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AN EMPIRICALLY BASED MICROECONOMICS

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FIRST LECTURE

Rationality in Decision Making

1. Development of the Concept of Rationality. – 2. Contemporary Choice Theory. – 3. The Plurality of Rationalities. – 4. The History Reviewed. – 5. Empirical Tests of Theories.

The concepts of reason and rationality are central to economics, but it must not be supposed that these concepts have retained the same meanings throughout the history of the subject. The assertion that "human beings behave rationally" may have a quite different meaning and carry quite different implications in the pages of Adam Smith than in those written by Kenneth Arrow or by an exponent of the rational expectations point of view. In my own writing, I have found it necessary to distinguish some of these different meanings of rationality, and in order to do so I have qualified the term by various adjectives: in particular, "bounded rationality", "substantive rationality", and "procedural rationality".

1. Development of the Concept of Rationality

Perhaps the easiest way to show what is at stake in the almost unperceived changes in meaning that have taken place over the past two hundred years is to compare and contrast the way in which the concept of rationality was used by Adam Smith with some of the changed usages that have appeared in succeeding years. This historical approach seems especially appropriate in the context of the Raffaele Mattioli Lectures, which are dedicated to treating economic topics in an historical context.

a. Introductory Comments on Writing History

Nowadays, in writing history we are sensitive to the danger of coloring our picture of the past with hindsight from the present. In English, we call that kind of distorted history "whiggish";

I don't know how to translate this term into Italian, and my dictionary does not help, for it equates "Whig" with "liberale" – quite another meaning.

A whiggish historian treats history as a tale of progress from an imperfect Past to a Present which, if not perfect, has at least moved perceptibly in the direction of perfection.

Moreover, in giving an account of the past, the whiggish historian will focus on those past developments that anticipated the present and led to it. In writing about the history of a science, it is particularly difficult to avoid whiggishness.

Most of us believe that the history of science *is* a story of progress: that for the most part the scientific knowledge of one century comes closer to an accurate and true description of the world than the knowledge of the previous century did. The continuing accumulation of empirical knowledge enables us to detect and correct errors in our beliefs, and the gradual development and revision of powerful explanatory theories pictures our world in increasingly accurate and parsimonious forms. And because we believe there is a progressive path in science, we dwell longer on those historical figures who marched along this path than on those who temporarily lured the march away from it. We focus on Galileo rather than on those of his contemporaries for whom the Earth stood still.

This view of inevitable progress has been challenged in our time by many historians, philosophers, and especially sociologists of science. The philosopher Feyerabend (1975) denies that our attempts to observe the world bring us continually nearer to a true view of it. There is no correct scientific method, he says, "Anything goes". Sociologists of science preach a cultural relativism. Changes in science, according to the relativists, are not a product of the internal processes of the disciplines: the accumulation of new knowledge, the generation and testing of alternative theories. Science, they argue, is simply a reflection of the society in which it exists: there is feudal science and Marxist science and capitalist science, male-dominated science and female-dominated science, and science of every racial and ethnic variety. Each is valid only within its social setting.

The historians of science, while opposing whiggishness, have generally been more moderate. They insist mainly that the science of a past century be examined in terms of the knowledge that the scientists of that time had inherited and had available to them, rather than in terms of the superior knowledge of later centuries. Without denying that the heliocentric view of the solar system has advantages over the geocentric view, they would explain why the latter might have seemed quite reasonable up to the time of Copernicus and Galileo, and why the shift of belief from theories we now regard as quite inadequate to more satisfactory theories sometimes takes considerable time. So, well-balanced accounts have now been given of the gradual resolution of the dispute between phlogisten-based and oxygen-based theories of combustion, and of the generation-long skepticism about Wegener's hypothesis of continental drift.

In my own account of the changed meanings of rationality within economics, I will try to follow this moderate course marked out by the historians of science. Without denying the possibility (perhaps even the fact) of progress, I will not treat Adam Smith as simply a primitive forerunner of contemporary theorists who are far superior: who not only have added many facts to those he had available, but also have clarified concepts that he could formulate only dimly. On the contrary, with respect to the notion of rationality, I will argue that Smith maintained a clarity and consistency that has sometimes eluded his successors.

b. Rationality in The Wealth of Nations

As his title, *The Wealth of Nations*, clearly signals, Adam Smith's subject is not the internal world of the mind, but the external world of economic production and trade. He early (pp. 13-14; all references are to the 5th, 1789, edition) argues a close connection between productivity and the division of labor, and treats the latter as "the necessary . . . consequence of a certain propensity in human nature . . .: the propensity to truck, barter, and exchange one thing for another". This latter he traces, in turn, to the mutual interdependence of people in civilized society. "But man has almost constant occasion for the help of his brethern, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favour, and shew them that it is for their own advantage to do for him what he requires of them . . . It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest".

