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Book Review

Bernard M.S. van Praag & Ada Ferrer-i-Carbonell, Happiness Quantified – A Satisfaction Calculus Approach, Revised Edition, Oxford University Press, Oxford 2008

Bernard van Praag is a pioneer in the now prospering field of happiness research. His early contributions in this field are from the sixties of the 20-th century. He embraced the cardinal utility approach theoretically and empirically at a time when mainstream economics considered this to be heresy. The present book provides an overview of van Praag´s work of four decades. At the same time it puts work of many others in a unified perspective on this most important field of research. It is fascinating reading.

In the second chapter (after an Introduction as the first chapter) the authors present an "Analysis of income satisfaction". Here centre stage is taken by the "Income Evaluation Question" (IEQ), which has been introduced by van Praag in 1971. The German Socio-Economic Panel (GSOEP) has adopted the IEQ, so that the authors can report empirical data in this respect. The question reads:

"Whether you feel an income is good or not so good depends on your personal circumstances and expectations. In your case would you call your net household income:

a *very low* income if it equalled	DM ------
a *low* income if it equalled	DM -------
an *insufficient* income if it equalled	DM --------
a *sufficient* income if it equalled	DM --------
a *good* income if it equalled	DM --------
a *very good* income if it equalled	DM -------- "

Answers to this question are the basis for the construction of an individualised cardinal utility as a function of income. Van Praag argued already forty years ago that it is reasonable to assume that cardinal utility as a function of income can be considered to be bounded above and below. It is then possible to normalise the upper bound to 1 and the lower bound to zero.

Moreover van Praag assumes that the cardinal utilities of the six answers to the question above are equidistant, with the highest value U("utility of very good income") equal to 11/12 and the lowest value U("utility of very low income") equal to 1/12. Assuming then further that the utility function corresponds to a cumulative normal probability distribution on the logarithm of income one can estimate the mean and the variance of that function from the answers to the six income questions quoted above.

Given a sufficient number of persons one can do a regression of the two parameters of the utility function on the actual income of the person. The result is that the utility function itself shifts with the actual income: the "utility" of a given level of income is lower whenever the actual income of the person is higher. The utility function thus seems to adapt to the actual circumstances. But this adaptation is not perfect, so that it remains true that even after the adaptation utility rises with rising income, albeit slower than would be the case with a fixed utility function.

The authors call the utility function derived from the answers to the questionnaires the "virtual" utility function, whereas the utility function, which accounts for the adaptation of preferences to income, is named the "true" utility function. This nomenclature indicates their general philosophy: people do not fully understand what is best for them. The orthodox "revealed preference approach" thus is rejected. They are, of course, not alone with this heterodoxy; and, indeed, in their introduction they quote other economists, who are critical of the orthodox ordinalist approach, among them Amartya Sen, who has developed a detailed criticism of the "revealed preference" approach. Personally I believe that a free society does need a system, in which individuals can be held accountable for the consequences of their actions; and I see "revealed preference" (perhaps somewhat restricted in scope) as a way to formalise this general accountability principle. Thus I have reservations about the descriptions "virtual" and "true" utility function.

In Chapter 7 the authors come back to the Income Evaluation Question. Here they present a formalisation and empirical evaluation of the "impact of past and future on present satisfaction. Empirically they take advantage of the GSOEP, where individuals are being intermittently interviewed over a period of several years. It turns out that very young and old people are more past than future oriented whereas people in the age of active participation in the labour force are more future oriented. Old and young people compare their present income predominantly with their past income, whereas people in between compare it more with their expected future income. I find it quite interesting what they are doing here. It is an important issue of personal inter-temporal life. Nevertheless one may have reservations about their specific approach, and, indeed, they admit that this is an exploratory exercise. I am reminded of what Thomas Hobbes said three and half centuries ago: "No man can have in his mind a conception of the future, for the future is not yet. But of our conceptions of the past, we make a future."

Chapters 3 and 4 exploit answers of individuals to questions about their satisfaction with particular "domains" of their life: health, job, housing, income, social contacts, marriage, environment, politics etc. These are called "domain satisfactions". Apart from interesting discussions about specific domains they also analyse "general satisfaction" as an aggregate of domain satisfactions. Using material about general happiness or satisfaction levels and about domain satisfactions they essentially estimate a kind of "production function" (my words) with general satisfaction as the output and domain satisfactions as inputs. Using time variance of different "inputs" to distinguish between "levels" of inputs and "shocks" of input changes the authors claim to be able to measure again the adaptation effects of changes in the inputs on the parameters of their production function, i.e. they claim to be able to distinguish between a short run production function and a long run production function. They also investigate "trade-offs" between different domain satisfactions, similar to the rate of substitution between different inputs along any given isoquant. Provided one has information about financial satisfaction and, derived from it, a utility function mapping income into financial satisfaction it is possible also to do a kind of cost-benefit analysis of different government activities which have an impact on different domain satisfactions. In this way there is then not only a trade-off between different domain satisfactions, but also a calculus of monetary equivalents of different domain satisfactions, which may provide guidance for government policy, or for that matter a more comprehensive notion of "national income" in monetary terms, but reflecting satisfaction levels. The latter they have not done – and, indeed, it would lead us into deep water concerning the traditional welfare foundations of economic policy.

Chapter 5 treats political satisfaction. Empirically it turns out that satisfaction with the political situation is a significant contributor to general satisfaction, albeit of much smaller weight than individual life circumstances, like income, job, housing etc.

