemployed workers might suffer from human capital losses that will reduce their future earnings (although the authors also provide counter-arguments to this hypothesis). Another reason for predicting more income inequality in the future is that the crises were costly for the public sector and resulted in budget deficits. Perhaps the reductions in transfer programmes that were motivated by these budget deficits will turn out to have larger effects on income inequality than the rise in unemployment per se (Aaberge et al 2000).

In sum, complex mechanisms seem to be at work in a period of recession. Hence, if forecasting the impact of recessions on income inequality is complex and highly uncertain, it is no wonder that we should be careful in drawing premature conclusions as to what the current recession may mean for health inequalities.

⁷ Another, often ignored factor is the elasticity of health with respect to the socioeconomic status in question.

“Normal” fluctuations vs “severe” crises – and physical vs mental health

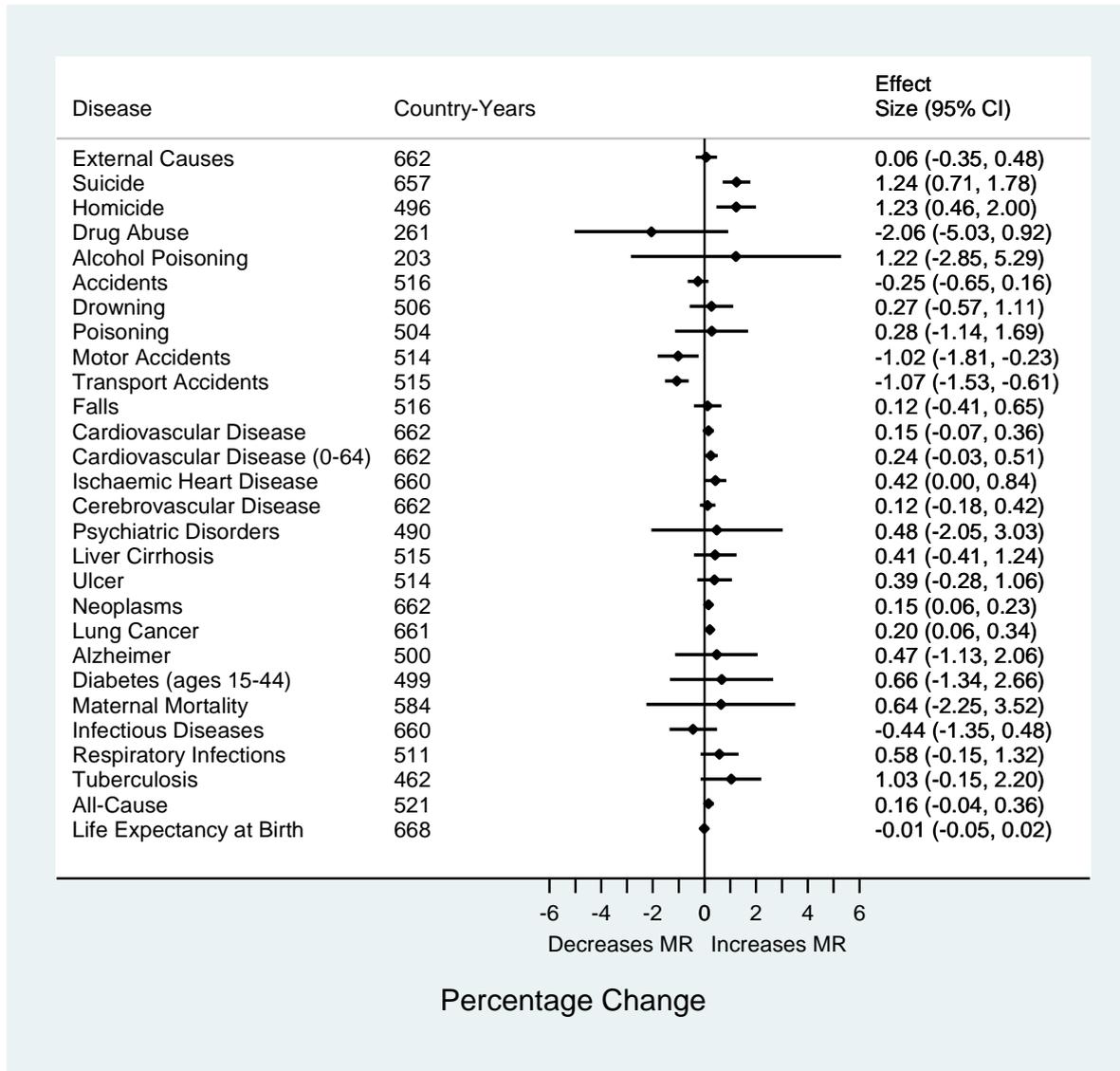
The majority of the existing studies at country level do not actually evaluate “recession” *per se*, but rather base their analyses on routine fluctuations in gross domestic product, a measure of a country’s output (Ruhm 2002, 2003, 2006; Granados 2002). Economy-health relationships during ‘steady-state’, or normal, business-cycle peaks and valleys may differ substantially from those occurring under exceptional market circumstances, as in an acute financial crisis. In other words, although studies have evaluated routine “business cycles”, they have yet to test properly the theory that “recession” may adversely affect a society’s health. If the current economic crisis is indeed comparable to the Great Depression, the existing research provides limited relevance for forecasting the effects of the current crisis (Catalano, 2009).

