


*humility*’; they should ‘approach [humanity] as fellow human beings doing the best they can, trying to improve their own choices, and offering friendly advice on how others might do the same’ (433–438).

This is all sensible enough, but it seems a poor return on such a long Case Against. Some of the most important questions about Rizzo and Whitman’s approach remain unanswered. Given the standard of inclusive rationality, how are mistakes defined and identified? Recommending caution to policymakers is all very well, but what are they to be cautious in aiming for? On a natural reading, Rizzo and Whitman’s stance is one of *laissez faire*. But *laissez faire* arguments are typically based on theories about how the mechanisms that are to be left alone tend to produce good results. Welfare economics has familiar theorems about the workings of competitive markets in a world of neoclassically rational individuals. It is natural to ask what kinds of economic institution work well, and in what sense, when individuals are inclusively rational.

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*Measuring Utility: From the Marginal Revolution to Behavioral Economics*, Ivan Moscati. Oxford University Press, 2019, vii + 326 pages.

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Some philosophical problems seem to be in science to stay. The problem of measuring utility is one such problem for economists. At its heart lies the challenge that because it cannot be directly observed, utility cannot be measured

in any straightforward way. Being able to measure utility is crucial, however, if economists want to continue using utility theories as core components of their models. In his monograph *Measuring Utility: From the Marginal Revolution to Behavioral Economics*, Ivan Moscati shows how, over the course of 250 years, economists have coped with the problem. He does so by tracing the history of utility measurement as a history of continuous debate, persistent criticism, and concrete attempts to move forward. He surveys the many strategies to measure utility: via introspection; indirectly through behaviour that *is* measurable (e.g. purchases of goods and services); and through sophisticated experimental and econometric methods. Some economists have even argued that measuring utility is irrelevant: the inability to measure utility in no way disqualifies using utility as the centrepiece of economic analysis. Most of those strategies are as persistent in economics as the problem itself. Moscati's monograph traces their origins, their justifications, and their connections to questions about measurability in science more generally.

Moscati's contributions to the history of economics are obvious and I discuss them elsewhere (Herfeld 2019). Here, will I summarize some of his key results and point to some examples to indicate why this history should be of interest for philosophers as well.

*Measuring Utility* is the most comprehensive history of utility measurement in economics that currently exists. The emphasis is on economics and covers the period from the marginalist revolution at the end of the 19th century to the early days of behavioural economics in 1985. Moscati focuses on the historical evolution of utility as a key economic concept and its role in measurement, which gives him an entry point for studying how economists have thought about and struggled with the issue of measurement more generally. What readers get, in a nutshell, is an account of how the top cast of the economics profession debated, criticized, reformulated, and applied the concept of utility over time. Moscati reveals the complex entanglements between utility theories, the conceptual evolution of utility, its interpretation, and economists' views on its measurement. A major achievement of the monograph is that it draws the connections between those elements, showing in detail how each of them continuously changed in light of the other. While Moscati excludes the role of utility and its measurement in welfare economics altogether, he nevertheless provides a lot to work with.

Moscati's account is divided into four historical parts, each closing with an epistemological reflection. Part I focuses on utility measurement starting with the marginalists who were the first to consider marginal utility instead of labour as the determinant of value. Although their theory was mostly independent of its measurability, the marginalists and their followers believed that utility could eventually be measured directly or indirectly via, for example, consumers' willingness to pay. Moscati shows that the standard historical narrative, which claims that the marginalists aimed for cardinal utility measurement, i.e. for identifying a value of utility of each available option such that all options can be ranked in terms of their utility differences, is misguided. Economists like William Stanley Jevons, Leon Walras, Carl Menger, Irving Fisher and Alfred Marshall were not cardinalists but were instead committed to a view of measurement as

unit-based; they were in search of a unit of utility that could be used to not only order utilities or utility differences on a scale but also to assess utility ratios.

