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Some Logical and Normative Issues Relating to Measurement in the Social Sciences

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INTERNATIONAL INSTITUTE FOR POPULATION SCIENCES
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Some Logical and Normative Issues Relating to Measurement in the Social Sciences[1]

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Abstract:

This lecture is based on the premise that measurement is very important for the social sciences. However, it also enjoins care on the practitioner's part in his or her engagement with the project of measurement. It deals, in particular, with four often overlooked issues with which quantification in the social sciences should be concerned: (1) social indicators in relation to the contrast between outcomes and processes; (2) measurement which tends to depend on the derivation of 'ought' propositions from 'is' propositions; (3) the neglect of the role of normative values in social and economic measurement; and (4) the role of language and logic in social measurement.

1. Introduction

It is - I believe understandably - with mixed feelings that I stand before you on this occasion. On the one hand, I am informed by a great sense of privilege to have been asked to deliver this lecture in memory of one of India's most distinguished scientists; and on the other, I am informed equally by a sense of undeservingness to have had such an honour conferred on me, when I contemplate the immense stature of the man in whose memory I speak. Dr Chandrasekaran was not only a rigorous scientist but a humane and committed servant of his country, a fact which one recalls with some poignancy in these times when one is confronted by perverse and distorted notions of both 'science' and 'nationalism'. It is, briefly, with both pride and humility—and therefore with a measure of confusion caused by these opposing sentiments—that I accept the honour of speaking on this occasion; and all I can do is to promise to try and do my best.

Turning now directly to the subject of my talk, let me begin by suggesting that if life for a social scientist without measurement is difficult, life for her *with* measurement is

[1] The paper formed the basis of the author's Professor C. Chandrasekaran Memorial Lecture at the International Institute for Population Sciences, Mumbai, on March 11th, 2019.

not much less so. I believe that even those who habitually mistrust measurement—those that we might call 'measurement-nihilists'—would find it difficult to quarrel with the first proposition about the social sciences without measurement. Equally, those that habitually prioritise measurement above all else—those that we might call 'measurement-fetishists'—would find it difficult to quarrel with the second proposition about the social sciences with measurement. In the absence of measurement, it is hard to get a sense of the magnitudes of, and trends in, phenomena such as poverty, inequality, discrimination, and the weight of women in a population, in which social scientists are typically interested. This makes it difficult to analyse these phenomena in terms of causation, of prescription of policy, and of the statement and defence of informed positions on these subjects. Analysis of this nature is similarly rendered difficult when measurement is all that matters to a social scientist for whom a 'feel' for the society in which she lives and works is systematically subordinated to the brute force of numbers which may or may not be reliable, and which may or may not capture elements of causation and prescription that could be relevant to the investigation under review.

I need hardly mention some of the standard problems to which measurement is vulnerable. There is the problem of non-availability of data. There is the problem of data which are available but not necessarily reliable. There is the problem of reliable data which are available but must nevertheless be utilised in the service of protocols of quantification that must respect the laws of statistics. To these we might add the problem of 'fake science'—disciplines such as phrenology and eugenics which have aided the cause of some of the most egregious practices known to us of categorising and characterising groups of human beings in terms of intellectual ability or physical capability or personal attractiveness. Amongst the greatest casualties of fake science is the damage and abuse visited upon the disciplines of statistics, zoology and demography. The issue has been dealt with in Stephen Jay Gould's wonderfully principled book on what he calls 'the mismeasurement of man' (Gould, 1997).

I mention these difficulties only in order to admit that I shall not be speaking on any of them. What I do intend to speak on is problems relating to the formulation and interpretation of social indicators, of the conceptual underpinnings of measurement, of certain problems of logical coherence and normative appeal which we as social scientists sometimes fail adequately to take on board when we are engaged in the enterprise of measurement. I shall mention, and briefly deal with, four topics in relation to this subject: (1) social indicators

in relation to the contrast between outcomes and processes; (2) measurement which tends to depend on the derivation of 'ought' propositions from 'is' propositions; (3) the neglect of the role of normative values in social and economic measurement; and (4) the role of language and logic in social measurement. I shall endeavour to illustrate the problems I speak of with examples drawn mainly from economics, since I am—for my sins—an economist.

