

**REPORT ON THE FRENCH-AMERICAN SCHOOL'S CONFERENCE ON
COMPARATIVE ECONOMIC METHODOLOGY IN AMERICAN AND
FRENCH INSTITUTIONS**

The conference, "Comparative Economic Methodology in American and French Institutions", was organized by the French-American School of New York and held in Larchmont, a suburb of New York, from the 25th to the 29th of October 1999. The conference addressed two logical canons, i.e. induction and deduction, applied in economic research in the United States and in France respectively. The issue at hand was to try to shed light on the origin of these two research methodologies and the harmonization of their use in the two countries.

I. Induction in American Institutions:

As a former colony of Great Britain, the United States inherited Francis Bacon's inductive method in science as well as John Locke, George Berkeley and David Hume's empiricism. However, empiricism was questioned by an American philosopher, John Dewey, who introduced what he called "instrumentalism".

In his *Advancement of Learning* and *Novum Organum*, Bacon set out to free science from what he called "**distempers of learning and idols of the mind**". Bacon named the three distempers of learning, "fantastical learning", "contentious learning" and "delicate learning".

By "fantastical learning" Bacon meant that people concern themselves with words, texts, languages and style instead of matter and the weight of matter. According to Bacon, "contentious learning" is even worse because it begins with fixed positions or points of view of earlier thinkers to advance contentious argumentation. "Delicate learning", refers to the acceptance by readers of the knowledge that earlier authors lay claim to even though their claims cannot be proved. These three diseases, Bacon argued, must be cured in order to relieve the mind of the errors they engender.

Bacon also distinguished between four idols that corrupt the human mind, namely, the idols of the tribe, the cave, the market place and the theatre.

"The idols of the tribe" are humanity's preoccupation with opinions, following from "the false assertion that the sense of man is the measure of things". Looking at things is no guarantee that we shall see them as they really are, because all our hopes and fears, prejudices and impatience comprise our understanding of things. "The idols of the cave" were taken by Bacon from Platonic allegory. These idols suggest that the untrained mind is shut in a cave of its own customs and opinions, reflecting the kinds of books one reads, the ideas one considers significant and the intellectual authorities to whom one defers.

"The idols of the market place" relate to the words people use in daily life and conversation. In spite of their usefulness, words can weaken knowledge, because they are not used with care or precision but they are framed in such a way that the common person will derive a particular meaning from them. Here Bacon referred to names given to things that exist only in the authors' imagination, or fashion names for abstractions.

Finally, "the idols of the theatre" are the grand systematic dogmas of philosophical treatises, "representing worlds of their own creation after an unreal and scenic fashion".

Here Bacon referred to all principles or axioms in science that “by traditions, credulity and negligence have come to be received”.

According to Bacon, the only way to correct this wayward mode of thought is through observation and experimentation, i.e. through the **inductive method**.

Through the “inductive method” in Bacon’s sense it is possible to derive “laws” from the simple observation of particulars and their series and order. The example he gave of his inductive method was the outline of how one could investigate the cause of heat. The first step is to draw up a list of all forms in which we encounter heat, producing a “table of essence and presence”. Next, another list must be compiled to include items that resemble those on the first list but that do not have heat, and this second list he called the “table of deviation”. Thus, the first list would include the sun and the second the moon. A third, the “table of comparison”, is a further attempt to discover the nature of heat by analysing the different degrees of heat to be found in different things, “as in fishes, quadrupeds, serpents, birds, ...man, ...planets”. The fourth step is the “process of exclusion”, whereby, setting “induction to work”, we try to find some “nature” that is present whenever there is heat, and absent when there is no heat. Is light the cause of heat? No, because the moon is bright but not hot. This process of exclusion was central to Bacon’s method of science, and he called it “the foundation of true induction”. He assumed that “the form of thing is to be found in each and all the instances, in which the thing itself is to be found”. Applying this assumption to the problem of heat, Bacon concluded that, “from a survey of all instances, all and each, the nature of which heat is a particular case appears to be motion”. The major weakness in Bacon’s method is that he had no grasp of what a modern scientist means by hypothesis. Bacon assumed that if one simply looked at enough facts, an hypothesis would suggest itself, whereas a modern scientist knows it is necessary to have an hypothesis before one inspects facts in order to have some guide in the selection of facts relevant to the experiment.