Interestingly, while sharing the commitment to a view of utility measurement in terms of units, their notion of utility differed. Jevons and Menger accepted a narrow concept of utility as emerging from low-level pleasures or from the satisfaction of needs. In turn, Fisher, Marshall and Walras were committed to a broader notion of utility as in principle producible by the satisfaction of any desire, be it egoistic or altruistic. The strategy to widen the scope of the utility concept was a reaction to critics attacking a narrow view of utility as only capturing material well-being. Philosophers will be reminded of recent debates about the conceptualization of motivation in rational choice theories, which began with similar lines of criticism that are haunting economics up to the present day.

The views of those early economists also diverged regarding the nature of utility as either a mental state or a theoretical construct useful for theorizing about, describing or predicting economic phenomena. The different interpretations of utility were linked to distinct views about how utility under those interpretations could be measured. If utility was conceived of as a mental state, the view was that it could be measured directly via introspection for instance, or indirectly, i.e. that the magnitude of the measurand  $x$  (utility) could be inferred from the magnitude of an observable object  $y$  other than the measurand (e.g. consumer's willingness to pay or market prices), which was possible because some functional relationship between  $x$  and  $y$  could be assumed. If it was conceived of as a purely theoretical construct, the view was that it could either be measured indirectly or that one could remain agnostic about its measurement.

In Part II, Moscati reconstructs the debates about whether utility was ordinal or cardinal. Cardinal utility gives a value to each option and allows us to say how much an agent prefers one option over another; ordinal utility, in contrast, ranks each option but does not tell us anything about how much one option is preferred over another. First, Moscati reveals the persistent disagreement between philosophers, physicists and psychologists in Britain about the meaning and conditions of measurement. Second, Moscati discusses the early history of ordinal utility theory as a way to cope with the methodological and epistemic challenges that marginal utility theorists confronted in measuring utility as a unit. Pareto replaced the concept of utility with that of preference as the fundamental concept of ordinal utility theory; preferences – not utility – became the measurand. Views about utility measurement changed profoundly when it became reconceived as an index that represented an agent's preferences regarding market commodities. By keeping the notion of measurement as unit-based, however, Pareto argued that utility itself was not measurable as a unit.

Third, Moscati traces how the debate about challenges posed by the fundamental assumptions behind the unit-based view of measurement contributed to a broader acceptance of cardinal utility and the interval-scale view of measurement in the middle of the 20th century, a scale that preserves the order between the numerical measures between objects but also the order between the differences of those measures. With John Hicks and Roy Allen's move to free demand analysis from utility altogether, the cardinal-ordinal terminology was finally introduced into economics. Furthermore, Oskar Lange, Franz Alt and Paul Samuelson made

successive contributions to the debate about whether utility was ordinal or cardinal, which resulted in at least the establishment – not yet the acceptance – of the notion of cardinal utility, technically defined as utility unique up to positive linear transformations.

Both parts are a fascinating read. We learn how entangled economists' views about measurement were with their interpretations of utility, what they believed the goals of utility theory were, and what their philosophical commitments were. Moscati's three-fold distinction between ratio-scale, ordinal utility and cardinal utility helps him to elicit how methodological and epistemic problems of measuring utility and their solution always depended upon the underlying theory of measurement. For instance, the goal of measuring utility as a unit and the challenges involved in meeting this goal led to ordinal utility theory in an attempt to get rid of utility altogether. Only when the distinction between cardinal and ordinal utility theory was introduced could economists think of utility measurement again in a different way.

Those historical discussions motivate a set of distinctions and raise a host of philosophical questions relevant today. Is the distinction between direct and indirect measurement plausible at all? Is indirect measurement possible in light of its problems, such as for instance that we do not know the exact functional form of the relationship between  $x$  and  $y$ ? What are the arguments for direct measurement of utility as an unobservable entity? Is a mentalist interpretation of utility justified in light of this history? Is the problem of utility measurement still relevant for economics at all, given that it was shown from early on that the derivation of the most important theoretical results in economics can dispense with its measurement and that a large number of current microeconomics is based on ordinal utility only?

