# The Status of Economics

The question that needs to be addressed at the beginning of this paper is one of the whole polemical issue of economics and the social sciences. How can we possibly attempt to discuss the influence of econometrics on the scientific status of economics, if we have not already decided our stance on the much debated and hackneyed issue.

Economics is fundamently a discipline that deals with man as he is[1]. At its best, economics seeks to harness man's very human motivations to the public interest. Gnawing questions persist among economists and social thinkers generally concerning the nature and scope of economics as well as its value and place in the constellation of scientific disciplines. Not all economists have approached the subject in the same way, nor do all agree on the boundaries of the subject, the role of the individual versus the group, the method of analysis to be employed, or the object of economic investigations.

It is often said that we live in a scientific age. Over the last several hundred years the citizens of most western countries have enjoyed the fruits of innumerable scientific discoveries . But the scientific advances that so profoundly affected the average citizen have been made by an extremely small minority of the population. These advances have generally been accepted without even the slightest idea of either the technical nature of the discoveries involved, or the attitude of mind that made them possible. If we take as a measure of the influence of science, the degree of dissemination of the fruits of science, then we live in a profoundly scientific age, but if we take as our measure the degree to which the general public understands and practices the scientific approach, then we are definitely in a pre-scientific era. Indeed, the scientific method of answering questions by appealing to a carefully collected and coordinated body of facts is a method that is seldom adopted by the public. *"Economics"*, said the American economist Jacob Viner, *"is what economists do"*. This unusually vague definition is somewhat supported by the fact the 'doings' of the economist may not be easily identifiable by the public but may have enormous effect. This interpretation would enhance the whole idea of economics as a science.

However, in assessing the whole question of defining economics as a social science, the most frequent question raised is whether or not it is possible to have a scientific study in the field of human behaviour. It is often argued that natural sciences deal with inanimate matter that is subject to natural 'laws', while the social sciences deal with man who has free will and cannot, therefore, be made the subject of inexorable laws. In this century alone, the physical sciences have been offering vivid proofs of their success of a kind calculated to appeal to the twentieth century mind, as Camap[2] explains *"Thus with the aid of the new logic, logical analysis leads to a unified science"*. Meanwhile the moral sciences have undergone a crisis of confidence. From Copernicus to Newton is one hundred and fifty years. Today, over one hundred and fifty years from the "Wealth of Nations"[3], we have not found, nor should we expect to find, the Newton of economics[4].

Very roughly speaking, the scientific approach consists in relating questions to evidence. The ease or difficulty with which one can collect or even manufacture evidence does not determine whether or not a subject is scientific or nonscientific, although many people believe that it does; it is merely one of the factors determining the degree of ease with which the scientific inquiries of various fields can be pursued. It is often thought that scientific procedure consists of grinding out answers with reference to blind rules of calculation and that it is only in the arts that the exercise of real imagination is required. This view is misguided for there are no set rules for the framing of questions. It is a step that often requires great imagination. Also, the collection of relevant

evidence often requires ingenuity. What the scientific method gives, is an impersonal set of criteria for answering some questions; but what questions to ask and exactly how to ask them and exactly how to obtain the evidence, are different problems, requiring upon occasion great feats of imagination[5]. The way in which scientific inquiry proceeds does, however, differ radically between fields in which laboratory experiment is possible and those in which it is not.

The 'behaviorist' claim that science should only deal with phenomena that are directly observable must be rejected with respect to economics because the explanations which economists offer ultimately must refer to an individual's subjective valuation process which is 'understandable' but not 'observable'. Because of this, the procedure of a social science like economics *"can never be completely assimilated to the procedure of the physical sciences"*[6]. One has unfortunately to admit that neither the simpler type of economic theory nor its most modern dynamic versions have brought us very far along the road toward detailed explanation, not to say prediction, of the scientific states of the actually observed economic system[7]. This is of course not to denigrate the importance of methods and techniques of investigation. In the development of science they have probably played as important a role as basic theory. The two are in fact intimately inter-related : theory poses questions, methods are devised to answer them, the answers or lack of answers make more theory necessary, and so on ad infinitum. It is at this stage of the argument that the whole question of the role of econometrics comes to the fore.

Econometrics is a rapidly developing branch of economics, which, broadly speaking aims to give empirical content to economic relations. It can be defined more accurately in the words of Samuelson, Koopmans and Stone[8] *"as the quantitative analysis of actual economic phenomena based on the concurrent development of theory and observation related by appropriate methods of inference"*. By emphasizing the quantitative aspects of economic problems, econometrics calls for a 'unification' of measurement and theory in economics. Theory, without measurement, being primarily a branch of logic, can only have limited relevance for the analysis of actual economic problems. While measurement, without theory, being devoid of a framework necessary for the interpretation of the statistical observations, is unlikely to result in a satisfactory explanation of the way economic forces interact with each other. Frisch[9] was aware of this need for unification : *"Statistical information is currently accumulating at an unprecedented rate. But no amount of statistical information, however complete and exact, can by itself explain economic phenomena"*.

On the relation of science and econometrics, Karl Pearson[10] put forward a 'unity of science principle' which is as follows : the unity of science is a unity of methods employed in analysing and learning from experience and data. The subject matter may be economics, history, physics or the like, but the methods employed in analysing and learning from data are basically the same. As Jeffreys[11] expresses the idea : *"There must be a uniform standard of validity for all hypothesis irrespective of the subject. Different laws may hold in different studies, but they must be tested by the same criteria; otherwise we have no guarantee that our decisions will be those warranted by the data and not merely the result of inadequate analysis or of believing what we want to believe"*. Thus the unity of science principle sets the same standards for work in the natural and social sciences. As Karl Pearson, Harold Jeffreys and others state, one of the main objectives of science, and I add of econometrics, is that of learning from our experience and data. The field of science is unlimited : its material is endless, every group of natural phenomena, every phase of social life, every stage of past or present development is material for science. The unity of all sciences consists alone in its method, not in its material. The man who classifies facts of any kind whatever, who sees their mutual relation, and describes their sequences, is applying the scientific method and is a man of science[12].

Thus for Pearson, the simple fact that social and economic phenomena

constitute an investigator's subject matter does not preclude his being scientific if this term is understood as meaning using scientific methods in dealing with the analysis of observational data. The position taken here, is that econometric model use is a key element in the scientific method and thus the use of econometric models is a key element in scientific method analysis of social phenomena is part and parcel of scientific approach to the analysis of social phenomena.

Economics has come a long way over a relatively short period of time. Important advances have been made in the compilation of economic data and in the development of concepts, theories and tools for the construction and evaluation of a wide variety of econometric models. Applications of econometric models and methods can be found in almost every field of economics. However if we were to rely on Lord Keynes evaluation of mathematical economic models as *"mere concoctions"* we would perhaps miss the point. Although there are limitations with econometrics which stem largely from the incompleteness of the economic theory and the non-experimental nature of economic data so that the specification of econometric models inevitably involve important auxiliary assumptions about functional forms, dynamic specifications, latent variables, with respect to which economic theory is silent or gives only an incomplete guide.

But the limitations should not distract us from recognising the fundamental role that econometrics has come to play in the development of economics as a scientific discipline. The standard rule for scientific inquiry states that firstly theory has to be formulated, and secondly the theory has to be tested against the empirical facts so that it can be either verified or falsified[13]. This is the influence of econometrics, so much so that it has earned the status of being recently defined by Chow[14] as *"the art and science of using statistical methods for measuring economic relations"*.

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