In a first attempt to assess whether a “substantial” economic downturn makes any difference compared to a smaller economic downturn, we have looked at the effects of (1) a 1% increase in unemployment rates compared (see Figure 1a) to (2) a >3% increase in unemployment (see Figure 1b) in 26 EU countries over the period 1971-2006. As a comparison between the figures indicates, the overall health indicators – all cause-mortality and life expectancy – do not appear to be affected. However, some of the cause-specific mortality rates do appear to be affected by the severity of the crisis. For instance the size and (sometimes) the significance of the increase in suicide rates, homicides, alcohol poisoning, psychiatric disorders, liver cirrhosis and ulcers all tend to be greater in the context of “massive” increases in unemployment. Notably, these causes all reflect psychological problems, providing support to the notion that mental health is more likely to be harmed in a recession than physical health.

Evidently, these preliminary conclusions require further examination. One interesting avenue of further research would be to code recessions⁸ more properly as well as to distinguish different types of “recessions”. Ultimately the potential differential impact on physical vs mental health should be examined with the help of longitudinal micro data rather than through aggregate mortality statistics.

⁸ See e.g. Stuckler et al 2008.

Figure 1a. Associations of a 1% Rise in Unemployment with Age-Standardised Mortality Rates



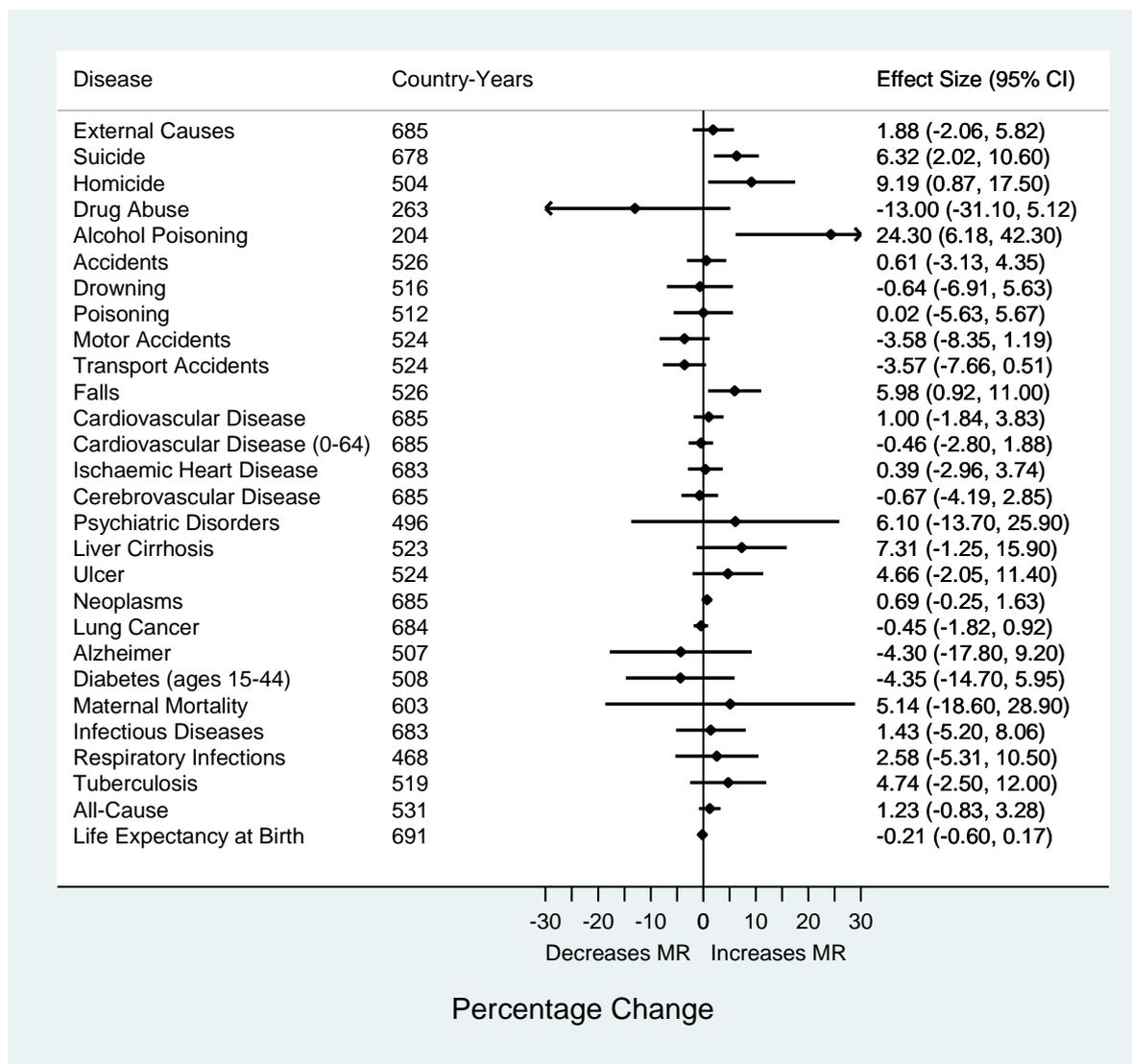
Source: Stuckler et al (2009)

Notes: Our basic statistical model is thus:

$$(1) \quad \Delta H_{i,t} - \Delta \bar{H}_{i,t} = \alpha + \beta * (\Delta U_{i,t} - \Delta \bar{U}_{i,t}) + \epsilon_{i,t}$$