2. Social Indicators: Outcomes and Processes

Social indicators are, by their very nature, what one might call 'end-state' descriptions of states of affairs. They refer, as a general rule, to *outcomes*; and perhaps naturally, we tend to interpret these outcomes, and therefore the social indicators associated with them, as 'Good Things' or 'Bad Things'. This is rather in the spirit of the famous lampoon called *1066 And All That*, perpetrated by the writers Yeatman and Sellar in the 1930s, on the manner in which history was taught (and for all one knows, still is) in British schools of the time. A typical example is a vignette from one of their History examination papers: 'Would it have been a Good Thing if Wolfe had succeeded in writing Gray's Elegy instead of taking Quebec?'

We, as social scientists, have a similar tendency to interpret social indicators in terms of their being 'Good Things' or 'Bad Things'. Consider, for instance, the headcount ratio (HCR) of poverty, which is simply the proportion of a society's population with incomes less than the poverty line. In time-series analyses of poverty, we are inclined to pronounce an observed decline in the headcount ratio as a Good Thing. Similarly, consider the social indicator encompassed in the sex ratio (SR) of a population, which is simply the proportion of females in a society's population. In time-series analyses of the SR, we would be inclined to certify a diminution in the SR as a Bad Thing.

In such interpretations of what a social indicator tells us, we concentrate only on outcomes while completely neglecting the possible *processes* that might have led to these outcomes. Thus, Kanbur and Mukherjee (2007) bring to our attention the possibility that a particular observed decline in the HCR of poverty might have been caused not by policy or processes aimed at extricating people from poverty, but because of excess mortality among the poor occasioned precisely by ill-health arising from poverty. Surely, such a decline in the HCR is a Bad Thing, not a Good Thing (even if it connotes a decline in poverty in terms of the chosen indicator of deprivation)! Kanbur and Mukherjee, in the work cited earlier, discuss

how the prior history of a society's demographics must be taken into account in order to judge observed poverty outcomes. This is a discussion beyond the scope of this paper, but what is relevant to note is that if, in our normative judgements, we concentrate exclusively on outcomes without regard for processes, then we would run the risk of interpreting all poverty indicators which are increasing in the HCR as signifying a Good Thing if poverty is eliminated by simply (physically) eliminating the poor.

What of the notion that a decline in the sex ratio of a population is necessarily a Bad Thing? To address this question, it is useful to note that the SR is a function of three factors: the age-structure (AS) of the population; the past history of sex-ratios at birth (SRB); and the relative age-specific survival ratios for females (RASF). Jayaraj and Subramanian (2009) construct an elementary arithmetical example involving two points of time with the following relevant demographic features. First, the cumulative age distribution function in the second period is assumed to first-order stochastically dominate that of the first period. We shall assume that the changed age-structure has been brought about by relatively benign developmental factors at work, including in particular reduced death (especially infant mortality) rates, vastly reduced birth rates, and a general increase in longevity. Second, we shall take it that the RASF declines with age but is higher, at each age, in the latter period compared to the former period, and this again due to developmental factors that have been beneficial to women. Third, the SRB is assumed to decline, owing to the favourable developmental factor of improved maternal status in respect of health and nutrition leading to reduced pregnancy wastage and, through that route (given that the male embryo is more prone to mortality *in utero*), to a reduced sex ratio at birth. Notice that the postulated changes in the AS of the population and in the RASF ratios would cause the SR of the population to increase, while the reduction in the SRB would cause the SR to decline. It is conceivable that the reduction in the SRB has a greater downward impact on the SR than the upward impact of the changes in its other two determinants, leading to an overall net decline in the SRB. Nevertheless, all of the factors at work in this declining SR have been developmentally favourable to women—and there is therefore little reason to infer that the observed decline in the SR has been a Bad Thing!

