

SINGAPORE ECONOMIC POLICY FORUM 2010

Inequality and its Impact on Well-Being

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Introduction

This presentation will focus primarily on income inequality and its effects on social well-being in developed countries. In particular, the discussion will revolve around the central argument of The Spirit Level, which is that among developed countries, those societies with lower levels of income inequality almost always do better in terms of social outcomes (mental and physical health, social mobility, child educational performance, etc.), when compared to societies which have higher levels of income inequality. The presentation will proceed to first look at the evidence supporting this claim before turning to explain the significance of income inequality from a social epidemiology viewpoint – i.e. the impact of income inequality on societies from the perspectives of psychology and physiology.

Context

Mainstream economics tend to approach economic growth and social outcomes as separate and distinct spheres of relations, which are contiguously related at best. Typically, it is assumed that higher levels of economic growth translates into greater levels of wealth and material prosperity, which in turn, facilitates better social outcomes as communities, families and individuals have access to improved basic amenities and healthcare facilities. In addition, it is commonly believed that higher levels of wealth and material prosperity bring about an enhancement of consumption choices (i.e. access to a broader range of goods and services), and by extension, the overall welfare of wider society. This piece of conventional wisdom holds when one compares the development trajectory of developed and developing countries – at least from indicators such as the correlation between national income per capita and life expectancy.

The strength of this piece of conventional wisdom, however, seems to dissipate when one looks at the same correlation of national income per capita and life expectancy among developed countries. Among the developed countries, there is no apparent correlation between a country's level of prosperity and its level of life expectancy. For example, the US is richer than Japan but the latter enjoys much

longer life expectancy. As health outcomes and life expectancy of humanity have been improving steadily over time, this phenomenon cannot be explained away easily by appealing to a sudden appearance of a 'ceiling effect' in each of these developed countries. Instead, what the data suggests is that the absolute level of a country's national income ceases to be the determining factor of social outcomes when that country reaches an advanced stage of development. Consequently, the key question that this presentation seeks to address is this – what determines social outcomes in developed countries, if not absolute levels of income? The answer, it appears, lies in the way in which income is distributed in developed countries.

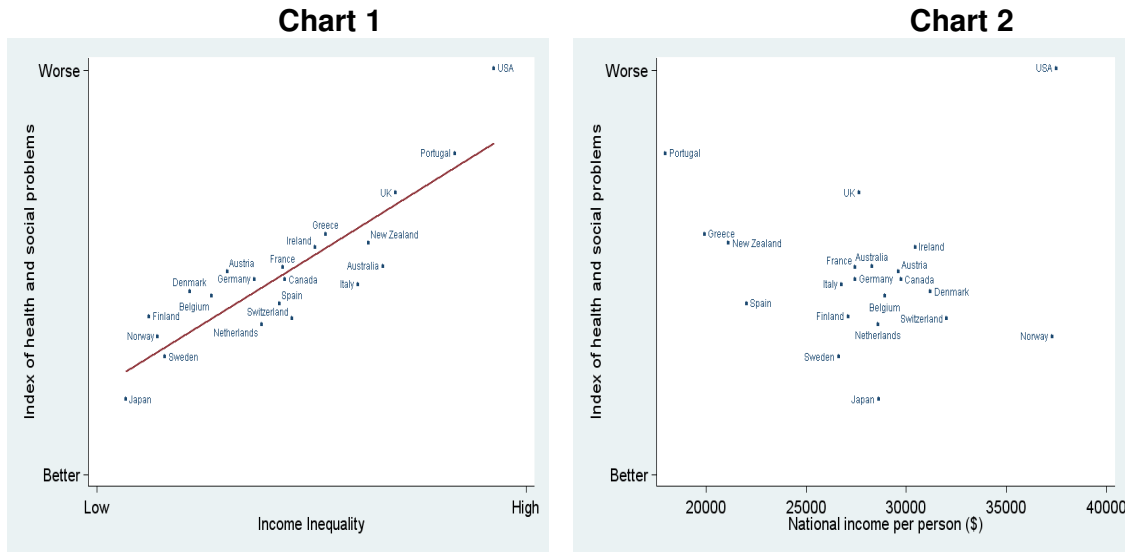
Part 1: The Corrosive Effects of Income Inequality – The Evidence