Here i is country and t year; α represents the average background rate of change in the health condition being analyzed (i.e., epidemiologic transition); H is the health outcome, including age-standardised rates of suicide, cardiovascular deaths, external causes of death and life expectancy at birth; U is the measure of unemployment based on the standard ILO definition of persons out of work who are seeking jobs as a fraction of the total labour force; ϵ is the error-term. We clustered our standard errors by country to reflect the fact that countries were not sampled independently. Our underlying statistical model is: Coefficients are presented from twenty-eight regression models. Error bars are 95% confidence intervals based on robust standard errors clustered by country. Data are from the World Health Organization European Health for All Database 2008 Edition (HFA-MDB).

Figure 1b. Associations of a Mass Rise (>3%) in Unemployment with Age-Standardised Mortality Rates



Source: Stuckler et al (2009)

Notes: Coefficients are presented from twenty-eight regression models. Error bars are 95% confidence intervals based on robust standard errors clustered by country. Data are from the World Health Organization European Health for All Database 2008 Edition (HFA-MDB).

Short term vs long term effects

It seems intuitively plausible to think that there is a difference between the short and the long term effects of a crisis. In particular, one might think that any potentially existing short term positive health effects of a crisis could be more than outweighed by adverse long term health effects. Not many studies have examined the difference between short and long term effects in great detail, and those studies that have done so, find mixed results.