From a philosophical point of view, the failure to distinguish between outcomes and processes in interpreting social indicators has something to do with Amartya Sen's (1967) classification of prescriptive judgements into *basic* and *non-basic* judgements. Basic judgements are invariant with respect to the precise factual circumstances in which they

are made. The judgement that 'killing is wrong' would be a basic judgement if it were to hold irrespective of whether the killing has been done for reasons of gain or for reasons of self-defence. Non-basic judgements, by contrast, allow for the possibility that they could change with the circumstances in which they are made. In the context of judgements made on the strength of the information transmitted by social indicators, we often tend to make what we believe are basic judgements, when reflection would suggest that our judgements ought, more sensibly, to be seen as being non-basic in nature. The carelessness involved in this aspect of measurement is less rather than more excusable if the circumstances in which our judgement would change were more rather than less plausible, foreseeable, and commonplace.

3. Description, Prescription, and Measurement

It is an old dictum of philosophy, dating back to David Hume, that one must be wary of deriving 'ought' propositions wholly from 'is' propositions. It may appear to be stressing the obvious to warn against making such a mistake, but it is surprising that the mistake is a common enough one among social scientists to warrant remarking. The problem is particularly evident in quantifications involving the methodology of '*decomposition*', of which I consider a couple of examples in what follows.

One common application of the technique of decomposition relates to the analysis of poverty reduction over two points in time. Specifically, there are procedures by which a given reduction in a real-valued measure of poverty can be 'decomposed' into a change attributable to the increase in average real per capita income and a change attributable to the variation in the distribution of incomes over the two points in time under comparison. The first component of change is usually referred to as the 'growth effect' of the change in poverty, and the second component as the 'inequality effect'. Such a decomposition of poverty change into its growth and inequality components, and an assessment of the relative contributions of the two effects to the overall change, are unquestionably valuable as a positive exercise—one which is descriptively informative and instructive as to causation. Some of the earliest empirical applications of the decomposition technique to an analysis of changes in India's poverty are those of Kakwani and Subba Rao (1990), Jain and Tendulkar (1990), and Datt and Ravallion (1992).

Dollar and Kraay (2002) observed that 'growth is good for the poor', and have reiterated the sentiment ('growth is still good for the poor') in Dollar, Kraay and Kleineberg (2013,

2014). In their 2013 paper, the authors conduct a cross-country econometric analysis on a large data set, and their calculations suggest that over 75 per cent of the variations in country growth performances have been accounted for by variations in the growth (of per capita mean income) across these countries. A lesson drawn by Dollar, Kraay and Kleineberg (2014; p.4) from their decomposition analysis is the following: 'The main policy message of our work is the importance of overall economic growth for improvements in social welfare. Inequality may be a "hot" current topic, but inequality changes in most countries over the past thirty years have been small, while differences in average growth performance have been large.' Similar views are expressed in Patillo, Gupta and Carey (2005; pp. 35, 36) when they say: 'The key finding that emerges from poverty decompositions is that the bulk of the variations across countries in the rate of poverty reduction is due to variation in overall growth… Since growth is the most important long-run driver of poverty reduction, pro-poor growth policies overlap with growth policies.'

While it may be a matter of observed *fact* that the growth effect dominates in one or some or several decomposition exercises, does it follow that therefore growth must be regarded as the policy instrument best suited for bringing about reductions in poverty? Notice that the first part of the preceding statement is a positive or descriptive observation, while the second part is a normative or prescriptive one. This is clearly an instance of an 'ought' proposition being derived from an 'is' proposition, in violation of the Humean warning against committing such a mistake. Although the mistake under review appears to enjoy a certain popular vogue in the economic development literature, it is also true that some economists have resisted it, as evident in the work of—among others—Dhongde (2002), Subramanian (2010), dos Santos and da Cruz Vieira (2013), Basu (2013), Subramanian and Lalvani (2018), and Basu and Subramanian (2019).

To see what is involved, let us employ Kaushik Basu's (2001, 2006, 2013) 'quintile income statistic' Q—which is simply the average income of the poorest 20 per cent of a population—as our indicator of poverty. Then, if s is the income share of the poorest 20 per cent (a rudimentary indicator of inequality), and m is mean per capita average income, it is easy to see, as in Rosenblatt and MacGavock (2013) and Basu and Subramanian (2019), that

(1) $Q = 5sm$.

