Wilkinson hypotheses unequal societies are less healthy than more equal societies

Maaida Hussain Hashmi
Department of Economics
COMSATS University Islamabad, Lahore Campus, Pakistan
PhD scholar, Department of Economics, LUMS, Lancaster University, UK

Amara Amjad Hashmi
Department of Economics
Lahore College for Women University Lahore, Pakistan

Keywords
Equal societies, Health, Unequal societies, Wilkinson hypothesis

Abstract

It is well evident from the previous literature that inequality of income is on average related to the individual's health and overall well-being of society. Nevertheless, few of the studies have challenged the hypothesis related to the inequality in income distribution and health of the individual. Therefore, according to these studies the validation of Wilkinson hypothesis is ambiguous. So, it is thought-provoking for the economists that income inequality and health status is more manifest in developing and third world countries because the situation of poverty is worse in these societies. The health inequalities are present there in the form of infant mortality, morbidity, under 5 death rate, mental illness etc. therefore it can be said that income inequalities have an impact on child and adult mortality in developing countries and developed countries, but the intensity is severe in LDCs. The developed countries are more likely to be influenced by absolute income hypothesis. Nevertheless, there is a need to undertake further research in this filed as the subject remains an attention-grabbing and important issue for policy makers and social scientist across the world.

Introduction

The total population of the world is 7.2 billion (World Bank, 2013). Out of this, 6 billion people are residing in less developing countries, while the rest reside in developed countries. Thus, the world is clearly divided into two segments, i.e. the developed countries with a higher standard of living, and the less develop countries, which is characterized by poverty, disease, inequality and low standard of living. However, among these two segments, income inequality flourish, and had been on the rise in the last few years. These disparities in income have multidimensional effects on the life of the society, as it can seriously undermine the health of the people (Lindley & Lorgelly, 2005).

But, does a relationship really exist between health and income inequality? Well, a huge amount of literature exists on this issue, as it a debatable issue and it has come under scrutiny in current years. For instance, Deaton (1999) wrote: "Health status is correlated with income inequality, both for individuals within nations, and across nations in aggregate (Deaton, 1999)". "Recent evidence suggests that many other social problems, including mental illness, violence, imprisonment, lack of trust, teenage births, obesity, drug abuse, and poor educational performance of schoolchildren, are also more common in more unequal societies" (Mills & Wittek, 2016). "Income inequality may reflect social cohesion or social capital, and health at the individual level may not respond simply to absolute income but also to relativities in society, such as relative deprivation, relative income, and relative social status. Income inequality at the population level may be important because it accentuates these relativities and hence has a negative impact on health at the individual level" (Wagstaff & Van Doorslaer, 2000). So, based on these statements, it can be said that, there exists a relationship among inequality of income and health.

Wilkinson (1996), was the very first one who introduced the idea that the income inequality and health are negatively related to each other, hence it named as "Wilkinson Hypothesis". It proposes that health status is dependent on the degree of income inequality in society (Wilkinson, 1996). It implies that for any given average level of income the most evenly distributed this income the higher will be the intermediate measure of health and level of living vice versa. However, an opposing view known as the absolute income hypothesis propose that health improves at a decreasing rate with the increase in average income and it is a 'curvi-linear' bond among income and health when plotted.

Although, many studies have described that there in a link between the level of income inequality and aggregate health outcomes in a country's population, debate is still going on the validity of these studies. "Average health among people living in high inequality areas appears to be lower than among people living in low-inequality areas" (Hildebrand & Van Kerm, 2009). "Despite a large empirical and theoretical literature (Wilkinson & Pickett 2009 and De Maio 2011), little agreement exists on its overall validity" (Maio 2012). Hence, it is a topic of great interest for economists and social scientists as well. This essay intends to contribute to this debate by reviewing relevant studies, and then draw a middle range conclusion on their findings. The next section of this essay explains the various hypotheses as a prelude to the literature review.

Different hypothesis: Income, income inequality and Health status

Income, income inequality and health have been a subject of debate and discussion for the scholars of different fields like economics, public health and sociology. In recent decade the debate has become more intense because of the betterment in the several indicators of health and income inequality worldwide. This section is based upon the ideas of different hypothesis of income inequality and health presented by Wagstaff & Doorslaer (2000). "With respect to the previous literatures, the underlying mechanisms of income inequality and health are grouped under three broad titles: absolute income, relative income, and income inequality hypothesis" (Pulok, 2012).