Across developed countries, the distribution of income varies quite extensively. According to data taken from the United Nations Development Program (UNDP), Japan and the Scandinavian countries have the lowest levels of income disparity (as measured by the Gini coefficient or by the income gap between the richest 20% and the bottom 20%), while the UK and US have some of the most inequitable levels of income distribution. This simply means that national income is more evenly spread across society in the former countries, while it is more concentrated and less dispersed in the latter group. However, when one looks at the level of health and social problems in these countries¹, a pattern appears – those countries with lower levels of income inequality consistently fare better than those with higher levels of income inequality tend to do worse. To be sure, the levels of average income have little correlation with these countries' performance in terms of health and social problems.

¹ The index of health and social problems is a composite index of rates of life expectancy, math and literacy, infant mortality, homicides, imprisonment, teenage births, trust, obesity, mental illness (including drug abuse and alcohol addiction) and social mobility. The data used to comprise this index is drawn from international databases belonging to organisations such as the UN, the World Bank and the OECD.

Chart 1: Correlation between Income Inequality and Health and Social Problems

Chart 2: Lack of Correlation between Average Income and Health and Social Problems



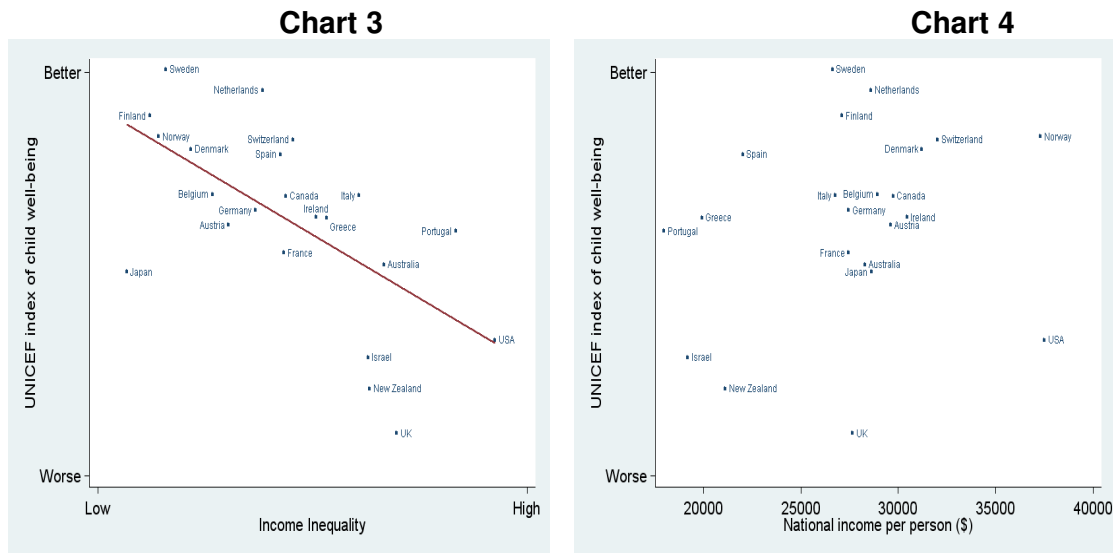
The same procedure can be repeated for each component of the composite index of health and social problems used in Charts 1 and 2. For each health or social problem captured in the index (levels of trust, life expectancy, infant mortality, obesity, mental health, education, teenage births, homicides, imprisonment and social mobility), the same pattern shows up consistently (where data is available) – countries with lower levels of income inequality almost always do better than those with higher levels of income inequality. Where possible, a health or social problem found in the composite index was also tested across states in the US and the same pattern emerged consistently. Most notably, the correlation between social mobility (defined as the extent to which a person’s income is correlated to his father’s income) and income inequality suggests that higher levels of income inequality perpetuate the status quo.