Ruhm (2000), for instance, has indirectly provided an answer to the question when he looked at the differential health response to economic booms, which he showed to be health damaging in the short run. At the same time though he points out that if growth is long lasting, then the short-term effect will be partially or fully offset. By contrast, Tapia Granados (2005), after careful analysis finds the closest statistical association between current economic fluctuations and current mortality changes, at least in the US data he examined.

Crisis with and without a “welfare state”

It is often assumed that social welfare systems will protect against economic downturn. For example, WHO's response to the global financial crisis suggested that “Stronger social safety nets are urgently needed to protect the most vulnerable in rich and poor countries” (WHO 2008). This hypothesis has not been examined thoroughly in the literature yet. Moreover, if health improves in bad economic times and deteriorates in good ones, the prime target for policy perhaps ought to be the avoidance of ill health arising during economic booms.

Gerdtham and Ruhm (2006) have looked at the potential role of social expenditures as a way to mitigate the – in their results – harmful health effects of economic upturns in OECD countries. They show that the effects are particularly harmful for countries with weak social insurance systems, as proxied by public social expenditure as a share of GDP.

While the overall average health impact of recessions at least in high income countries may be positive, we have earlier pointed out the fairly consistent finding of the adverse mental health effect of economic crises, as evidenced by the surge in suicide rates. Would there then be a role for some form of welfare policy to alleviate any potentially adverse mental health effects?

According to recent findings by Stuckler et al (2009), such a mitigating effect does appear to exist, in the sample of European Union countries the authors analysed for the time period 1970-2007. More precisely, the study finds that for “every US\$10 higher investment in active labour market programmes there was a 0.038% lower effect of a 1% rise in unemployment on suicide rates in people younger than 65 years (95% CI 0.004–0.071, $p=0.028$). When this spending was greater than US\$190 per head per year (adjusted for purchasing power parity), rises in unemployment would have no adverse effect on suicide rates” (Stuckler et al. 2009, p.7). More research is clearly needed to examine this preliminary result, preferably with the help of individual-level data.

Concluding remarks

In this draft note we examined whether on the basis of existing evidence from past events there is reason to believe that the current economic crisis will be harmful to the health of populations in rich and poor countries. Our answer, based on a preliminary review of the evidence, is: “*It depends!*” To illustrate some of the factors that the answer may depend on we have structured the available evidence according to a number of key issues that likely play a critical role in the significance and direction of any resulting health consequences. Our tentative conclusions are as follows:

- (1) For high-income countries, if past experience is any guide, it is unlikely that the recession will have major negative effects on overall population health indicators, such as all cause mortality or life expectancy. If what a majority of the country level evidence says is true, then the effects may even be positive *on average*.
- (2) Nevertheless, those parts of the population particularly hard hit in economic terms, e.g. through lay-offs, are likely to suffer health-wise in absolute and/or relative terms (with respect to the wealthier ones), thereby potentially leading to an increase in health inequalities between socioeconomic groups.
- (3) It is also likely that specific diseases and cause-specific mortality rates will rise, such as suicide rates, reflecting a significant harmful mental health effect associated with the recession.
- (4) In low-income countries, by contrast, it is likely that the global economic crisis does pose a severe threat to overall population health, as people can hardly cushion themselves through own accumulated wealth, nor can they expect wide-ranging social protection support. In middle income countries, there may well be no effect in any direction.
- (5) From the combination of (1) and (4) follows that differences in health between rich and poor countries may well increase in the current recession.
- (6) Because large parts of the existing evidence focuses on the health effects of business cycle fluctuations, the actual transferability of those findings to the current, much more than ordinary fluctuation may indeed be limited. (We find tentative though not dramatic support for the idea that severity of an economic crisis may lead to [more] health damaging effects compared to a mere fluctuation that either has positive or no health effects.)
- (7) One might speculate that the true negative health effects of a recession only materialise with a time lag, possibly more than compensating any immediate beneficial health effects. This is, however, not widely confirmed by those studies that did consider the issue.
- (8) The potential foci of policy could be:
 - a. In high income countries: to prevent health from deteriorating in groups that are at risk of being harmed health-wise, such as the unemployed or other lower socioeconomic groups; to prevent specific health risks from arising in recessions, e.g. psychological health problems.
 - b. In low-income countries: to protect population health at large from suffering, presumably particularly among those below or near the poverty line (of which there will be many).
- (9) How precisely this could be done is a highly relevant question for further research. Some of the literature argues that social protection and more generally “the welfare state” could be one –

admittedly very loosely defined – way of mitigating the harmful effects of recessions (as well as of economic booms).