Thus, the fundamental psychological assumptions of *The Wealth of Nations* are that, because of their dependence, human beings see the advantage to be gained from the help of others; and, because of their selfishness, they enter into mutually beneficial bargains. The term "rationality" does not enter explicitly into this discussion, and the *concept* enters only to the extent that effective selfishness depends upon being able to judge where self-interest lies.

Smith's world is a world of individual farmers, artisans, tradesmen, landowners. There is almost no place in it for the modern large manufacturing or service establishment. His division of labor is a specialization among participants in a market, not specialization of employees and managers in a business firm. He takes an extremely dim view of joint stock companies, except possibly in banking, insurance, or the provision of canals and water supplies (pp. 715-716). (His view of the inefficiency of universities, among the large corporations of his time, is especially scathing!) Therefore, *The Wealth of Nations* has little to say about the topic that will be central to my second and third lectures: the role of organizations in an economy.

Within his framework, Smith has no occasion to treat human choice or decision making in any formal way. (The term "self-interest" appears in his index, but not the terms "reason", "rationality", "choice", or "decision".) This does not mean that he regards people as non-rational; in fact, he frequently offers reasons for their behaving in particular ways. But in his treatment, being rational means having reasons for what you do. It does not imply maximizing anything, or having a single consistent criterion of choice, a utility, that provides the criterion for all decisions. A few examples will illustrate how Smith interprets human rationality.

In speaking of differences in wages between different skills, he says (p. 47): "Or if the one species of labour requires an uncommon degree of dexterity and ingenuity, the esteem which men have for such talents, will naturally give a value to their produce, superior to what would be due to the time employed about it. Such talents can seldom be acquired but in consequence of long application, and the superior value of their produce may frequently be no more than a reasonable compensation for the time and labour which must be spent in acquiring them".

The same theme is elaborated in the opening pages of chapter 8, where it is observed that wages vary with the agreeableness of the employment, the cost of learning the business, the constancy of employment, the trust to be reposed, and the probability of success. In each case, Smith states concisely the reasons for these differences and supplies numerous concrete examples. The theme of his remarks is that if people see a clear advantage in a particular course of action, they will seize it.

Similar common sense is applied to reasoning about the uses of capital: "...wherever a great deal can be made by the use of money, a great deal will commonly be given for the use of it . . . The progress of interest, therefore, may lead us to form some notion of the progress of profit" (p. 88).

In all of these examples, the economic actors are certainly behaving rationally – that is, pursuing what they suppose to be their self-interest. They are doing this simply by observing the world around them and noting when one course of action is distinctly more advantageous than another. The quotations I have read show how cautiously Smith states his case, and how he qualifies his assertions with adverbs that indicate he claims only a general tendency. The pay for extra skill "*may frequently* be no more than a reasonable compensation for the time and labour", or "will *commonly* be given for the use of it". The rationality of *The Wealth of Nations* is the rationality of everyday common sense. It follows from the idea that people have reasons for what they do. It does not depend on an elaborate calculus of utility or assume any consistency in what factors are taken into consideration in moving from one choice situation to another.

One final comment on Smith's idea of self-interest: from his examples, we gather that self-interest frequently corresponds to economic gain. But he recognizes that people may respond to many other values: the attractiveness of an occupation may depend on the ease or pleasantness of its duties, the esteem or dishonor associated with it, and its risk to life and health. Moreover, Smith makes a great distinction between the prudent man and the prodigal, having very harsh words for the latter, not on grounds of individual values but because the prodigal does not contribute, by saving, to the nation's wealth and well-being.

Having contrasted (pp. 324-325) "the passion for present enjoyment" with the desire for an "augmentation of fortune" to better one's condition, he makes an empirical assertion that "though the principle of expence [i. e., expenditure for present enjoyment], therefore, prevails in almost all men upon some occasions, and in some men upon almost all occasions, yet in the greater part of men, taking the whole course of their life at an average, the principle of frugality seems not only to predominate, but to predominate very greatly . . . Great nations are never impoverished by private, though they sometimes are by public prodigality". He then adduces historical examples to buttress this claim further.