In some particular empirical exploration, or even in a large number of such explorations, it may emerge that changes in *Q* are largely accounted for by changes in *m*, while changes in *s* account for a small or even negative share of changes in *Q*. This does not immediately justify the prescriptive statement that we ought to concentrate on promoting growth, rather than on reducing inequality, in order to reduce poverty. All that our empirical exercises suggest is that the weight of redistributive effort in overall poverty reduction has been small, not that such effort is relatively ineffective. Equation (1) suggests that *s* and *m* can, in principle, be combined in indefinitely many ways in order to achieve a particular target value of *Q*: some of these combinations will stress the importance of growth and others will stress the importance of redistribution. What policy tack we choose to follow will depend upon our assessment of feasibility constraints and normative notions of justice.

A similar problem presides over the decomposition of measures of inequality into a 'within-group' component and a 'between-group' component. All inequality measures are not amenable to such decomposition: the Gini coefficient is an example of such a measure which is not sub-group decomposable. The set of decomposable indices essentially boils down to the class of 'Generalised Entropy Measures', of which the Coefficient of Variation and the Theil Inequality measures are examples (Shorrocks, 1984, 1988, 2013). As a positive exercise aimed at assessing the relative contributions of the two components 'within-group' and 'between-group'—to total inequality, the decomposition procedure is unexceptionable. But the discovery that for some particular partitioning of the population into subgroups the between-group component is relatively small is not a conclusive case against taking group inequality seriously. Such an inference is somewhat crudely `contribution-oriented' in motivation, in the sense that it is not overly informed by a sense of the intrinsic unfairness of group disparity, but rather by a sense of how much, in purely quantitative terms, group disparity contributes to aggregate inequality. Furthermore, as the number of groups into which the population is partitioned increases, between-group inequality also increases. Indeed, in principle, it is possible for the partitioning of the population to be so 'fine' or 'granular', that each person by herself or himself could be regarded as a separate group—in which case between-group inequality will account for all of the observed inequality, and within-group inequality for none of it! Briefly, an interpretation of decomposition results which is not informed by a sense of the political salience of the 'grouping' of the population we have resorted to could be an unhelpful approach to measurement. This is a matter of sociology and politics, and only incidentally of arithmetic.

4. Value-Neutral Measurement?

A common tradition in the measurement of phenomena such as poverty and inequality is to provide characterization theorems for real-valued indices, that is to say, to characterize an index completely in terms of the necessary and sufficient conditions for the existence of the index. These conditions are generally specified in the form of 'axioms', supposedly self-evident properties of an index. The axioms are generally persuasive as to their plausibility, but sometimes it happens that what appears unexceptionable on the face of it does not quite survive more detailed scrutiny with respect to its ethical appeal. Apparently 'value-neutral' axioms sometimes turn out to have unsuspected normative implications that deserve closer attention.

In the measurement of inequality, one such seemingly innocuous axiom is the so-called '*Scale Invariance Axiom*' (Axiom SI). Axiom SI simply states that if every income in a distribution **y** is derived through an equi-proportionate increase in each corresponding income in a distribution **x**, then **y** should be deemed to have the same extent of inequality as **x**. Thus, if **x** is the two-person ordered distribution of incomes (10,20), and **y** the ordered distribution (20,40), then, in as much as **y** is derived from **x** by a doubling of each person's income in **x**, for any inquality index I which satisfies scale invariance, it must be the case that $I(\mathbf{x}) = I(\mathbf{y})$. Scale-invariant inequality indices are *mean-independent*, and therefore invariant with respect to the *units* in which income is measured: for a scale-invariant index, measured inequality will be the same whether income is measured in rupees or in dollars. This does appear to be a desirable property in an inequality index.