To further test the robustness of this correlation, a completely different set of data – the child well-being index put together by UNICEF² – was analysed alongside levels of income inequality of developed countries. Once again, the same pattern emerged – countries with lower levels of income inequality tend to produce better child well-being outcomes as compared to those with high levels of income inequality. A paper published in the British Medical Journal supports this finding as it shows that child well-being, as measured by UNICEF, is not related to average living standards in

² UNICEF measures six different aspects of child well-being including material well-being, health and safety, educational well-being, peer and family relationships, behaviour risks and subjective well-being.

different countries³. It is important to note that the significance of this finding is not confined simply to the fact that it adds robustness to the ongoing hypothesis. Child well-being is a critical indicator of longer-term social outcomes and its apparent correlation with income inequality suggests that income inequality could possibly have a corrosive effect that stretches across time.

Chart 3: Correlation between Income Inequality and Child Well-Being
Chart 4: Lack of Correlation between Average Income and Child Well-Being



Some Common Questions

At this juncture, it is appropriate to consider some common questions posed in relation to the foregoing hypothesis and findings:

Are you mixing up correlation with causality?

The hallmark of a good scientific theory is its ability to make correct predictions consistently. On this account, the hypothesis that is put forth here stands up to scrutiny so far. Across the range of developed countries, given any two countries, the country that has a higher level of income inequality will almost always fare worse in terms of social outcomes compared to the country with a lower level of income inequality. In addition, those countries that fare badly on one outcome tend to do badly on others as well. It is therefore fair to argue that there is an underlying causal relation between these two phenomena – there is a robust correlation accompanied by direction in terms of cause and effect. Furthermore, it is well established that problems related to social status tend to intensify when differences in status increase. Nevertheless, it is important to note that income inequality is not the *only* causal factor contributing to social outcomes, even if it is found to be a very significant one.

³ www.equalitytrust.org.uk

Do lower levels of income equality benefit only the lower strata?

It seems intuitive that the lower strata of society are the *only* beneficiaries if there were lower levels of income equality. However, this view appears to be only half-correct. While it is apparent that the lower strata of society tend to benefit *most* from lower levels of income inequality, the rest of society benefits as well. Chart 5 depicts the infant mortality rates of Sweden, England and Wales (England and Wales taken together as 'E&W' in Chart 6) broken down by social class. Across all social classes, Sweden fares better than England and Wales, which have higher levels of income inequality. Similarly, Chart 6 shows that countries with lower levels of income inequality (Sweden and Canada) do better (than the US) in terms of literacy scores across a cross-section of society.

Chart 5: Infant Mortality by Social Class in Sweden, England and Wales
Chart 6: Literacy Scores of 16 – 25 year olds by Parents' Education

Chart 5

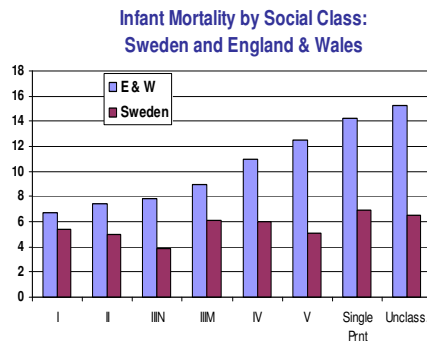
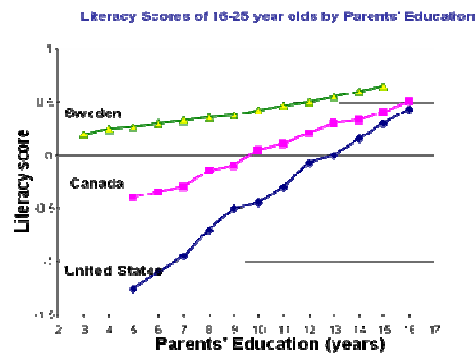


Chart 6



Part 2: The Psychology and Physiology behind Income Inequality – The Explanation

Having established the hypothesis that lower levels income inequality tend to produce better and health outcomes for developed societies, the second part of this presentation will look at the significance of income equality from the perspectives of psychology and physiology. But first, it would be helpful to revisit the conventional economics approach towards income inequality in more detail.

The Conventional Economics View and its Limits

The conventional economics view typically looks at income inequality as an outcome of incentive structures and skills differentials. More pertinently, income inequality is taken to represent the differences in purchasing power between households. This

view provides a good account of why different levels of income inequality exist in different societies and how it impacts social relations. For example, those with better qualifications tend to earn higher wages, and in turn, have higher household incomes to purchase better goods and services such as premium healthcare to enhance their well-being, as compared to those who are less qualified. On this account, social outcomes are determined by levels of absolute income, or the absolute ability to consume more and better goods and services.