Absolute income hypothesis (AIH)

The absolute income hypothesis describes that higher average income leads to better health at a diminishing pace. There is a concave relationship between average income and health status. Preston (1975) in a seminal paper presented the ground for absolute income hypothesis. Preston (1975) states "Increases in average income are strongly correlated with increases in life expectancy among poor countries, but as income per head rises, the relationship flattens out, and is weaker or even absent among the richest countries". The absolute income hypothesis explains that average income is more important for in developing countries and income inequality in more related to developing states.

Income inequality hypothesis (IIH)

The income inequality hypothesis explains that holding average income constant, the income inequality has a direct impact on the health of people. Mellor and Milyo (2002) states the two versions of IIH, one is weak version and other is the strong version. "Argument of the strong version is that inequality affects all individuals in a society equally, regardless of their income levels. On the other hand, the weak version states that income inequality has more impact on the health of persons with lowest level of income in the society" (Mellor & Milyo, 2002). The main difference between the IIH and AIH is that the first one is related to income inequality and health while the second is more allied to concave relationship between average income and health.

Relative income hypothesis (RIH)

The relative income hypothesis is different from AIH and IIH. Relative income hypothesis states that it neither average income nor income inequality upsets the health of individual, in fact individual's health is the function of individual's income. "The relative income hypothesis is parallel to the weak version of income inequality hypothesis in a sense that poor people suffer more than the

rich when the income distribution spreads out more. But the strong version is more consistent with AIH. So, it is important to unveil the subtle distinction among these three hypotheses" (Pulok, 2012).

Literature Review

There has been an enormous quantity of literature and research exploring and proving the relationship between the income inequality and health. The empirical evidence has been testified by using different types of data (longitudinal and cross sectional) both inside and between countries with low, middle and high income (Wagstaff & Van Doorslaer, 2000).

The first study of the relationship between income inequality and health of the individual was presented by Wilkinson (1996). According to this study individual income is not the prime determinant of the health but it is greatly affected by the degree of inequality in the income distribution in the developing countries. Wilkinson supported this hypothesis with empirical evidence using a country level data. Now hundreds of studies are present favoring, developing and criticizing this hypothesis.

Population level studies

A very early empirical work by Adelman (1963) and Judge et al (1998) supported the relationship between the income and health through empirical investigation using the data to cross country level. Rodgers (1979) used the data of 56 countries and applied regression technique and found the relationship between mortality-based population health measures (life expectancy at birth, life expectancy at fifth birthday, and infant mortality) and income inequality. Gini coefficient is measured by life expectancy at birth, life expectancy at fifth birthday, and infant mortality. Most important evidence of income inequality and health level is provided by Wilkinson (1992, 1996).

Bidani & Ravallion (1997) have found the proof that headcount poverty is associated with life expectancy and infant mortality significantly and it is also proving the existence of the relationship between income inequality and health level of societies. Waldmann (1992) used cross country data and models and found a highly significant connection between income inequality and population health status especially with high infant mortality. Using population level data Gravelle (1998) explained a nonlinear relationship between absolute income and health but a significant link between health status and distribution of income (Income inequality). There are many studies present to provide further verification of Wilkinson hypothesis that societies with unequal income distribution pattern are less healthy (Kawachi & Kennedy, 1999; Macinko et. al, 2003 and Wilkinson & Pickett, 2006). Ellison (2002) reported a statistical link between health status and different measures of inequality at the population level. "Population health is most reliably related to income distribution when income differences are measured across nation-states and other large geo-political units" (Franzini et. al, 2001).

Ram (2005) highlighted the fact that the association of income inequality and infant mortality is more reliable and valid in developing countries as a reflection of poverty. "The social processes which become structured round income distribution probably also include many of the early childhood influences on social and cognitive development which seem to affect both health and social mobility and are important in social class differentiation" (Ben Shlomo & Kuh, 2002). Torre and Myrskylä (2011) conducted a study for 21 developed countries for over 30 years and reported that Gini coefficient as a measure inequality is strongly and positively related to the male and female mortality up to the age 15.

Interesting fact is that few of studies have reported that they are failed to replicate the findings of Wilkinson and there is no or negative relationship between health poverty and income inequality (Flegg, 1982; Mulligan & Benzeval, 1998; Pulock, 2012).

Individual level studies

A large share of the literature on income inequality and health level has focused on the community or individual level. "Kennedy et al. (1998) undertake a multi-level study for 50 U.S states

using individual level data and find that higher Gini coefficients significantly reduce health". Another study of U.S using the individual level data to investigate the relative income hypothesis and find a significant and strong relationship between income inequality and health (Soobader & LeClere, 1999). Wagstaff and van Doorslaer (2000) suggested that only individual level of studies can differentiate between the different types of relative income hypothesis and absolute income hypothesis. Mellor and Milyo (1999) used income and income squared to find a strong relationship for self-reported relationship.