But does neutrality to the unit of measurement really require quite such a strong axiom as Scale Invariance? Buhong Zheng (2007) provided an 'ordinal' weakening of Axiom SI which preserves invariance with respect to the inequality-*ranking* rather than inequality-*value* of distributions which differ from each other only on account of a scale factor. Zheng called this the property of *Unit Consistency* (Axiom UC). Formally, let r be any positive real number, and let **x**, **x***, **y** and **y*** be any four ordered distributions of incomes such that $\mathbf{x}^* = r\mathbf{x}$ and $\mathbf{y}^* = r\mathbf{y}$. For any inequality index I, while Axiom SI would require that $I(\mathbf{x}) = I(\mathbf{x}^*)$, Axiom UC would insist only on the weaker requirement that if $I(\mathbf{x}) > (<) I(\mathbf{y})$, then $I(\mathbf{x}^*) > (<) I(\mathbf{y}^*)$. The weakening of Axiom SI to Axiom UC admits a larger class of inequality indices with appealing ethical properties than would be allowed by Axiom SI. This is elaborated on in what follows.

Scale Invariance is essentially a *technical* restriction on inequality indices, designed to address the units-of-measurement problem. But what is the *ethical* nature of an inequality index that satisfies Axiom SI? The essential ethical feature of such an index is that it is a *relative* measure, in the sense that inequality will be deemed to be unchanged under an *equi-proportionate* change in each income of a distribution. But notice that equi-proportionate increases in incomes ensure only that each income in each distribution is the same *multiple* of every other income in that distribution: it does not ensure that the absolute difference between any pair of incomes in one distribution is the same as the absolute difference between the corresponding pair of incomes in the other distribution. Thus, if **x** = (10,20) and **y** = (20,40), the richer person's income is exactly twice as much as the poorer person's income in each of **x** and **y**, but the richer person's income exceeds the poorer person's income by 20 units in **y** and only 10 units in **x**. This fact immediately paves the way for a plausible rival to axiom SI, which was called the *Axiom of Translation Invariance* (Axiom TI) by Serge- Christophe Kolm (1976a, b). Axiom TI requires that measured inequality should remain unchanged if each person's income is increased by the same *absolute amount* (rather than by the same *proportion*, as demanded by Axiom SI). If a scale-invariant inequality measure is a *relative* measure, then a translation-invariant index is an *absolute* measure.

Consider now an ordered two-person distribution **z** = (20, 30), in addition to the two previously defined distributions **x** = (10,20) and **y** = (20,40). For any inequality index I which satisfies Axiom SI, $I(\mathbf{x}) = I(\mathbf{y})$, even though the difference between the incomes of the richer and poorer persons is twice as much in **y** as in **x**: in the presence of income-growth, a scale-invariant inequality measure displays a 'rightist' value, as observed by Kolm. For any inequality index I which satisfies Axiom TI, $I(\mathbf{x}) = I(\mathbf{z})$, even though the income of the richer person increases by a smaller factor of 1.5 in the transition from **x** to **z** as compared to the factor of 2 by which the poorer person's income rises: again, as observed by Kolm, in the presence of income-growth, a translation-invariant inequality measure displays a 'leftist' value. The measurement of income-inequality is not so value-neutral, after all.

Kolm (1976a, b) went on to propose, in view of the somewhat 'polarised' values exhibited by scale- and translation-invariant indices, that there is a case for a '*centrist*' or '*intermediate*' inequality measure. A centrist measure is one which displays an increase

in value in the face of an equi-proportionate rise in all incomes, and a decline in value in the face of an equal increase in all incomes. Are there any known intermediate measures in the inequality-measurement literature? The answer is 'yes', and I shall deal very briefly with one such measure.

Let us note first that a very familiar relative index of inequality is the *coefficient of variation* (CV), while a very familiar absolute index of inequality is the *standard deviation* (SD): these are measures of dispersion which any beginning student of statistics is exposed to in her first few lessons. Consider a measure *K* which is given by the product of the coefficient of variation and the standard deviation: $K = CV.SD$. That *K* is an intermediate measure of inequality is very easily seen. For, an equi-proportionate increase in all incomes will cause the relative measure *CV* to remain unchanged in value and the absolute measure *SD* to increase, leading to an increase in their product *K*; and an equal absolute increase in all incomes will cause the absolute measure *SD* to remain unchanged in value and the relative measure *CV* to register a decline, leading to a decline in their product *K*. It turns out that the index *K* is unit-consistent, besides being the only unit-consistent intermediate measure which is also sub-group decomposable. *K* is thus a very useful measure of inequality.