This view, however, paints an incomplete picture. As shown in the earlier part of this presentation, there is a lack of correlation between levels of national income per capita and social well-being across a spectrum of developed societies. Instead, there is a strong correlation between levels of income inequality and social well-being. This indicates that, at an advanced stage of development, a society's *absolute* ability to consume more and better goods and services matters less to its overall well-being than the *relative* ability of its members to do so. In other words, for developed societies, levels of inequality rather levels of poverty affects overall well-being. But why should that be the case? After all, does not aggregate welfare increase when individuals and households are collectively able to consume more and better goods and services? It is at this point that this presentation departs from the conventional economics view and turns to psychology and physiology for an explanation.

Income Inequality – The Psychology and Physiology

To understand why social outcomes of advanced societies are affected by levels of relative income, one must look at the impact of income inequality on subjective well-being. Using data from the World Health Organisation (WHO), Chart 7 shows that there is an underlying association between the level of income inequality experienced by a developed society and its overall psychological well-being. Countries which are more unequal tend to have a higher prevalence of mental illness in their adult populations. Indeed, there is sufficient evidence showing that mental health outcomes in countries such as the US and UK have worsened over time⁴.

⁴ Jean Twenge, a psychologist at San Diego State University, has put together impressive evidence to show that the average American is clearly much more anxious than before. Amongst other things, Twenge found that by the late 1980s, the average American child was more anxious than child psychiatric patients in the 1950s. She found 269 broadly comparable studies measuring anxiety levels in the USA at various times between 1952 and 1993, covering 52,000 individuals. Depression and anxiety are closely connected: people who suffer from one suffer from the other and psychiatrists sometimes treat the two conditions in similar ways. Among adolescents, these have been accompanied by increases in the frequency of behavioural problems, including crime, alcohol and drugs abuse.

Chart 7: Prevalence of Mental Illness in Adult Populations of Developed Countries

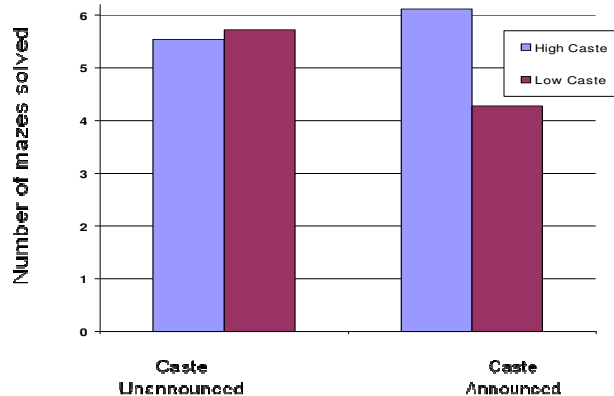


Notwithstanding the established correlation, it alone does not *explain* the impact of income inequality on mental health. However, the correlation does illustrate the crucial point that there income inequality and mental well-being are mutually reinforcing factors in developed societies. This is an important point to note because it implies that the mental well-being of an individual is associated with his or her relative positions in society (as depicted by where that individual stands along the income range). More pertinently, the concept of relative position or status in society is often psychologically imposed, and causes physiological effects that ultimately influence social outcomes.

The Psychology – The Effects of the ‘Stereotype Threat’

In 2004, a team of researchers from the World Bank studied the effects that the caste system had on the educational performance of children in India. They gathered 321 high-caste and 321 low-caste boys (11 – 12 year olds) from scattered rural villages in India and set them the task of solving mazes. First, the boys did the puzzles without being aware of each other’s caste. Under this condition, the low-caste boys did slightly better compared to the high-caste boys. Subsequently, the experiment was repeated and each boy was asked to confirm an announcement of his name, village, father and grandfather’s names, and caste. After this public announcement of family background and caste, the boys did more mazes. This time, there was large ‘caste gap’ in how well they performed this time round – the performance of the low-caste boys dropped significantly. Chart 8 summarises the results of this influential study.