This burst of optimism is the closest that Smith comes to defining a utility function, one balancing the propensity to consume against the propensity to save. *The Wealth of Nations* has a clear normative mission. It is not only a theoretical and empirical inquiry into "the nature and causes of the wealth of nations", but also a strong advocate for the policies that will increase that wealth. It contains no similar advocacy of individual rationality – a satisfactory level of rationality is taken for granted. Its only expressed preference for individual conduct, as contrasted with public policy, is for a particular shape of the utility function – a shape that will subordinate current consumption to saving!

Everything that psychology has learned about the processes of human choice is consistent with the view expressed by Adam Smith. People do have reasons for what they do, but these reasons depend very much on how people frame or represent the situations in which they find themselves, and upon the information they have or obtain about the variables that they take into account. Their rationality is a procedural rationality; there is no claim that they grasp the environment accurately or comprehensively. To predict their behavior in specific instances, we must ourselves know what they are attending to, and what information they have.

c. Rationality in Marshall's Principles

We jump ahead now a little more than a century, and take Alfred Marshall's *Principles of Economics* (8th edition, 1920) as a summing up of of that century's remarkable output of economic discussion and theory. Marshall himself, in the Preface to the first edition of his book, emphasizes the continuity of economics from its beginnings and selects as the most salient advance from earlier times the introduction of marginal concepts, which he attributes especially to Cournot, von Thuenen and Jevons.

The opening pages of *Principles*, however, show other important shifts in emphasis: in particular, a shift from national wealth to the activities of mankind "in the ordinary business of life". Several of his introductory sentences are worth quoting (pp. 1-3).

"Thus [economics] is on the one side a study of wealth; and on the other, and more important side, a part of the study of man. For man's character has been moulded by his every-day work, and the material resources which he thereby procures, more than by any other influence unless it be that of his religious ideals. . . . And very often the influence exerted on a person's character by the amount of his income is hardly less . . . than that exerted by the way in which it is earned".

The theme of an intimate interaction between economic institutions and activities, on the one hand, and individual character, on the other, is developed still further in a discussion of the conditions of modern industrial life (pp. 5-6). "[These characteristics are] . . . a certain independence and habit of choosing one's own course for oneself, a self-reliance; a deliberation and yet a promptness of choice and judgment, and a habit of forecasting the future and of shaping one's course with reference to distant aims . . . [The resultant tendencies toward collective ownership and collective action] are the result . . . of free choice by each individual of that line of conduct which after careful deliberation seems to him the best suited for attaining his ends, whether they are selfish or unselfish". To emphasize further the lack of connection between rationality and selfishness, Marshall observes (p. 6) that, "that country [England] which is the birthplace of modern competition devotes a larger part of its income than any other to charitable uses, and spent twenty millions on purchasing the freedom of the slaves in the West Indies".

Central to these passages of Marshall is the phrase: ". . . free choice by each individual of that line of conduct which after careful deliberation seems to him the best suited for attaining his ends, whether they are selfish or unselfish". This statement incorporates two major departures of Marshall's analysis from that of Adam Smith. First, the rather informal approach to choice by human beings "who have reasons for what they do", is replaced by emphasis upon deliberation in decision making, which in *Principles* becomes marginal analysis and maximization of utility. Second, and consistently with the idea that utility can be filled with any wishes or wants whatsoever, so long as they are consistent, Marshall does not insist on self-interest as the main driver of action. Utility can derive from altruistic as well as selfish choices; economics does not postulate or predict what things will have utility or how much they will have.

While Marshall puts forth nothing resembling Adam Smith's unbuttressed assertion that frugality will dominate profligacy, yet in a long passage he purports to give a (very generalized) historical account of "the slow and fitful development of the habit of providing for the future" (pp. 220-229), which reaches a conclusion as optimistic as Smith's about the prospects for the cumulation of capital in a modern society. The habit of reckoning about the future becomes another component of Marshallian rationality. Marshall's people form expectations, the progenitors of today's "rational expectations".

The pages of Smith and Marshall covering the same topics reveal a vast difference between them even when their conclusions are almost identical (as they usually are). Although *The Wealth of Nations* is addressed to the "nature and causes" of wealth, one feels a dominant concern with policy issues, specifically, a concern with how to assure rapid growth in the national