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Edited by

Allaberen Ashyralyyev,

Michael Ruzhansky,

Makhmud Sadybekov

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Methods of Stated and Revealed Preferences: A Case Study in Healthcare Services

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Responsibility for personal health is at the same time immediate and challenging for rational decision-making. Immediate because health problems are intimately felt by everyone, and no one wants to live with pain. Challenging because many of health problems are potential, unobservable to the individual, and hence are likely to be neglected as non-existent or impossible™. Taking them into proper account requires time consistency, forward-looking behaviour and objective assessment of probabilities of future states " yet exactly these features are known to be problematic in light of behavioural research (Kahneman et al., 1992; 2000).

We explore rationality of forward-looking behaviour in an example of drug insurance program which is currently under consideration in several countries, including, in various forms, Australia, Canada, Norway, Switzerland and others. As empirical base for our study we take the case of Kazakhstan whose government considers co-funding of drug insurance by the citizens and the government should the citizens need it. Specific scenario that we consider is that a participating citizen contributes an amount of her disposable income, which is automatically doubled by the government. This doubled amount is reserved on citizen™s personal account, and can be used within the next year to procure with needed drugs free of charge. (We do not consider here details of this procurement mechanism, such as its constraining to particular pharmacies, conditioning by prescription, availability of drugs, or possibility of their sharing with other people.). Rational individual should apparently purchase drug insurance for the amount needed to cover their expected needs, provided the benefits of drugs exceed the costs of their out-of-pocket purchases.

Do real people always behave in that way? Abundant research in behavioural economics suggests they might not. People do not properly check their own health state (Thorton, 2008), even if these are pertinent to potentially life-threatening conditions (Haisley et al., 2012), ignore prescriptions of covered drugs (Kling et al., 2012), which calls for special efforts to nudge them to do so (Keller et al., 2011; Kimmel et al., 2012). Further, there is evidence suggesting that ignorance of relevant information indeed causes welfare losses (Liebman and Luttmer, 2015).

Baseline model. Following the traditional economics approach to health decisions (Cardon and Hendel, 2001; Finkelstein et al., 2019), we consider a rational von Neumann-Morgenstern expected utility maximizer who may turn out to be in two health states bad health state h_B or in good one, h_G. We treat disease as deterioration of health to $h_B<h_G$, and normalize h_G to 0. Suppose the subjective probabilities of states h_B and h_G are p and (1-p), respectively. Rational decision maker should then name the price of drug insurance policy z knowing it will be doubled and used towards her recovery in case of bad state. Utility maximization of a risk-neutral individual requires

$$(1-p)c + p(c-\phi(h_B)) = (1-p)(c-z) + p[(c-z) - \phi(h_B + g(2z))]$$

where c is consumption of ordinary (health-unrelated) goods, c-z " consumption short of cost of health insurance, g(.) is function of health recovery with drug expenditure 2z, and ϕ is marginal utility of health. This is a straightforward balancing model, but several assumptions are implicit in it.

1. Utility of conventional consumption c is linear in its monetary volume (money-metric utility).

2. Probabilities of states are known to the decision maker.

3. Marginal utility of health ϕ measured in utility units is objectively known and additive separable from utility from conventional consumption.

4. Deterioration of health hB is known, as is the cost of its recovery.

5. Drug insurance is the only ex ante mean of recovery in case of illness.

6. Decision maker opts for full recovery of health after the disease.

7. Out-of pocket coverage of drug expenses is not allowed.

The above story closely mimics Finkelstein et al., 2019, except that their story is developed for the US medical insurance (Medicaid), which they solve for optimal behaviour, equation (2). Our addition to this model is the possibility of boundedly rational mis-optimization: instead of What we do over that is to consider the possibility of suboptimal behaviour: instead of investing in drug insurance to decrease one™s total medical expenses one may think of suboptimal insurance resulting in lower m and lower-than-optimal health h().

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Keywords: healthcare economics, rational decision-making, behavioral economics, drug insurance, bounded rationality.

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