Special Focus I. Promoting Health and Fighting Chronic Diseases: What Impact on the Economy?

by

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Does better health lead to greater wealth, either for an individual or a society? The question can be tackled using at least three economic concepts (Suhrcke *et al.*, 2005; Suhrcke *et al.*, 2006):

- Social welfare costs and benefits, to capture the value people place on better health.
- Micro- and macroeconomic costs, a more limited but more tangible concept.
- Health care costs associated with chronic disease, the most limited but nevertheless widely applied cost concept.

Social welfare costs

From a welfare economic perspective, the most relevant cost concept is the value individuals attribute to health in general and chronic disease in particular, elicited for example by analysing how people act or how they answer certain questions related to real or hypothetical situations involving a trade-off between money and health. It turns out that the social welfare benefit of health is much higher than the other more conventional (but incomplete) measures, and far too high to be ignored in public policy decisions (Viscusi and Aldy, 2003; Usher, 1973; Nordhaus, 2003; Costa and Kahn, 2003; Crafts, 2008). This value also captures the intrinsic value of health, a feature not shared by the other concepts.

Evaluating the evolution in life expectancy in the European high-income countries (which grew appreciably between 1970 and 2003) in terms of the social welfare costs/benefits illustrates the monetary value of the gains. Since the majority of the improvement in life expectancy in rich countries can be

attributed to the reduction in chronic diseases, those gains can almost entirely be interpreted as the welfare benefit from chronic disease reduction. When expressed as a percentage of per capita GDP, the values attributed to health gains far exceed each country's national health expenditures, and range from 29% to 38% of 2003 per capita GDP, or from USD 2 598 to USD 12 676 in terms of purchasing power parity.

Micro- and macroeconomic costs

The microeconomic perspective assesses costs at the individual or household level, asking, for example, whether being ill reduces an individual's labour productivity or the likelihood that they will be in work. Macroeconomic consequences are viewed from the national economy level, generally considering whether ill health damages a country's economic growth.

The vast majority of studies on the microeconomic consequences of adult health focus on labour market outcomes (Currie and Madrian, 1999). Ill health reduces labour productivity measured by earnings (Contoyannis and Rice, 2001; Jäckle, 2007) and is important in shaping labour supply (García Gómez, 2008; Gannon, 2005). Good health raises the probability of working in the first place, and health may even be the main, but not the sole, determinant of labour supply for older workers (Currie and Madrian, 1999; Sammartino, 1987; Deschryvere, 2004; Lindeboom, 2006; Hagan *et al.,* 2006).

Although there is a significant literature on the impact of risk factors on labour market outcomes, surprisingly few studies have examined the labour market impact of smoking in itself, although several studies examine simultaneous effects of smoking and drinking (Auld, 2005; Lee, 1999; Lye and Hirschberg, 2004; van Ours, 2004). One study found that smokers earn 4-8% less than non-smokers (Levine, 1997), while a study in the Netherlands found that alcohol use was associated with 10% higher wages for males while smoking reduced them by about 10% (the study found no effects of either in females) (van Ours, 2004).

Several other studies confirm the somewhat counterintuitive, positive wage impact of alcohol consumption, although explanations vary. There may be a beneficial health effect of moderate alcohol consumption, but not in younger people who have little risk of cardiovascular disease. Another explanation is that alcohol is consumed during social networking with colleagues, which may influence chances or promotion or a wage increase by providing access to information or giving a positive image of commitment to the firm (MacDonald and Shields, 2001). The observed results could also be due to measurement problems. For instance, two studies showed that binge drinking reduced earnings among males and females in the United States (Keng and Huffman, 2007; Mullahy and Sindelar, 1995) and Finnish data

demonstrate that alcohol dependence reduces the probability that a man (woman) would be in full- or part-time work by around 14 (11) percentage points (Johansson *et al*., 2006; Johansson *et al*., 2007).