- (10) If it is true that in high income countries, mortality behaves pro-cyclically, then an alternative, possibly highly controversial view would be that the welfare gain resulting from a health improvement during the recession could be seen as a way to compensate the welfare loss associated with the economic decline, in the same way as the welfare loss of worsening health in an economic boom would be compensated by the welfare gains resulting from economic growth. If there are reasons for interventions in high income countries, they may have to relate more specifically to single health conditions (e.g. mental health) or to specific socioeconomic groups that may suffer disproportionately healthwise.

References

- Aaberge R et al. (2000). Unemployment Shocks and Income Distribution: How did the Nordic Countries Fare during their Crises? *Scand. J. of Economics* 102(1), 77-99.
- Baird S et al. (2008). Infant mortality over the business cycle in the developing world Collection Title: World Bank Policy Research working paper no. WPS 4346
- Bethune A. (1997). Unemployment and mortality. In: Drever F, Whitehead M, eds. *Health inequalities*. London: Stationery Office, pp. 156-67
- Blake Turner J (1995). Economic context and the health effects of unemployment. *J Health Soc Behav*;36:213–29.
- Blakely TA et al. (2002). Metropolitan Area Income Inequality and Self-rated Health - A Multi-level Study. *Social Science & Medicine*, 54: 65-77.
- Böckerman P, et al. (2007) Does a slump really make you thinner? Finnish micro-level evidence 1978-2002 *Health Economics Letters* Volume 16 Issue 1, Pages 103 - 107
- Böckerman P, Ilmakunnas P (2009). Unemployment and self-assessed health: evidence from panel data. *Health Economics* 18(2): 161–179
- Bougerol E. (2009). Good news! Recession may make your healthier. BC Los-Angeles (Los Angeles), 2009. http://www.nbclosangeles.com/around_town/the_scene/Good-News-Recession-May-Make-You-Healthier.html (accessed June 30, 2009).
- Brenner MH (1975). Trends in alcohol consumption and associated illnesses: some effects of economic changes. *Am J Public Health* 1975;65:1279–92.
- Brenner HM (1977). Health costs and benefits of economic policy. *Int J Hlth Serv* 7, 581.
- Brenner HM (1979). Mortality and the National Economy: A Review and the Experience of England, 1936-1976. *Lancet*, 2: 568-73.
- Brenner HM, Mooney A (1982). Economic Change and Age Specific Cardiovascular Mortality in Britain 1955-1976. *Social Science & Medicine*, 16: 431-42.
- Catalano, R. (2009) Health, Medical Care, and Economic Crisis. *N Engl J Med*, 360, 749-751.
- Catalano R, Bellows B. (2005) If economic expansion threatens public health, should epidemiologists recommend recession? *International Journal of Epidemiology*, 34, 1212-3.
- Clark AE, Oswald AJ (1994). Unhappiness and Unemployment. *Economic Journal*, 104: 648-659.
- Cowen T (2009). Recession can change a way of life. *New York Times* (New York), 2009. <http://www.nytimes.com/2009/02/01/business/01view.html> (accessed June 30, 2009).
- Creed PA (1998). Improving the Mental and Physical Health of Unemployed People: Why and How? *Medical Journal of Australia*, 168(4): 177-178.
- Das J, et al. (2008). Mental health patterns and consequences: results from survey data in five developing countries. World Bank Policy Research working paper no. WPS 4495.
- Dooley D et al. (1996). Health and unemployment. *Annu Rev Public Health* 1996;17:449-65.
- Dubos R (1987). *The Mirage of Health—Utopias, Progress and Biological Change*. New Brunswick: Rutgers University Press, (orig. 1959).
- Ecob R, Davey-Smith G (1999). Income and Health: What is the Nature of the Relationship? *Social Science & Medicine*, 48(5): 693-705.
- Edwards R (2008). Who is hurt by procyclical mortality? *Social Science & Medicine* 67 (2008) 2051–2058
- Ferreira FHG, Schady N 2008 Aggregate Economic Shocks, Child Schooling and Child Health World Bank Policy Research Working Paper No. 4701

