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Income and Health Outcomes: Revisiting the Income-Health Gradient

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Abstract

Much of the current debate surrounding health care is centered on the perception that the socio-economically disadvantaged are less healthy than their richer counterparts. This idea, known as the income-health gradient, has been studied heavily in the academic literature and this poster is an update of one such study conducted by Case et al. in 2002. In their study, the researchers found that those with lower incomes also have lower self-reported health scores, and that this relationship not only persists, but actually worsens, as people get older. Using updated data, I found that this problem is still very prevalent in our society today, and a dilemma that has serious policy implications. To conclude my research, I conduct a simple cost-benefit analysis aimed at identifying the most plausible remedies for the income-health gradient.

Literature Review

The relationship between income and health has been extensively studied by many health economists. Studies such as Marmot’s “Whitehall” study which found that even among British Civil Servants with similar healthcare coverage there is a significant relationship between income and health levels. While the question of whether income has a greater effect on health or vice versa is still relatively unresolved (Smith, 1999) additional studies conducted

The Income-Gradient in Health Status

Using these studies as a starting point I used updated data from the National Health Interview Study (the same study used by Case et al.) in order to test whether data collected since the Case study changes their findings. Using OLS to conduct both an income-only and multi-factor regression analysis, I found that income was a primary determinant of self-reported health scores (significant at the .01 level—see table below) for all of the age cohorts in the study. My findings were very much in-line with those of Case et al. in that I found a gradient that steepens with age and had no real flattening as had been suggested by West. The only anomalies on the graph are the two most elderly age-groups, which seem to have relatively flat curves and smaller peaks than some of the younger age cohorts. This discrepancy begins when respondents were 65+ years old, and is probably largely due to Medicare benefits which lessen the health effects of income beginning at age 65. However, from the data I collected, it seems as though it takes roughly 10 years for the effects of Medicare to have a substantial effect on mitigating the health gradient and making health scores more equal for all income levels.

Chronic Conditions and the Health Gradient

In order to test Case et al.’s findings that some serious chronic conditions are more prevalent among poorer citizens, I used both probit and OLS regressions to model the prevalence and seriousness of various diseases. Regressing the disease-specific variables on income revealed a very strong relationship between income and the probabilities of contracting diseases, and adding in extra control variables only marginally affected the coefficient on income in the models (see table below). In fact, the addition of more explanatory variables only changed the sign on the coefficient for income on one variable—the probability of staying overnight in the hospital. Overall, though, my findings are very similar to those found in the Case et al. study in that for most disease-specific variables, greater income leads to reduced risk of suffering from the ailment.

Policy Implications

Having shown that updated data from the NHS indicates the continued existence of the income-health gradient, I then conducted a cost-benefit analysis in order to evaluate possible government remedies for the problem. Some of the most popular possible fixes from the economic realm are cash transfers, improved educational opportunities, and government provided vaccinations and treatments for some serious chronic illnesses.

Cash transfers are commonly hailed by economists as the most effective remedies to social problems because these transfers increase overall utility the most. Using extrapolations from my data, I looked at the cost of such a solution. Assuming that my data were representative of Americans at large, I calculated that in order to get all Americans up to a $20,000 per year “poverty line”, government would need to spend an estimated $325.6 billion per year. Since this is a heavy price for government to pay for only marginal improvements in the health of those who receive the transfers, I argue that this is not an effective remedy.

Improved educational opportunities are another often-heralded remedy to social problems, and here it seems like the benefits may outweigh the costs. Since improvements in education would combat the gradient by improving income opportunities and the ability to use income more efficiently in dealing with health issues it would have a double effect on diminishing the gradient. The only possible downside to this solution is that improving educational opportunities for some generally means that they must be improved for everyone, which could simply lead to the gradient shifting outwards rather than becoming less steep (Deaton, 2002). In any case, the fact that initially heavy outlays of funding by government could be easily recouped by greater tax revenue for years into the future makes this option much more attractive than simple cash transfers.

The final solution would be for government to provide greater preventative care and treatment for many serious chronic conditions which usually afflict the poor more than the rich. Using updated data from my data, I calculated that providing vaccinations to poor children in America could cost as little as $900 million per year. If this program were coupled with government provision of treatment for asthma, which would cost approximately $37.7 billion per year, many poor children could see a great improvement in their health outcomes for a relatively small price tag.

Conclusion

Using data from the NHS, I looked at whether the income-health gradient as described by Case et al. is still prevalent in America. The models I constructed show unequivocally that the income-health gradient exists for all age groups, and even among specific chronic diseases like asthma, mental retardation, and hearing disorders. In response to these findings, I suggest that simply subsidizing income for the poor may not be the best solution to the gradient problem, and that government should instead focus on tactics such as improving education and/or subsidizing treatment of cost-effectively treatable chronic diseases (e.g. asthma). At any rate, the income-health gradient only highlights the inequality in the current US healthcare system, and if providing more equal healthcare to all citizens is a goal of government, it should look at implementing policies that work towards remediying the gradient.

References


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