In theory, being overweight should have effects similar to more general health variables on labour market outcomes, simply because of the adverse impact of obesity on health. The impact could be even greater if employers discriminate against obese job seekers or workers, but it is not possible to see this from most empirical studies, since they calculate the overall impact on labour market outcomes, without seeking to disentangle any discrimination effect from a productivity effect.

However, more research is needed to better explain why results vary among studies and countries, the interplay with labour market institutions, and the very complex nature of the relationship between obesity and socio-economic factors. Some of the differences may result from the imperfect measures used as a proxy for adiposity (Burkhauser and Cawley, 2008).

At the macroeconomic level, there is comparatively little work on health and growth in high-income countries. The WHO Commission on Macroeconomics and Health (WHO, 2001) sought to address this question several years ago. Noting that politicians have long accepted the case for investment in physical infrastructure and human resources as a means of promoting economic growth and reducing poverty, the Commission presented the case for making similar investments in health, focusing on the urgent public health crises in Africa, including infectious diseases (HIV/AIDS, malaria, tuberculosis) and maternal and child health issues. That focus was entirely justified, but it left unanswered how the relationship between health and economic outcomes plays out in the advanced countries and for the type of diseases more common in those countries, *i.e.* chronic diseases (including cardiovascular and lung disease, type 2 diabetes and cancer). Consistently with the findings of a large body of research, the Commissions work showed a robust impact of health on economic growth. However, some more recent work focusing on developing countries cautions against – and indeed reverses – the expectation of major growth dividends from improved health, arguing that most of the previous work on the subject has not properly addressed endogeneity in the relationship between health and economic growth (Acemoglu and Johnson, 2007; Ashraf *et al*., 2008).

Three studies using health expenditures as a proxy for health in OECD countries found a positive association between health expenditure and economic growth or income levels (Beraldo *et al*., 2005; Rivera and Currais, 1999a and 1999b). These results are intriguing, especially since expenditure on health emerges as substantially more important than that on education in explaining economic growth. On the other hand, two studies based on a sample of

22 developed countries between 1960 and 1985 found that health – measured by life expectancy – had no significant impact on economic growth (Knowles and Owen, 1997) or on per capita income levels (Knowles and Owen, 1995). Does this mean that, above a certain level of economic development, further health gains may either have no impact or even reduce subsequent economic growth? There is no ultimate answer to this question in sight.

Other research (Suhrcke and Urban, 2009), focusing on a health proxy that displays greater variation between rich countries than the life expectancy, finds a very robust causal impact on per capita growth rates in a sample of 26 high-income countries over the period 1960-2000. In one estimate, a 10% reduction in cardiovascular mortality was associated with a one percentage point increase in growth of per capita income, a seemingly small amount but one that has a large effect when summed over the long term. Further recent, more optimistic assessments of the impact of health on growth, if not specifically related to chronic diseases, include Aghion *et al*. (2010) and Cervellati and Sunde (2009).

Health-care costs

The expectation that preventing chronic disease will mitigate or even reverse the trend of increasing health expenditures cannot be supported by the research evidence. Even if better health may, in some circumstances, lead to lower health spending, other cost drivers, in particular technological progress, more than outweigh any such savings and will most likely contribute to sustained upward pressure on expenditures. Improvements in population health can, at best, be expected only to diminish the rate of increase in health spending. On the other hand, there is not much support for the hypothesis that better health by itself would be a major cost driver.

Conclusions

Although this discussion does not cover the costs or benefits of interventions, it does have important policy implications:

- Estimates of the costs of ill health can be thought of as the upper limit of the economic benefits that could be derived from interventions.
- By showing how chronic disease can reduce social welfare, act as a drag on the economic conditions of both individuals and entire countries, and can (possibly) exert upward pressure on health expenditures, it may be possible to capture the attention of policy makers outside the health system.
- While it is useful to show that better health produces tangible micro- and macroeconomic benefits, and may in some cases reduce future costs of health care, these economic benefits are small compared to the relevant economic gains expressed as the monetary value that people attribute to

better health. It is the latter that should be factored into the economic evaluation of chronic disease prevention, as failure to do so risks understating the true economic benefits derived from health interventions.