- Friedman, Jed; Thomas, Duncan (2008) Psychological health before, during, and after an economic crisis : results from Indonesia, 1993 – 2000; World Bank Economic Review
- Economou A et al. (2008). Are recessions harmful to health after all? Evidence from the European Union. *Journal of Economic Studies*, 35(5), 368-84.
- Mackenbach et al. (2007). Tackling health inequalities: an integrated approach. EUROTHINE Final report. Erasmus MC - University Medical Centre Rotterdam.
- Everson SA et al. (2002). Epidemiologic Evidence for the Relation between Socioeconomic Status and Depression, Obesity, and Diabetes. *Journal of Psychosomatic Research*, 53: 891-895.
- Gallo WT et al. (2004). Involuntary Job Loss as a Risk Factor for Subsequent Myocardial Infarction and Stroke: Findings From the Health and Retirement Survey. *Am J Ind Med*. 2004 May; 45(5): 408–416.
- Gardner, J, Oswald A (2004). How is Mortality Affected by Money, Marriage and Stress? *Journal of Health Economics*, 23(6): 1181-1207.
- Gerdtham U, Johannesson M (2005). Business cycles and mortality: Results from Swedish microdata. *Social Science & Medicine*, 60, 205-18.
- Gerdtham U, Ruhm CJ (2006) Deaths rise in good economic times: evidence from the OECD. *Economics and Human Biology*, 4, 298-316.
- Goldman N et al. (1995). Marital Status and Health among the Elderly. *Social Science & Medicine*, 40: 1717-1730.
- Grundy E, Holt G (2000). Adult Life Experiences and Health in Early Old Age in Great Britain. *Social Science & Medicine*, 51: 1061-1074.
- Hammarström A (1994). Health Consequences of Youth Unemployment-Review from a Gender Perspective. *Social Science and Medicine*, 38: 699-709.
- Hopkins S (2006). Economic stability and health status: Evidence from East Asia before and after the 1990s economic crisis, *Health Policy*, 75(3), 347-357.
- International Labour Organization. Global employment trends 2009. Geneva: ILO, 2009
- Junankar, P. N. (1991). Unemployment and Mortality in England and Wales: A Preliminary Analysis. *Oxford Economic Papers*, 43(2): 305-320.
- Kondo N et al. (2008) Economic recession and health inequalities in Japan: an analysis with a national sample, 1986-2001. *Journal of Epidemiology and Community Health*, 62, 869-875.
- Martikainen PT, Valkonen T. Excess mortality of unemployed men and women during a period of rapidly increasing unemployment. *Lancet* 1996;348:909–14.
- Martikainen PT, Valkonen T. The effects of differential unemployment rate increases of occupation groups on changes in mortality. *Am J Public Health* 1998;88:1859–61.
- Martikainen P et al. (2008). The effects of workplace downsizing on cause-specific mortality: a register-based follow-up study of Finnish men and women remaining in employment. *Journal of Epidemiology and Community Health*; 62:1008-1013
- Marmot M et al. (2008) Closing the gap in a generation: health equity through action on the social determinants of health. *The Lancet*, 372, 1661-69.
- Marmot MG, Bell R (2009). How will the financial crisis affect health? *BMJ*; 338: b1314
- Moser K et al. (1990). Unemployment and mortality. In: Goldblatt P, ed. Longitudinal study: mortality and social organisation, England and Wales, 1971 -1981. London: Stationery Office, 81-108.
- McKee-Ryan F et al. (2005). Psychological and Physical Well-Being During Unemployment: A Meta-Analytic Study. *Journal of Applied Psychology*. Vol 90(1), Jan 2005, 53-76.
- Morris K et al. (1992). Non-employment and changes in smoking, drinking and body weight. *BMJ* 1992;304:536-41.
- Morris K, et al. (1994). Loss of employment and mortality. *BMJ* 1994;308:1135-1139 (30 April)