Chapter 6 deals with gender differences in satisfaction and with the family or household context of domain satisfactions and general satisfaction. Among the large amount of other analytical results let me just quote one of them, concerning married couples: "the more education the man has, the less satisfied he is with his marriage. For the female this effect is not found." It is interesting to speculate what the policy implications of this result are.

Chapter 8 analyses the influence of reference groups on the "norms", which then, together with the actual situation, determine "utility". The authors start with the Kapteyn welfare function; after all Kapteyn is part of the same school, the "Leyden- School", which was founded by van Praag. Kapteyn´s heterodox but brilliant idea three decades ago was to assume that a person's own utility as a function of income is equal to the percentile point of his income in the nation's income distribution curve. If everybody has the same and correct idea about the income distribution curve then everybody has the same utility function, and utility differs between persons according to their position in the nation's distribution curve. Van Praag and Ferrer-i-Carbonell then assume that the subjective perception of the relative position of one's income is strongly influenced by the reference group to which the individual refers. Using quite sophisticated methods, the authors then establish a model of reference group influences on the income norms. Their empirical results generally corroborate the strong influence of reference groups (as "constructed" by the authors from the material) on the utility function which maps income into cardinal utility or income satisfaction. Related work by Stutzer obtains similar results.

Chapter 9 discusses health and subjective well-being. It is an interesting exercise using mainly a British data set. In particular the material gives information about the different diseases the persons are afflicted with. Then there is also information on other "domains" of these people, as well as information about the general satisfaction level. Using the aggregation approach developed in Chapters 3 and 4 the authors are then able to disentangle the different channels through which a disease typically has an influence on the general satisfaction level. It is not only the health domain satisfaction level that is influenced by the presence or absence of a disease. The disease also has effects on satisfaction levels of other domains, like for example "job" or "social life". The approach and the data set allow the authors also to estimate a monetary equivalent of a disease. Thus for example the disease group "problems with arms, legs, hands, feet, back or neck" would on average only be compensated in monetary terms by trebling the person's income. The authors also discuss other approaches than their own which have been developed in the health-economics literature. To the extent that one can rely on the results of such approaches, they have obvious implications for the way the health system of a nation should set priorities in its decisions concerning the allocation of scarce resources, that is, in the allocation of limited budgets. Obviously in this review it is not possible to go into a more detailed discussion of the ethical issues related to such allocation decisions.

Chapters 10 and 11 discuss the influence of the quality of the environment on the level of satisfaction. Chapter 10 mainly deals with the impact of the climate; Chapter 11 considers aircraft noise nuisance. The general approach is similar to the approaches taken in the other domains. Chapter 12 discusses tax policy. Using Dutch data the authors discuss the question, how welfare could be improved, if one were able to base taxes not so much on income, but on personal traits like IQ. According to the authors it turns out that the tax payments paid would not differ dramatically from those paid in the actual regime, based on income.

After having discussed the dependence of individual utility functions on reference groups in Chapter 8, the authors discuss inequality and poverty in Chapters 13 to 16. Chapter 13 is on subjective income inequalities. "Subjective" here has a double meaning. First, the inequality is measured in terms of utilities as derived in Chapter 3 from the income evaluation question (IEQ) discussed above, rather than in terms of income itself. Second, the authors introduce a subjective perception of inequality by the different individuals, which also can be indirectly derived from the answers to the IEQ. It is then shown that not only the utility function itself adapts to the level of actual income (which was discussed above), but also the perception of inequality. This second subjective component of inequality depends strongly on the level of the actual income. For a given objective income distribution the perception of inequality is the higher the lower is the person's actual income. Thus the same objective situation is considered more unjust by the poor than by the rich.

Chapter 14 tries to generalise the approach of the preceding chapter to a multidimensional measure of inequality. The authors consider this to be in a rather exploratory stage of research, and I agree. As they say, the main obstacle to progress is that there are no "natural" analogies to the IEQ for the evaluation of "health", "social life", "job" etc. People to be questioned are not up to answer a question like this one: which level of health (in numerical values) would you consider *"very low"; "low", "insufficient", "sufficient", "good" and "very good".*

Chapter 15 is devoted to the definition of poverty. The authors describe in a straightforward way, how a poverty line can be obtained, based on subjective valuations along the line of the IEQ. One way is to give a particular utility value, say, of 0.4, the name "subjective poverty line" of the person interrogated. The utility value 0.4 roughly would correspond to an income which the person has described as "insufficient". Empirically the subjective utility level 0.4 rises with the actual income, but under-proportionally. Thus one can find a "fixed-point" where the actual income level coincides with the average subjective utility evaluation of 0.4. This then is defined to be society's poverty level. Alternatively one asks the "minimum income question"(MIQ): *"what is in your opinion the minimum amount of income that your family in your circumstances would need to be able to make ends meet?"* The answers to this question will then on average depend on the actual income, but with a slope of less than one. So, again, there is a fixed point, where the actual income corresponds to the average subjective minimum income. This then is proposed to be the poverty line of that community.

Chapter 16 then tries to obtain a multi- dimensional poverty characterisation, in an exploratory way.

My general comment: the book presents an overview of the work of the "Leyden School" which was initiated by van Praag four decades ago. It is written as a technical text, but for the interested reader with training in economics it is accessible, indeed highly readable. One may have reservations about certain ways to go about the problems, but the problems are important. And the approach taken by the Leyden School is highly original. Indeed, this approach has had an increasing influence on economic thinking. Welfare economics clearly has been substantially enriched by van Praag´s and his colleagues'´ work.