Bibliography

Acemoglu, D. and S. Johnson (2007), "Disease and Development: The Effect of Life Expectancy on Economic Growth", *Journal of Political Economy*, Vol. 115, No. 6, pp. 925-985.

Aghion, P., P. Howitt and F. Murtin (2010), "The Relationship Between Health and Growth: When Lucas Meets Nelson-Phelps", NBER Working Paper No. 15813, Cambridge, MA.

Ashraf, Q.H., A. Lester and D.N. Weil (2008), "When Does Improving Health Raise GDP?", Economics Department, Brown University, Providence, RI.

Auld, M.C. (2005), "Smoking, Drinking and Income", *Journal of Human Resources*, Vol. 40, No. 2, pp. 505-518.

Beraldo, S., D. Montolio and G. Turati (2005), "Healthy, Educated and Wealthy: Is the Welfare State Really Harmful for Growth?", Working Paper in Economics No. 127, Espai de Recerca en Economia, University of Barcelona, Barcelona.

Burkhauser, R.V. and J. Cawley (2008), "Beyond BMI: The Value of More Accurate Measures of Fatness and Obesity in Social Science Research", *Journal of Health Economics*. Vol. 27, No. 2, pp. 519-529.

Cervellati, M. and U. Sunde (2009), "Life Expectancy and Economic Growth: The Role of the Demographic Transition", IZA Discussion Paper No. 4160, Bonn.

Contoyannis, P.and N. Rice (2001), "The Impact of Health on Wages: Evidence from the British Household Panel Survey", *Empirical Economics*, Vol. 26, pp. 599-622.

Costa, D.L., and M.E. Kahn (2003), *Changes in the Value of Life, 1940-1980*, Massachusetts Institute of Technology, Cambridge, MA.

Crafts, N. (2005), "The Contribution of Increased Life Expectancy to Growth of Living Standards in the United Kingdom, 1870-2001", London School of Economics, London, accessed 5 May 2008 at *http://wpeg.group.shef.ac.uk/documents/crafts.pdf*.

Currie, J. and B.C. Madrian (1999), "Health, Health Insurance and the Labour Market", in O. Ashenfelter and D. Card (eds.), *Handbook of Labour Economics*, Vol. 3, Elsevier Science, Amsterdam, pp. 3309-3415.

Deschryvere, M. (2004), "Health and Retirement Decisions: An Update of the Literature", ETLA Discussion Paper No. 932, Elinkeinoelämän Tutkimuslaitos (ETLA), Helsinki.

Gannon, B. (2005), "A Dynamic Analysis of Disability and Labour Force Participation in Ireland", *Health Economics*, Vol. 14, pp. 925-938.

García Gómez, P. (2008), "Institutions, Health Shocks and Labour Outcomes across Europe", FEDEA Working Paper No. 2008-01, Fundación de Estudios de Economia Aplicada, Madrid, accessed 6 May 2008 at *www.fedea.es/pub/Papers/2008/dt2008-01.pdf*.

Hagan, R., A.M. Jones and N. Rice (2006), "Health and Retirement in Europe", HEDG Working Paper No. 06/10, Health Economics Research Centre, University of York, York.

Jäckle, R. (2007), "Health and Wages: Panel Data Estimates Considering Selection and Endogeneity", Working Paper No. 43, Ifo Institute for Economic Research, University of Munich, Munich.

Johansson, E. *et al.* (2006), "Abstaining from Alcohol and Labour Market Underperformance – Have we Forgotten the 'Dry' Alcoholics?", *Alcohol and Alcoholism*, Vol. 41, No. 5, pp. 574-579.

Johansson, E. *et al.* (2007), "The Association of Alcohol Dependency with Employment Probability: Evidence from the Population Survey 'Health 2000 in Finland'", *Health Economics*, Vol. 16, No. 7, pp. 739-754.