Chart 8: Effect of Caste Identity on Children’s Performance



Claude Steele at Stanford University and Joshua Aronson at New York University, both social psychologists, observed the same phenomenon when they carried out similar experiments with Caucasian and African-American high school students in the US. In one study, they administered the Graduate Record Examination (GRE) to two groups of Caucasian and African-American students separately under two different conditions. For each group of Caucasian and African-American students, half of the students were informed that their intelligence was measured, while the other half were not told what the test was supposed to measure. Under both conditions, the Caucasian students performed almost equally well. However, the half of the African-American students who were told that their intelligence was being measured performed far worse than their counterparts who were not informed. Steele and Aronson termed this effect a “stereotype threat” and it has been shown to apply to other forms of social differences such as gender and ethnicity.

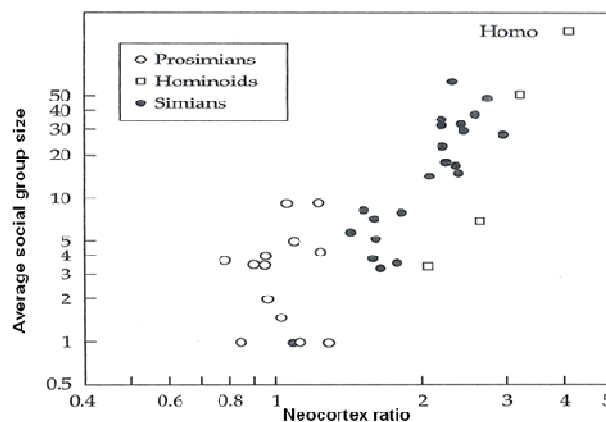
Taken together, the psychological impact of income inequality appears to be illustrated quite clearly by these experiments. The presence of greater levels of income inequality implies that there is a greater social distance in terms of means, class and status between individuals in society. Consequently, individuals internalise their relative social positions and that tends to affect their levels of self-worth, which at times, make them conform to prevailing stereotypes. More importantly, this process often becomes a vicious cycle among those from the lower strata of society.

The Physiology – How Inequality Gets Under the Skin

As members of societies, individuals have to cope with social hierarchies (orderings based on power, coercion and privileged access to resources) and maintain social networks (friendships based on reciprocity, mutuality, obligations and respect). Over time, the human brain evolved to enable human beings to manage the complex

facets of these social relations. Robin Dunbar, a primatologist, pointed out that there is a correlation between the group size of different primates and the proportion of the brain made up of the neo-cortex: The larger the group size, the more neo-cortex is needed to cope with social life. In that sense, the brain is a 'social organ'. The neo-cortex is part of the cerebral cortex, which is responsible for sensory perception, generation of motor commands, spatial reasoning, conscious thought and language. Chart 9 shows that primates of larger social groups tend to have the neo-cortex forming a larger proportion of the brain.

Chart 9: The Neo-Cortex forms a Larger Proportion of the Brain in Primate Species with Larger Social Groups