This measure of inequality is named after its discoverer, a mathematician called Manfred Krtscha, who employed an ingenious axiom-structure to uniquely characterize the measure (Krtscha, 1994). It has apparently not been generally noted that *K* is a measure of dispersion known in the statistical literature as the 'coefficient of difference', or 'variance-to-mean ratio'. It may be of interest for demographers to know that the Krtscha index has recently found application in the measurement of *fertility concentration* (Barakat, 2014) which is, frankly, beyond me. Of more immediate relevance to my concerns is the fact that relative measures of inequality, such as the Gini coefficient or the Generalised Entropy Class are the ones that are predominantly employed in the literature, apparently without the knowledge (or at any rate the acknowledgement) that such measures are value-biased in a particular direction. The pattern of inequality trends, it is pertinent to note, is highly sensitive to whether we employ relative or other kinds of measures to assess inequality. As already argued, there is a strong case for employing centrist measures, which avoid the polar normative values underlying relative and absolute measures. And centrist measures tend to display vastly more increasing trends of inequality, at national and global levels, than are revealed by the almost exclusively employed relative measures (Atkinson and

Brandolini, 2010; Bosmans *et al*, 2013; Jayaraj and Subramanian, 2015; Nino-Zarazua *et al*, 2016). Taking account of values in measurement thus has non-trivial implications for diagnosis and policy-prescription.

5. Language, Logic and Measurement

When advancing and interpreting social indicators, practitioners sometimes take for granted, without explicitly spelling out, aspects of meaning and context within which the measurement exercise is conducted. This, on occasion, can lead to confusion in the use of language, and sometimes even to problems of logical coherence. It is possible for people alluding to some particular social indicator to be at cross purposes because without realizing it, they are measuring different things, or different aspects of something that is referred to by the same name. The problem does not arise in the presence of a tacit common understanding between those engaged in the conversation; but in the absence of such an implicit consensus, we could have a situation in which each person says, as in T. S. Eliot's *The Lovesong of J. Alfred Prufrock*, 'That is not what I meant at all./That is not it, at all.'

An aspect of the problem is brought out in a piquant passage in one of G. K. Chesterton's Father Brown detective stories, in which the priest says:

> Have you noticed this – that people never answer what you say? They answer what you mean – or what they think you mean. Suppose one lady says to another in a country house, 'Is anybody staying with you?' the lady doesn't answer 'Yes; the butler, the three footmen, the parlour-maid, and so on', though the parlour-maid may be in the room, or the butler behind the chair. She says: 'There is *nobody* staying with us', meaning nobody of the sort you mean. But suppose a doctor inquiring into an epidemic asks, 'Who is staying in the house?' then the lady will remember the butler, the parlour-maid, and the rest. All language is used like that; you never get a question answered literally, even when you get it answered truly…

It appears that what Father Brown says about house-guests can also be applied to the measurement of poverty by social scientists. Let me try and explain.

The Oxford moral philosopher Derek Parfit wrote extensively in the subject of 'population ethics', in the search for an answer to what he called an 'an awesome question', namely, 'how many people should there ever be?' (Parfit, 1984; p.381). In addressing this question, another philosopher, John Broome (1996) formulated a general principle in population ethics which he called the 'Constituency Principle'. In broad and loose terms, the Constituency Principle says something like this: in comparing the goodness of alternative histories of the world, one should take into account only the preferences and interests of that constituency of individuals which exists in all of the histories under comparison. A specific application of the Constituency Principle to the measurement of poverty was anticipated by Amartya Sen (1981) in terms of what he called the 'Focus Axiom', which may here be rechristened the 'Income Focus Axiom' (Axiom IF). Axiom IF says that given two equi-dimensional income vectors, measured poverty for the two distributions should be the same whenever the sub-vectors of the incomes of the poor in the two distributions are identical. Or, put another way, poverty should be invariant with respect to an increase in any non-poor person's income, other things remaining the same. Sen justifies the Focus Axiom from the consideration that poverty is a condition of the *poor*, and not of the general population: therefore, in effecting poverty comparisons, we should confine our attention to the income distributions of only the *poor* constituency of any population.

