

The effect of health on the marginal utility of consumption: a revisit

Nicolai Simonsen¹, Olaf Irgens & Trine Kjær²

DaCHE, Department of Public Health, University of Southern Denmark, J.B. Winsløws Vej 9B, DK-5000

Odense C, Denmark

¹ nsimonsen@health.sdu.dk

² tkj@sdu.dk (corresponding author)

Abstract

It is standard practice in the literature to assume that an individual's marginal utility of nonmedical consumption is independent of health status (Feldstein 1973). If the assumption of state independence does not hold, it will have important welfare economic implications. More specifically it will impact on a range of economic behaviours such as optimal insurance and saving decisions (Arrow, 1974) and affect economic analysis for priority setting such as the compensating income variation approach (Ferrer-i-Carbonell and Van Praag 2002).

If state dependence is negative, that is marginal utility of consumption decreases when health deteriorates, a transfer from the sick individual to the healthy individual will cause the social welfare to increase (Roemer 2001). Consequently, not controlling accurately for health state dependency could result in biased estimates and in worst case false policy implications. Despite these appalling consequences, only a few studies have attempted to empirically investigate the relationship between marginal utility of consumption and health state - and so far with mixed findings (e.g. Finkelstein et al., 2013; Gyrd-Hansen 2017; Viscusi and Evans, 1990).

The aim of this project is to contribute to the sparse literature providing new and more comprehensive evidence of state dependency using a combination of panel survey data and register data. Survey data is obtained from the Longitudinal Survey of Health, Ageing and Retirement in Europe (SHARE, Börsch-Supan et al. 2013) and combined with data from the Danish registers including information on healthcare utilisation, education, and income. Our model is a refinement of the model proposed by Finkelstein et al.

(2013) where we allow for a decomposition of positive and negative health state dependence. As a proxy for consumption we use data on income and as a proxy for utility we use data on subjective well-being such as life satisfaction. Data on health shock is obtained from the register on health care utilisation using the universal ICD-10 classification system. We obtain a reduced form equation where the individual's subjective well-being is regressed according to income and health with an interaction effect capturing state dependency. In addition to demographics we also control for individual and time fixed effects.

Our first results show evidence in favour of a positive state dependence. Our main estimate suggest that the marginal utility of consumption increases when an individual turns ill. The results are robust to different levels of risk aversions, and to assumptions regarding the mapping of the latent utility into observed utility. Our results of positive state dependence of health should be of great interest to researchers conducting policy analysis as it can affect economic evaluations of health interventions.

References

Arrow, K. J. (1974). Optimal insurance and generalized deductibles. *Scandinavian Actuarial Journal*, 1974(1):1-42.

Asgeirsdottir, T. L., Birgisdottir, K. H., Olafsdottir, T., and Olafsson, S. P. (2017). A compensating income variation approach to valuing 34 health conditions in iceland. *Economics & Human Biology*, 27:167

Börsch-Supan, A., Brandt, M., Hunkler, C., Kneip, T., Korbmayer, J., Malter, F., Schaan, B., Stuck, S., and and, S. Z. (2013). Data resource profile: The Survey of Health, Ageing and Retirement in Europe (SHARE). *International Journal of Epidemiology*, 42(4):992-1001z.

Feldstein, M. S. (1973). The welfare loss of excess health insurance. *Journal of Political Economy*, 81(2, Part 1):251-280

Ferrer-i-Carbonell, A. F. and van Praag, B. M. (2002). The subjective costs of health losses due to chronic diseases. an alternative model for monetary appraisal. *Health Economics*, 11(8):709-722.

Finkelstein, A., Luttmer, E. F. P., and Notowidigdo, M. J. (2013). What good is wealth without health? The effect of health on the marginal utility of consumption. *Journal of the European Economic Association*, 11:221-258.

Gyrd-Hansen, D. (2016). A stated preference approach to assess whether health status impacts on marginal utility of consumption. *Health Economics*.

Viscusi, W. K. and Evans, W. N. (1990). Utility functions that depend on health status: Estimates and economic implications. *The American Economic Review*, 80(3):353-374. Weil, P. (1990). Nonexpected utility in macroeconomics. *The Quarterly Journal of Economics*, 105(1):29

Roemer, J. E. (2001). Three egalitarian views and American law. *Law and Philosophy*, 20(4):433