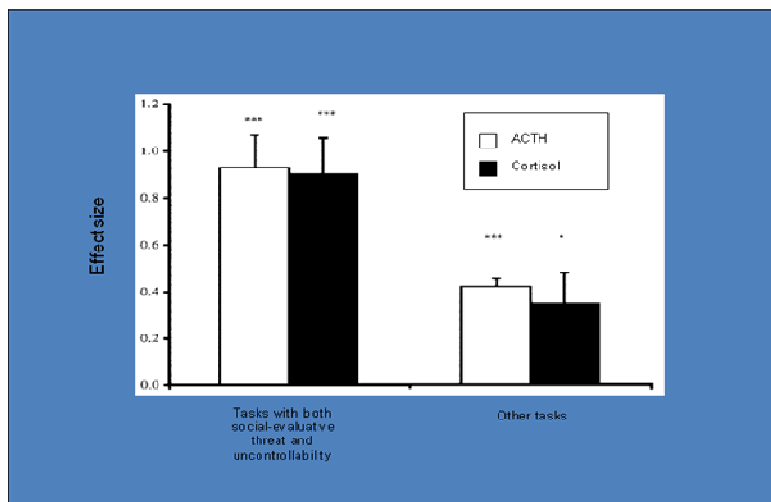


The importance of social relations to human beings, nevertheless, works as a double-edged sword. While social relations provide both order and support, the need to constantly maintain them is an important source of distress for individuals in modern societies. Existing research shows that conflicts and tensions with other people are by far the most distressing events in daily life, in terms of both initial and enduring effects on emotional well-being – more so than the demands of work, money worries or other difficulties. When faced with stressful situations, the adrenal gland produces a central stress hormone called 'Cortisol', which can be easily measured in saliva and blood. The primary function of Cortisol is to prepare individuals to deal with potential threats and emergencies. However, prolonged or excessive secretion of Cortisol (which may be due to chronic stress) could result in significant physiological changes such as the weakening of the immune system, active stimulation of gastric acid secretion or even impaired learning in some extreme cases.

But how is this relevant to income inequality and social well-being? The answer to this question lies in how situations which makes one conscious of one's social status tend to induce the increase in Cortisol levels. A meta-analysis of 208 laboratory studies of Cortisol responses to acute stressors found that "tasks that included

social-evaluative threat⁵ (such as threats to self-esteem or social status), in which others could negatively judge performance, particularly when the outcome of the performance was uncontrollable, provoked larger and more reliable Cortisol changes than stressors without these particular threats⁶. In other words, circumstances which involve the possible loss of self-esteem or impending failure are most distressing for individuals and causes prolonged or excessive secretion of Cortisol. Given that individuals in more unequal societies are more likely to encounter social evaluative threats in the form of social disparities, class distinctions and 'stereotype threats', it means that income inequality produces real physiological damage over time. It is therefore unsurprising that societies which experience higher levels of income inequality also tend to have worse health and social outcomes. Chart 10 shows that Adrenal Corticotrophic Hormone (ACTH)⁷ and Cortisol levels are much higher when individuals are faced with tasks that include social evaluative threat which are beyond their control.

Chart 10: Types of Stress that most reliably raises Cortisol Levels



The Singapore Case

In the context of the foregoing discussion, Singapore represents a peculiar case. At present, Singapore experiences one of the highest levels of income inequality in the world. Where data is available, Singapore does tend to experience worse social

⁵ Social evaluative threats are those situations which create the possibility for the loss of self-esteem. They typically involve the presence of an evaluative audience in the experiment, a potential for negative social comparison such as scoring worse than someone else, or having one's performance videoed or recorded, so creating the potential for later evaluation. The highest Cortisol responses came from when a social evaluative threat was combined with a task in which participants could not avoid failure – e.g. the task was designed to be impossible, or participants were given too little time or participants were told that they were failing however they performed.

⁶ S.S. Dickerson and M.E. Kemeny, Acute Stressors and Cortisol Responses: A Theoretical Integration and Synthesis of Laboratory Research, *Psychological Bulletin*, 2004, 130(3), 355-91.

⁷ Adrenal Corticotrophic Hormone (ACTH) is a hormone secreted concurrently with Cortisol in response to stress.

outcomes in some areas, relative to those countries which are similarly wealthy but have lower levels of income inequality. In particular, it has low levels of trust, shorter life expectancy and higher rates imprisonment amongst developed countries. However, apart from those indicators, Singapore does not fare as badly in terms of overall social well-being, when compared with countries with similar levels of income inequality. This is quite possibly due to Singapore's public housing programme – about 85% of the population stays in flats subsidised by the Housing Development Board. The homogeneity of most residents' housing background may have an ameliorating effect on the underlying income gap. It also helps to create a stronger sense of community.

Conclusion

At an advanced stage of development, absolute levels of economic growth appear to matter less to social well-being than relative levels of income distribution. Across a spectrum of 23 rich countries in the world according to data from The World Bank (excluding those with populations below 3 million – tax havens like the Cayman Islands and Monaco), this presentation has shown that there is a clear and robust statistical correlation between higher levels of income inequality and poorer social and health outcomes. While robust correlation may not necessarily imply direct causation, any alternative explanation accounting for the disparate social outcomes across these developed countries would find it very difficult to exclude income inequality as a key contributing factor. More importantly, by examining the detrimental psychological and physiological effects of greater income inequality, this presentation hopes to put to rest popular or ideological assumptions such as “elitism is efficient”, “prejudice is natural” or “exclusion is necessary”. Last but not the least, in order to act on these findings, it is vital that developed societies recognise that the overall benefits of a more equal society extend to everyone, not just those at the lower strata.