- Moser KA et al. (1986). Stress and Heart Disease: Evidence of Associations between Unemployment and Heart Disease from the OPCS Longitudinal Study. *Postgraduate Medical Journal*, 62: 797-799.
- Murphy GC, Athanasou JA (1999). The effect of unemployment on mental health. *J Occup Organ Psychol* 1999;72:83-99.
- Neumayer E (2004) Recessions lower (some) mortality rates: evidence from Germany. *Social Science & Medicine*, 58, 1037-47.
- OECD (2006). *Economic Survey of Japan 2006*. Paris: OECD.
- Paxson C, Schady N Source: *WORLD BANK ECONOMIC REVIEW* Volume: 19 Issue: 2 Pages: 203-223 Published: 2005 Child health and economic crisis in Peru
- Pongou R, Salomon JA, Ezzati M. Health impacts of macroeconomic crises and policies: determinants of variation in childhood malnutrition trends in Cameroon. *Int J Epidemiol*. 2006 Jun; 35(3):648-56
- Ruhm C (2000) Are recessions good for your health? *Quarterly Journal of Economics*, 115, 617-50.
- Ruhm C (2003) Good times make you sick. *Journal of Health Economics*, 22, 637-58.
- Ruhm C (2006) Macroeconomic conditions, health and mortality. IN JONES, A. (Ed.) *Elgar Companion to Health Economics*. Cheltenham, UK, Edward Elgar Publishing.
- Ruhm C (2008a) A healthy economy can break your heart. *Demography*, 44, 829-48.
- Ruhm C (2008b) Macroeconomic conditions, health and government policy. IN SCHOENI, R., HOUSE, JS, KAPLAN, GA, POLLACK, H (Ed.) *Making Americans healthier: Social and economic policy as health policy*. New York, Russell Sage.
- Sen A (1998) Mortality as an Indicator of Economic Success or Failure. *Economic Journal*, Vol. 108, pp. 1-25.
- Stuckler D et al. (2008). Can a bank crisis break your heart? *Globalization and Health* 4(1):1-12.
- Stuckler D. et al (2009) The public health impact of economic crises and alternative policy responses in Europe, *The Lancet*, 2009, Early Online Publication, 8 July 2009.
- Suhrcke M et al (2006). *Chronic disease: an economic perspective*. London: Oxford Health Alliance.
- Svensson M (2007) Do not go breaking your heart: do economic upturns really increase heart attack mortality? *Social Science & Medicine*, 65, 833-41.
- Tapia Granados JA (2003). Economics, demography, and epidemiology: an interdisciplinary glossary *J Epidemiol Community Health* 2003;57:929-935
- Tapia Granados JA (2005) Recessions and mortality in Spain, 1980-1997. *European Journal of Population*, 21, 393-422.
- Tapia Granados JA (2008) Macroeconomic fluctuations and mortality in postwar Japan. *Demography*, 45, 323-43.
- Theodossiou I (1998). The Effects of Low-pay and Unemployment on Psychological Well-being: A Logistic Regression Approach, *Journal of Health Economics*, 17(1): 85-104.
- Ungváry G et al. (1999). Health Risk of Unemployment. *Central European Journal of Occupational and Environmental Medicine*, 5(2): 91-112.
- Valkonen T, Martikainen P (1995). The association between unemployment and mortality: causation or selection? In: Lopez AD, Casell G, Valkonen T, eds. *Adult mortality in developed countries: from description to explanation*. Oxford: Clarendon Press, 1995:201–22.
- Van Rossum CTM (2000). Socioeconomic Status and Mortality in Dutch Elderly People – The Rotterdam Study. *European Journal of Public Health*, 10: 255-261.

Wagstaff A (1985). Time series analysis of the relationship between unemployment and mortality: a survey of econometric critiques and replications of Brenner's studies. *Social Science & Medicine* 1985;21(9):985-96.

Wagstaff A et al. (2001). *Causes of Inequality in Health: Who Are You? Where You Live? Or Who Your Parents Were?* Policy Research Working Paper No 2713. Washington DC: The World Bank.