Furthermore, revisiting some arguments defended in those early days of utility theory is instructive for various reasons. To give some examples: First, as a more general point, they can make sure that recent debates don't try to reinvent the wheel. For instance, a mentalist versus a behavioural interpretation of either utility or preferences is not new. Moscati reconstructs how they have been shaped by attempts to measure utility effectively and how they resulted from efforts to cope with the epistemic and methodological challenges of measuring utility. Second, learning about how economists previously dealt with those challenges serves as a basis for evaluating which aspects of the discussion are really relevant today; either because they have not been addressed yet, because they turned out to be unsolvable, or because their solution is still unsatisfactory. For instance, the narrow view of human motivation in economics has been substantially and effectively debated for a long time and current utility theories are partly the result of attempts to meet their critics. Third, Moscati also provides evidence for the persistent co-existence of different interpretations of preferences, which questions the armchair philosophical project of offering an all-encompassing concept of preference; it raises questions about the goal of providing a single account of what preferences in economics are.

Fourth, considering early solution strategies for the problem of utility measurement also teaches us important lessons about the concept's potentials and limitations, such as why and when a narrow concept of human motivation

would be preferable. A broad concept of utility à la Walras avoided the criticism of utility theories resting upon a narrow account of utility in terms of pleasure and pain. However, using the concept comes at the cost of sacrificing a mentalist interpretation of the utility concept, an interpretation that says that utility has an intuitive psychological correlate. The latter poses a challenge for utility measurement. While a broad concept can accommodate a variety of human motives, the exact object that economists measure remains obscure. For economists such as Walras, this trade-off was acceptable. A broad concept of utility was sufficient for achieving his goal, namely deriving the main results of demand analysis. And it was clear that folk psychological explanations of human choices could not be given in any straightforward way, but that was also not Walras's goal.

This early history of the debates about utility measurement also provoke the more general question about whether and if so in which way philosophy and the history of utility measurement should be integrated; integration should ensure that those philosophical debates make a difference to economics today. For instance, the history of utility measurement as a history towards agnosticism about unobservable mental states is instructive in that it helps us understand when the measurement of mental variables is useful. Of course, economists such as Pareto were not offering precise explications of concepts, such as preference; this is certainly a contribution of the current philosophical debate about the nature of preferences. But acknowledging economists' arguments in favour of, for example, the concept of ordinal utility could still inform our judgement about how plausible a mentalist interpretation of preference – according to Moscati the dominant one in economics today – actually is, under which conditions it is useful, and in light of which problem it would be preferable and more conducive to measuring utility as a mental state.

In Part III, Moscati traces the early history of expected utility theory (EUT) as the result of John von Neumann and Oskar Morgenstern's *Theory of Games and Economic Behavior* and the debate following its publication. Economists held divergent views regarding the nature of the utility function, the theory's interpretation as either normative or descriptive, the plausibility of its core axioms, and the view of measurement it conveyed. A result of the debate was a new, prediction-oriented, view of utility measurement and the replacement of the concept of utility by the concept of preference. This is the strongest part of the book. The reader gets a detailed understanding of how and why (subjective) EUT became dominant in economics during the second half of the 20th century. Moscati also shows that EUT as used today is not the direct result of Morgenstern and von Neumann's contribution alone. It resulted from a dynamic and step-wise process characterized by diverging philosophical views, of negotiations about conceptual interpretations and appropriate methods, of debates about the assumptions of ordinal utility theory, of justifications of the notion of cardinal utility, and all of that coupled with random life decisions: consider von Neumann losing interest in utility theory altogether after making his initial contributions. As such, the eventual stabilization of EUT and the idea that measuring cardinal utility was by no means the only possible result.

We also learn about the various manifestations of EUT. Moscati navigates the reader through a history of changing interpretations of EUT as a measurement theory, an empirically testable decision theory, a predictive theory, or a normative theory of human behaviour. By the end of 1952, EUT had stabilized in economics, yet underwent a period from raising confidence to confronting scepticism regarding its validity. A first series of experiments to measure cardinal utility and test EUT boosted confidence in the approach. Scholars such as Jacob Marschak, Frederick Mosteller, Philip Noguee and Patrick Suppes favourably designed their experiments to neutralize psychological factors that could potentially call into question the theory and its measurement capacity. But each group measured utility with different methods. The conceptual and methodological diversity of those measurement attempts is fascinating yet so far underappreciated. Later on, utility measurement was increasingly associated with checking the predictive power of EUT. While the data were not always fully aligned with the theory's predictions, the experimenters considered them to be good approximations of the predictions to support the descriptive validity of the theory. They took their results to support the notion of cardinal utility and the descriptive validity of EUT.