Both Bacon and Hobbes argued that knowledge should be built upon observation, and to this extent they could be called “empiricists”. But neither Bacon nor Hobbes raised any critical question about the intellectual powers of man. Although both uncovered and rejected modes of thought that they considered fruitless and erroneous, they nevertheless accepted without challenge the general view that the mind is capable of producing certainty of knowledge about nature provided only that a proper method is used. This was the assumption Locke called into critical question, namely, the assumption that the human mind has capabilities that enable it to discover the true nature of the universe. David Hume and Berkeley pushed this critical point even further and asked whether any secure knowledge at all is possible.

John Dewey’s chief quarrel with this earlier philosophy was that it had confused the true nature and function of knowledge. According to him, the empiricists had assumed that thinking refers to fixed things in nature, that for each idea there is a corresponding something in reality. According to Dewey, it is as though knowing is modelled after what is supposed to happen when we look at something. This he called “a spectator theory of knowledge”. Dewey considered this view of knowledge as too static for one thing, and too mechanical for another. Influenced by Darwin’s theories, Dewey looked upon humanity as a biological organism. As such, humans can best be understood in relation to their environment. Dewey’s grand concept is therefore *experience*, a concept he employed

for the purpose of connecting humanity as a dynamic biological entity with its precarious environment. If both humanity and its environment are dynamic, it is clear that a simple spectator-type theory of knowledge will not work. The mind, or more specifically *intelligence*, is for Dewey not a fixed substance, and knowledge is not a set of static concepts. Intelligence is the power one possesses to cope with one's environment. Thinking is not an individual's act carried on in isolation from practical problems. Thinking, or active intelligence, arises in "problem situations"; thinking and doing are intimately related. All thinking, according to Dewey, has two aspects, namely, "a perplexed, troubled, or confused situation at the beginning and a clear-up, unified, resolved situation at the close". He named his theory "instrumentalism" to emphasize that thinking is always instrumental in solving problems. The mind does not know simply individual things; it functions as a mediator between humanity as an organism and its environment. The mind deals with a range of things as these bear upon the person's desires, doubts and dangers. Knowing may very well consist of a "cognitive act", of an activity in the mind, but the full description of knowing must include the environmental origin of the problem or situation that calls forth the cognitive act. In this way, instrumentalism differs from empiricism. Whereas the latter theory of knowledge separates thinking and doing, instrumentalism holds that reflective thought is always involved in generating a practical solution.

Thinking, therefore, is not a quest for the "truth", as though the truth were a static and eternal quality of things. Thinking, rather, is the act of trying to achieve an adjustment between man and his environment.

Dewey built his theory of instrumentalism, his problem-solving theory of knowing, around his special view of human nature. Dewey's central point is that there is in fact a human psychological structure, that human nature possesses certain inherited capacities. At the same time, these capacities are flexible, so that given natural impulses will work differently under different social conditions. When impulses tend to result in the same response, this does not mean that for a given impulse there can be only that particular response. This was Dewey's decisive argument, for he seemed to reject the simple mechanical stimulus-response account of behaviour. If an impulse reflects itself always in the same way time after time, said Dewey, this is not a mechanical necessity but only the product of *habit*. Habit is only the way a person deals with certain classes of "stimuli, standing predilections and aversions". Since habit is only one way of responding to the stimuli of one's impulses, clearly there is no necessary connection between a person's natural impulses and any particular response. This means that responses are acquired or learned through the interaction between human nature and culture. If this is the case, habits do not represent eternal forms of human behaviour. They can be singled out, analysed, and appraised. Habits can be tested for their usefulness, the criterion being whether they support life and generally facilitate the successful adaptation of a person to the environment. Most important of all is the new insight this analysis gave Dewey of the nature of social and human "evil". Evil is not the product of some permanent instinct or impulse in human nature that cannot be altered. Rather, evil is the product of the special ways a culture has shaped and conditioned people's impulses. In this view, evil is the product of the "inertness of established habit". Intelligence itself is a habit by which the human organism adjusts its relation to its environment. Habits therefore include not only ways of reacting