Without entering into a discussion of the substantive merits of Axiom IF, it seems reasonable to suggest that anybody who endorses the Income Focus Axiom—in the interests of logical consistency— ought also to endorse what one may call a Population Focus Axiom (Axiom PF) which requires that, other things equal, poverty should remain invariant with respect to any increase in the non-poor *population*. A remarkable feature of most extant poverty measures is that they satisfy the Income Focus Axiom while violating the Population Focus Axiom—which suggests a certain pervasive absence of logical consistency, with respect to the notion of 'Focus', in the literature on the measurement of poverty!

All poverty measures purport to measure 'the extent of poverty' in a society. But one can mean different things by the phrase 'extent of poverty'. I would suggest that anyone who endorses a comprehensive notion of 'Focus' (that is, both Axioms IF and PF) is concerned with measuring 'the quantity of poverty there is' when she speaks of 'the extent of poverty in a society'. By contrast, anyone who rejects the appeal of Axioms IF and PF

is concerned with measuring 'how poor' a society is when she speaks of 'the extent of poverty'. The useful contrast between the 'how poor' and 'quantity of poverty' notions of the phrase 'the extent of poverty' is due to Nicole Hassoun (2009). The contrast can be understood in terms of a simple analogy. Suppose one is interested in measuring the 'extent of sweetness' of a beverage. Imagine we have two cups of coffee, one of which (cup 1) is a very large cup with two spoons of sugar in it and the other (cup 2) is a tiny cup with one spoon of sugar in it. Persons A and B are invited to compare the 'extent of sweetness' of the two cups of coffee. Person A judges the extent of sweetness to be greater for cup 1 than for cup 2, while person B inverts this ranking. We should not be surprised if the reason for these opposing judgements resides in the fact that for person A, the 'extent of sweetness' is 'the quantity of sugar' in a cup, while for person B, the 'extent of sweetness' is reckoned in terms of 'how sugary' the cup of coffee is.

In Lewis Carroll's *Through the Looking Glass*, we have this conversation between Alice and Humpty Dumpty:

> 'The question is,' said Alice, 'whether you *can* make words mean so many different things.'
>
> 'The question is,' said Humpty Dumpty, 'which is to be master – that's all.'

In the matter of Chesterton's 'house-guests', as much as of social scientists' view of 'the extent of poverty in a society', it would appear that it is indeed possible for words to mean different things. This should not be a problem, as long as one takes care to specify the specific sense and the specific context in which one uses the words in question. The problem of possible confusion that can be caused by the idiosyncratic use of language is one that can be taken care of by observing the precaution of clarifying what one means by what one says. The measurement of social phenomena such as poverty should benefit from its practitioners taking seriously the need for such a precaution. A practitioner can endorse or reject some comprehensive notion of focus in the measurement of poverty, and an explicit statement of her position in this matter should enable her to be the master of her words. But a practitioner who endorses Income Focus while rejecting Population Focus—and this unfortunately seems to be the dominant orientation in poverty-measurement—is at some risk of being inconsistent in the use of logic: in such a situation it is not the practitioner but her words which are the master. As Humpty Dumpty says: 'That's all.'

6. Concluding Thoughts

As the great logician Frank Ramsey said, '…we can make several things clearer, but we cannot make anything clear.' Since we are doomed to failure when it comes to making anything 'clear', I can only hope that in this lecture I might have met with a little success in making 'clearer' at least a *few* things drawn from a difficult topic. I believe measurement in the social sciences is very important—one need only look at the life and work of a person such as Dr C. Chandrasekaran to see this. That is also why one needs to be careful, when dealing with the enterprise of measurement, to take serious note of the notions of outcomes and processes, facts and values, and logic and language and normativity. It is wise to heed that old proverb: 'He that forsakes measure, measure shall forsake him.'

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