What increasingly undermined the theory's empirical validity was not any issues with measuring utility but rather a second sequence of experiments mostly by mathematical psychologists working around Amos Tversky. Their goal was to elicit Allais- and Ellsberg-like choice patterns that violated the theory's key axioms. Non-expected utility theories of behaviour, including prospect theory, emerged as serious competitors. The psychologists' approach differed from the one used in earlier experiments. The first group of experimenters had used psychological insights to simplify the choice situations for the experimental subjects and thereby eliminated factors that would potentially lead subjects to violate EUT. In contrast, rather than controlling for psychological variables in this way, the second group of experimenters used psychological insights to design the choice situations such that subjects tended to violate EUT. They furthermore showed how measurement methods used by the previous experimenters would lead to inconsistent measurement results. Both kinds of results called into question the descriptive and normative validity of EUT.

This second wave of experiments led to behavioural economics. Overall, however, economists did not abandon EUT because of those results – quite the contrary. EUT is alive and well, used extensively and in various capacities. A comprehensive explanation of this persistence in general and particularly in light of those experiments is missing. Moscati's history makes clear that traditional philosophical accounts of (rational) theory choice and scientific progress would not get us very far. The same holds for the continuing attempts to measure utility with EUT. While the flaws of EUT as a measurement theory do not necessarily invalidate attempts to measure utility in general, justified scepticism about the usefulness of EUT for the purpose of measuring utility and the implications of its shortcomings for the predictive and normative goals of EUT remains.

One insight from Moscati's account is that current issues in discussions around utility theory and measurement have been around for a long time, albeit not with the same degree of philosophical sophistication. Learning about economists' past considerations opens up a two-fold perspective on philosophical

problems surrounding utility measurement. First, it reveals what is feasible in economics, given its subject matter and the methods it has available. Second, it reveals what is desirable in light of economists' self-proclaimed goals and philosophical commitments. Such a perspective will guarantee the continuous relevance of philosophy of economics for economics.

A second insight from Moscati's account is a better understanding of why we have the knowledge that we have. The variants of utility theory currently used in economics resulted from a complex history of attempts to cope with epistemic and methodological challenges posed by formulating a theory of human behaviour and measuring psychological variables. Depending on their goal and in light of available alternatives, economists took an approach that was useful and feasible, even if it had flaws. We understand why, despite its problems, economists used EUT as a measurement theory and how they ended up with the interpretation of the representational theory of measurement that they ultimately did. The problem of utility measurement will stay in economics. That kind of understanding ensures a philosophical discussion that makes a difference, that is informed by scientific practices and the pros and cons of positions raised by economists themselves. Therefore, *Measuring Utility* should be of interest for any philosopher of utility theory and measurement in economics and the social sciences more generally.

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*Capital and Ideology*, Thomas Piketty. Translated by Arthur Goldhammer. Harvard University Press, 2020, pp. ix + 1093.  
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In *Capital and Ideology*, Thomas Piketty corrects a misimpression of his bestseller, *Capital in the Twenty-First Century* (2014). There, Piketty argued that when the rate of return on capital exceeds the rate of economic growth (when  $r > g$ ), the economy will generate runaway inequality, in which the capital share of income will dwarf labour's share. In a few generations, it will be practically impossible to attain a decent standard of living through work. We will return to the worlds depicted by Jane Austen and Honoré de Balzac, in which very few have access to the only routes to a decent life – namely, to inherit a fortune, or marry into one. Piketty's magnificent historical data showed how this trend was interrupted by the two World Wars and the Great Depression, followed by three decades of