Question & Answer Session

Moderated by Mr Donald Low, Head of the Centre for Public Economics, Civil Service College, Singapore

Moderator: Two quick comments on the presentation. First, a targeted, rather than, broad-based approach is often preferred in the way the government of Singapore administers social assistance. For example, we apply means testing for social assistance and for importance categories of healthcare subsidies. The preference for a more targeted approach is to ensure that those who are in need receive the required help, thus minimising 'deadweight losses' or free-riding behaviour. However, if the main problem is inequality and not poverty, then it suggests that a broad-based approach, where there is more aggressive redistribution may work better in improving overall social well-being. Second, it is commonly assumed that high levels of inequality would be acceptable if there were correspondingly high levels of social mobility. But the presentation suggests that social mobility is lower in more unequal countries. This implies that there is no trade-off between social mobility and income equality as we have commonly assumed. If a society desires higher levels of social mobility, then it must also pursue lower levels of inequality.

Question 1: With reference to the point that absolute rates of economic growth are not correlated with life expectancy, is there data on the causes of death in countries with lower life expectancy? Longer lives may not mean happier lives especially if those longer lives are led with a higher incidence of illness. Longer life expectancy may not necessarily mean that there were greater levels of happiness.

Prof Wilkinson: A country's life expectancy is a good indicator of the quality of life experienced by its citizens. It is a misconception that countries or people who are poor lead short but happy and fulfilled lives. Health and life expectancy are closely correlated and it would be difficult to assume that shorter lives are actually happier or healthier ones compared to lives which were longer owing to better health across all of society.

Question 2: Do you think community self-help groups or voluntary welfare organisations help to improve the plight of those who are disadvantaged in an unequal society?

Prof Wilkinson: Community activism and self-help groups definitely help people from feeling inferior and de-valued. However, psycho-social mediation does not mean

that one ignores the underlying problem of social inequity. In my opinion, these important organisations help to improve social relations but do not solve fundamental problems such as income inequality.

Question 3: The idea that social status can impact social outcomes is quite intuitive. However, the proposition that the negative or positive effects of greater social disparities are broad-based seems less intuitive. Could you provide a further explanation for why lower levels of income inequality benefits everyone and vice versa?

Prof Wilkinson: Your observation is correct in that the overall negative or positive effects of higher levels of income inequality are not immediately obvious. Typically, the negative effects of income inequality are more concentrated at the lower strata of society, and conversely, the positive effects of inequality are more readily felt there as well. But in more unequal societies, there is much more competition, across the board, to move up or to retain one's social status. This results in higher levels of stress overall. Laboratory research with monkeys has shown that this is the case and that there is immense pressure for those at the top of the hierarchy to maintain their status. Robert Frank's "Falling Behind" and Pierre Bourdieu's "Distinction" are good illustrations of the dynamics involved in the competition for social status.

Question 4: Are there any data which we can use to look at the effects of income inequality on developing countries? Are there any differences if we were to analyse the presented data based on gender?

Prof Wilkinson: The relation between infant mortality and GNP per capita suggests that developing countries are just as susceptible to the effects of income inequality, like their developed counterparts. In a study published in the *Lancet* (Hales S., Howden-Chapman P., Salmond C., Woodward A., Mackenbach J. *Lancet* 1999; 354: 2047), it was shown that, for a given country, infant mortality rates tend to worsen as the levels of inequality rise – regardless of GNP per capita growth.

There is no sufficient data for us to have a comprehensive analysis based on gender. Nevertheless, it is reasonable to assume that women in more equal societies tend to fare better in terms of social outcomes. In most modern societies, women are expected to participate in the workforce and take of domestic chores (and child rearing) at the same time. Those countries which afford women more equality in terms of social status, such as the Scandinavian countries, have tended to provide better social support services to enable women to fulfil both roles. In general, it seems that the men's health outcomes tend to be better when women are happier.