Waldman (2002) established a study on individual level in U.K. According to this study they have modeled that individual health is a function of income and the distribution of the income and concluded on the existence of the link among these variables. "Another paper models individual health as a function of individual income and income inequality. It is shown that the impact of income inequality can have potentially far reaching implications for modelling individual and societal health" (Wildman, 2003). Elgar et al. (2005) and Mansyur et al. (2008) also conducted a study at individual level and detected the presence of Wilkinson hypothesis. "Lorgelly and Lindley (2008) explored the association separately for men and women in Britain. While they found that men report to be in better health than women".

A very recent evidence of the association between richness, income inequality and health poverty were found significantly positive in Portugal using individual level data. The study used a second order Probit to find the determinants of health poverty in the Portugal. "The econometric study reveals that gender, age, education, personal income, region of residence, and eating habits are among the most critical determinant factors of health (Simões et al., 2013)".

Few studies have indicated the non-existence of relative income hypothesis on individual level. These studies failed to reproduce the Wilkinson hypothesis on individual scale. Emerical and statistical studies are not reporting the strong evidence at individual level (Mellor & Milyo, 2003 and Daly et al. 1998)

Discussion and conclusion

It is well evident from the previous literature that income inequality is on average related to the health of the individual and society. However, some studies have challenged the health and income inequality hypothesis and thus presented the ambiguous state of the Wilkinson hypothesis. It is interesting to note that income inequality and health status is more manifest in developing and third world countries because the situation of poverty is worse in these societies. The health inequalities are present there in the form of infant mortality, morbidity, under 5 death rate, mental illness etc. therefore it can be said that income inequalities have an impact on child and adult mortality in developing countries and developed countries, but the intensity is severe in LDCs. The developed countries are more likely to be influenced by absolute income hypothesis.

While the debate among researchers on the existence of the relationship between income inequality and health determinants continues, few studies have presented empirical evidence in favor of the Wilkinson hypothesis. As (Wildman & Jones, 2008) noted: "any debate over the impact of absolute income and income inequality has been hampered by the dearth of theoretical models which demonstrate the impact of both absolute income and income inequality"

Nevertheless, there is a need to undertake further research in this filed as the subject remains an attention-grabbing and important issue for policy makers and social scientist across the world. From a policy perspective it is important to understand that income inequality is related to an aspect of the society while income itself is a characteristic of individual. In general, it is better to improve the distribution of the income in a society to reduce the discrimination and health inequalities. "But overemphasizing income inequality as a determinant of population health is redundant from a policy perspective" (Pulok, 2012). However, it is important to analyze this deeply to allow for the proper design and execution of policies aimed at eliminating inequalities of health and income from the society. In this regard, it is crucial to determine whether society want to maximize income, minimize

income inequality, maximize health or minimize health inequality or a mix of all the above stated elements. So, horizon is broad to do more research in this context.

From a personal point of view and understanding of the topic through the previous literature, it is quite thought-provoking that some studies have reported relation between income, income inequality and individual health and vice versa. Relative income hypothesis is true for the developing countries not for developed countries. While the absolute income hypothesis is relevant to developed and industrialized world. All the studies used different proxies to measure the health status like mortality, infant mortality, life expectancy, morbidity etc. Another controversial state of literature is that few studies testified the Wilkinson hypothesis on population level and others on individual level. In the last decade the situation of the developing countries improved and there is an improvement in the situation of the income distribution and social inequalities. So, there is a need to investigate the relationship of income inequality and health along with other social issues. Because income inequality is not only a determinant of health inequality, it is a multi-factor phenomenon and further investigation is much necessary to understand it.

References

Adelman, I., 1963. An econometric analysis of population growth. *The American Economic Review*, *53*(3), pp.314-339.

Ben-Shlomo, Y. and Kuh, D., 2002. A life course approach to chronic disease epidemiology: conceptual models, empirical challenges and interdisciplinary perspectives.

De Maio, F.G., Linetzky, B., Ferrante, D. and Fleischer, N.L., 2012. Extending the income inequality hypothesis: ecological results from the 2005 and 2009 Argentine National Risk Factor Surveys. *Global public health*, *7*(6), pp.635-647.

Deaton, A., 1999. *Inequalities in income and inequalities in health* (No. w7141). National bureau of economic research.