to certain stimuli but also ways of thinking about the environment. Since all habits are only established but not necessary modes of behaviour, the clue to overcoming personal and social evil is to alter a society's habits of response and habits of thought. Nothing is more important than education in remodelling a society. If a person is a creature of habit, education should provide the conditions for developing the most useful and creative habits. The spirit of education, then, should be experimental, because the mind is fundamentally a problem-solving instrument, and it is therefore more important to try alternative means for successful problem solving than to pursue neat theoretical formulations.

This inductive pragmatic approach has had a lasting impact in American research methodology in general and economic methodology in the United States in particular. The following steps are usually followed:

1. Observation
2. Empirical generalization or finding a pattern
3. Tentative conclusion or theory

II. Deduction in French institutions

The deductive method in French institutions can be traced back to Rene Descartes. He set up in his *Discourse on Method* a system of thought whose various principles were true and were related to each other in such a clear way that the mind could move easily from one true principle to another. Descartes' method consists of harnessing the powers of the mind with a special set of rules. He insisted upon the necessity of method, and systematic and orderly thinking. According to Descartes, our minds naturally possess two powers, namely, **intuition** and **deduction**, "mental powers by which we are able, entirely without fear of illusion, to arrive at the knowledge of things". But by themselves these powers can lead us astray unless they are carefully regulated. Method consists, therefore, in those rules by which our powers of "intuition" and "deduction" are guided in an orderly way. By "intuition", Descartes meant an intellectual activity or vision of such clarity that it leaves no doubt in the mind. Whereas the fluctuating testimony of our senses and the imperfect creations of our imaginations leave us confused, intuition provides "the conception which an unclouded and attentive mind gives us so readily and distinctly that we are wholly freed from doubt about that which we understand...". Intuition gives us not only clear notions but also some truths about reality, as, for example, that *I think*, that *I exist*. Moreover, it is by intuition that we grasp the connection between one truth and another; for example, that two things equal to a third thing are equal to each other (if $A = B$ and $B = C$, then $A = C$) is made clear to us by intuition.

By "deduction" Descartes meant "all necessary inference from facts that are known with certainty" with a "continuous and uninterrupted action of the mind". Deduction, as Descartes described it, is different from a syllogism. A syllogism indicates the relationship of concepts to each other, whereas "deduction" for Descartes indicates the relation of truths to each other. It is one thing to move from a fact that is known with certainty to a conclusion that this fact implies. But it is something different to go from a premise to a conclusion as one does in a syllogism. Descartes' central point is that one can reason consistently from a premise but the value of the conclusion would depend upon whether the premise was true or not. His quarrel with earlier philosophy and theology was that

conclusions were drawn syllogistically from premises that were either untrue or based only upon authority. Descartes wanted to ground knowledge upon a starting point that had absolute certainty in the individual's mind. Knowledge requires the use, therefore, of intuition and deduction, where "first principles are given by intuition alone while the remote conclusions... are furnished only by deduction". Still, Descartes' method does not consist only of intuition and deduction, but also in the rules he formulated for their guidance.

The point of Descartes' rules is to provide a clear and orderly procedure for the operation of the mind. It was his conviction that "method consists entirely in the order and disposition of the objects toward which our mental vision must be directed if we would find out any truth". The mind must begin with a simple and absolutely clear truth and must move step by step without losing clarity and certainty along the way. Of the twenty-one rules found in his *Rules for the Direction of the Mind*, the following are among the most important:

Rule III: When we propose to investigate a subject, "our inquiries should be directed, not to what others perspicuously behold and with certainty deduce".