Keng, S.-H. and W.E. Huffman (2007), "Binge Drinking and Labor Market Success: A Longitudinal Study on Young People", *Journal of Population Economics*, Vol. 20, No. 1, pp. 35-54.

Knowles, S. and P.D. Owen (1995), "Health Capital in Cross-Country Variation in Income per Capita in the Mankiw-Romer-Weil Model", *Economic Letters*, Vol. 48, pp. 99-106.

Knowles, S. and P.D. Owen (1997), "Education and Health in an Effective-labour Empirical Growth Model", *Economic Record*, Vol. 73, No. 223, pp. 314-328.

Lee, Y. (1999), "Wage Effects of Drinking and Smoking: An Analysis Using Australian Twins Data", Working Paper No. 99-22, University of Western Australia, Perth.

Levine, P.B., T.A. Gustafson and A.D. Valenchik (1997), "More Bad News for Smokers? The Effects of Cigarette Smoking on Wages", *Industrial and Labor Relations Review*, Vol. 50, pp. 493-509.

Lye, J.N. and J. Hirschberg (2004), "Alcohol Consumption, Smoking and Wages", *Applied Economics*, Vol. 36, pp. 1807-1817.

Lindeboom, M. (2006), "Health and Work of Older Workers", in A.M. Jones (ed.), *The Elgar Companion to Health Economics*, Edward Elgar Publishing, Cheltenham, pp. 26-35.

MacDonald, Z. and M.A. Shields (2001), "The Impact of Alcohol Consumption on Occupational Attainment in England", *Economica*, Vol. 68, No. 271, pp. 427-453.

Mullahy, J. and J.L. Sindelar (1995), "Health, Income, and Risk Aversion: Assessing Some Welfare Costs of Alcoholism and Poor Health", *Journal of Human Resources*, Vol. 30, No. 3, pp. 439-459.

Nordhaus, W. (2003), "The Health of Nations: The Contribution of Improved Health to Living Standards", in K.M. Murphy and R.H. Topel (eds.), *Exceptional Returns: The Value of Medical Research*, University of Chicago Press, Chicago, pp. 9-40.

Rivera, B. and L. Currais (1999a), "Economic Growth and Health: Direct Impact or Reverse Causation?", *Applied Economics Letters*, Vol. 6, pp. 761-764.

Rivera, B. and L. Currais (1999b), "Income Variation and Health Expenditure: Evidence for OECD Countries", *Review of Development Economics*, Vol. 3, No. 3, pp. 258-267.

Sammartino, F.J. (1987), "The Effect of Health on Retirement", *Social Security Bulletin*, Vol. 50, No. 2, pp. 31-47.

Suhrcke, M. and D. Urban (2009), "Are Cardiovascular Diseases Bad for Economic Growth?", *Health Economics,* epub ahead of print.

Suhrcke, M. *et al.* (2005), "The Contribution of Health to the Economy in the European Union", European Commission, Brussels.

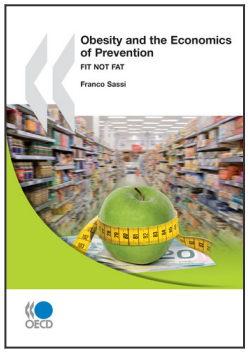
Suhrcke, M. *et al.* (2006), *Chronic Disease: An Economic Perspective*, Oxford Health Alliance, London.

Usher, D. (1973), "An Imputation to the Measure of Economic Growth for Changes in Life Expectancy", in M. Moss (ed.), *The Measurement of Economic and Social Performance,* Columbia University Press for National Bureau of Economic Research, New York, pp. 193-226.

van Ours, J.C. (2004), "A Pint a Day Raises a Man's Pay; But Smoking Blows that Gain Away", *Journal of Health Economics*, Vol. 23, pp. 863-886.

Viscusi, W.K. and J.E. Aldy (2003), "The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World", NBER Working Paper No. 9487, Cambridge, MA.

WHO (2001), "Macroeconomics and Health: Investing in Health for Economic Development", WHO Commission on Macroeconomics and Health, World Health Organisation, Geneva.



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