Elgar, F.J., Roberts, C., Parry-Langdon, N. and Boyce, W., 2005. Income inequality and alcohol use: a multilevel analysis of drinking and drunkenness in adolescents in 34 countries. *The European Journal of Public Health*, *15*(3), pp.245-250.

Ellison, G.T., 2002. Letting the Gini out of the bottle? Challenges facing the relative income hypothesis. *Social science & medicine*, *54*(4), pp.561-576.

Franzini, L., Ribble, J. and Spears, W., 2001. The effects of income inequality and income level on mortality vary by population size in Texas counties. *Journal of health and Social Behavior*, pp.373-387.

Gravelle, H., 1998. How much of the relation between population mortality and unequal distribution of income is a statistical artefact? *Bmj*, *316*(7128), pp.382-385.

Hildebrand, V. and Van Kerm, P., 2009. Income inequality and self-rated health status: evidence from the European Community Household Panel. *Demography*, *46*(4), pp.805-825.

http://data.worldbank.org/indicator/SP.POP.TOTL

Jones, A.M. and Wildman, J., 2008. Health, income and relative deprivation: Evidence from the BHPS. *Journal of health economics*, *27*(2), pp.308-324.

Judge, K., Mulligan, J.A. and Benzeval, M., 1998. Income inequality and population health. *Social Science & Medicine*, *46*(4-5), pp.567-579.

Kennedy, B.P., Kawachi, I., Glass, R. and Prothrow-Stith, D., 1998. Income distribution, socioeconomic status, and self-rated health in the United States: multilevel analysis. *Bmj*, *317*(7163), pp.917-921.

Lindley, J. and Lorgelly, P., 2005. The relative income hypothesis: does it exist over time? Evidence from the BHPS.

Lorgelly, P.K. and Lindley, J., 2008. What is the relationship between income inequality and health? Evidence from the BHPS. *Health economics*, *17*(2), pp.249-265.

Mansyur, C., Amick, B.C., Harrist, R.B. and Franzini, L., 2008. Social capital, income inequality, and self-rated health in 45 countries. *Social science & medicine*, *66*(1), pp.43-56.

Mellor, J.M. and Milyo, J., 2002. Income inequality and health status in the United States: evidence from the current population survey. *Journal of Human Resources*, pp.510-539.

Mellor, J.M. and Milyo, J., 2003. Is exposure to income inequality a public health concern? Lagged effects of income inequality on individual and population health. *Health services research*, *38*(1p1), pp.137-151.

Präg, P., Mills, M.C. and Wittek, R., 2016. Subjective socioeconomic status and health in cross-national comparison. *Social Science & Medicine*, *149*, pp.84-92.

Pulok, M.H., 2012. Revisiting health and income inequality relationship: evidence from developing countries.

Ram, R., 2006. Further examination of the cross-country association between income inequality and population health. *Social science & medicine*, *62*(3), pp.779-791.

Rodgers, G.B., 1979. Income and inequality as determinants of mortality: an international cross-section analysis. *Population studies*, *33*(2), pp.343-351.

Simões, N., Crespo, N., Moreira, S.B. and Varum, C.A., 2016. Measurement and determinants of health poverty and richness: evidence from Portugal. *Empirical Economics*, *50*(4), pp.1331-1358.

Soobader, M.J. and LeClere, F.B., 1999. Aggregation and the measurement of income inequality: effects on morbidity. *Social science & medicine*, *48*(6), pp.733-744.

Torre, R. and Myrskylä, M., 2011. Income inequality and population health: a panel data analysis on 21 developed countries. *Max Planck Institute for Demographic Research*.

Wagstaff, A. and Van Doorslaer, E., 2000. Income inequality and health: what does the literature tell us? *Annual review of public health*, *21*(1), pp.543-567.

Waldmann, R.J., 1992. Income distribution and infant mortality. *The Quarterly Journal of Economics*, *107*(4), pp.1283-1302.

Wildman, J., 2003. Income related inequalities in mental health in Great Britain: analysing the causes of health inequality over time. *Journal of health economics*, *22*(2), pp.295-312.

Wildman, J., 2003. Modelling health, income and income inequality: the impact of income inequality on health and health inequality. *Journal of Health Economics*, *22*(4), pp.521-538.

Wilkinson, R.G. and Pickett, K.E., 2009. Income inequality and social dysfunction. *Annual review of sociology*, *35*, pp.493-511.

Wilkinson, R.G., 1992. Income distribution and life expectancy. *BMJ: British Medical Journal*, *304*(6820), p.165.

Wilkinson, R.G., 1996. *Unhealthy societies: from inequality to well-being*. Routledge.