Rule IV: This rule requires that other rules be adhered to strictly, for "if a man observes them accurately, he shall never assume what is false as true, and will never spend his mental efforts to no purpose".

Rule V: We shall comply with the method exactly if we "reduce involved and obscure propositions step by step to those that are simpler, and then starting with the intuitive apprehension of all those that are absolutely simple, attempt to ascend to the knowledge of all others by precisely similar steps".

Rule VIII: "If in the matters to be examined we come to a step in the series of which our understanding is not sufficiently well able to have an intuitive cognition, we must stop short there".

In a similar way, Descartes formulated four precepts in his *Discourse on Method*, which he believed were perfectly sufficient, "provided I took the firm and unwavering resolution never in a single instance to fail in observing them". These precepts are as follows: "The first was never to accept anything for true which I did not clearly know to be such;... to comprise nothing more in my judgement than what was presented to my mind so clearly and distinctly as to exclude all ground of doubt. The second, to divide each of the difficulties under examination into as many parts as possible, and as might be necessary for its adequate solution. The third, to conduct my thoughts in such order that by commencing with objects the simplest and easiest to know, I might ascend by little and little, and as it were, step by step, to the knowledge of the more complex... And the last, in every case to make enumerations so complete, and reviews so general, that I might be assured that nothing was omitted".

Compared with Bacon, Hobbes, Locke, Hume and Dewey, Descartes puts very little emphasis upon sense experience and experiment in achieving knowledge. How is it that we know the essential qualities, for example, of a piece of wax, Descartes asks. At one time a piece of wax is hard, has a certain shape, colour, size, and fragrance. But when we bring it close to fire its fragrance vanishes, its shape and colour are lost, and its size increases. What remains in the wax that permits us still to know it is wax? "It cannot," says Descartes, "be anything that I observed by means of the senses, since everything in

the field of taste, smell, sight, touch, and hearing is changed, and still the same wax nevertheless remains". It is "nothing but my understanding alone which does conceive it ... solely an inspection by my mind, which enables me to know the true qualities of the wax". And, says Descartes, "what I have said here about the wax can be applied to all other things external to me". He relies for the most part upon the truths contained in the mind. Because we can know these truths, we can be assured of a reliable foundation for our deductions. Descartes was confident that he could start from the beginning and rethink and rebuild all of philosophy by having recourse solely to his own rational powers, and directing them in accordance with his rules. He therefore set out to show that we can have certainty of knowledge not only about mathematical concepts but also about the nature of reality. As in the case of the inductive method in the United States, Descartes' deductive method has also had a lasting impact in French research methodology in general and economic research methodology in France in particular.

In deduction, the following steps are usually followed:

1. Theory or hypothesis
2. Observation
3. Acceptance or rejection of the theory or hypothesis

III. Harmonization of the Research Methodologies in American and French Institutions

In the quest for knowledge, paradigm shift is at the root of innovation, and work within existing paradigms leading or not to a breakthrough is related to human actual concerns. Both are necessary for the improvement of human well being and for understanding the environment. In the paradigm shift, the deductive method is more appropriate because there are hardly previous observations upon which one can rely. For instance, when Leon Walras, a French engineer and economist, developed in the last century the notion of equilibrium in several markets there were no observations he could use to harness his theory. Yet at the end of this century his theory found application in stock markets and exchanges of goods among several countries. In this case, the deductive method showed the way for a better understanding of actual market equilibrium in which an auctioneer is needed. In contrast, in work within existing paradigms or empirical work, the inductive method seems more appropriate because the wheel has already been invented and what remains to be done is to gather observations in order to improve human knowledge and well being by solving the problems at hand.

Since more emphasis is put on inductive research methodology in the United States and on deductive research methodology in French institutions, there should be more training in abstract thinking in American institutions and more training in empirical or case studies in French institutions. This may lead to the harmonization of the use of inductive and deductive methods in both countries.

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