Written Exam for the B.Sc. in Economics summer 2014

Philosophy of Science

Final Exam

6. June 2014

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by "eksamen på dansk" in brackets, you must write your exam paper in Danish.

This exam question consists of 3 pages in total

Please answer the following questions that all refer to the article:

Daniel M. Hausman (1989), Economic Methodology in a Nutshell, Journal of Economic Perspectives, Volume 3, Number 2, Pages 115–127

Question 1:

On page 116 of the article Hausman says:

"*In Mill's view (1836, 1843, bk. 6), a complex subject matter like political economy can only be studied scientifically by means of the deductive method.*"

What does Hausman mean by this? Furthermore, Mill distinguishes between two kinds of scientific methods – a method "a posteriori" and a method "a priori". Please explain what they are and explain which one should be used in economics and why?

Tentative answer: The answer to this question can be found in the lecture slides to the lecture 3 and Chapter 2 of "Boumans, Marcel and Davis, John B. "Economic Methodology - Understanding Economics as a Science"

Possible points that should be included:

- If one investigates situations in which only few/one causal factors might be responsible for the observation of a certain phenomenon, then on should use the method "a posteriori".
- Any experimental investigation is an example for such a situation. E.g. if one wants to test the effect of a certain newly invented medicine on some illness, one creates two experimental treatments that only differ in the fact that in one treatment the medicine was given to participants. The possible causal factor that might explain the difference between the health of participants in the two treatments is reduced to one: the medicine.
- In more complex situations like the analysis of economic phenomena in which many causal factors might be responsible one should use the method "a priori"
- The method a priori is an indirect inductive or deductive method. This method means one first has to:
    - Determine laws governing individual causal factors in domains in which direct method (a posteriori) is applicable (to establish fundamental laws)
    - Having determined laws of individual causes Ξ deductive investigation of combined consequences
    - Finally, there is a role for "verification" of the combined consequences. But, owing to the causal complications, this testing has comparatively little weight.
    - Testing of conclusions serves only as a check on deductions and as an indicator of whether there are significant "disturbing causes" not accounted for
- Economics is a complex and inexact science in which many causal factors are responsible for certain behavioral phenomena. The complexity and inexactness make it necessary to use the deductive (indirect inductive) method "a priori"

Question 2:

On page 117 of the article Hausman quotes Lionel Robbins (1935, p. 121):

"*The propositions of economic theory, like all scientific theory, are obviously deductions from a series of postulates. ... The main postulate of the theory of value is the fact that individuals can arrange their preferences in an order, and in fact do so. The main postulate of the theory of production is the fact that there are [sic] more than one factor of production. The main postulate of the theory of dynamics is the fact that we are not certain regarding future scarcities. These are not postulates the existence of whose counterpart in reality admits of extensive dispute once their nature is fully realized. We do not need controlled experiments to establish their validity: they are so much the stuff of our everyday experience that they have only to be stated to be recognized as obvious.*"

Please explain what a "Logical Positivist" would have responded to the claim made in the above quote that "*we do not need controlled experiments to establish their validity: they are so much the stuff of our everyday experience that they have only to be stated to be recognized as obvious.*"

Tentative answer: The answer to this question can be found in the lecture slides to the lecture 3 and Chapter 2 of "Boumans, Marcel and Davis, John B. "Economic Methodology - Understanding Economics as a Science"

Possible points that should be included:

- The logical positivists postulated that the only types of propositions that are scientific knowledge are analytic statements (i.e. statements that are true by definition) and synthetic statements that are true by the experience of our senses.
- Example: All bachelors are single mails (analytic statement = true by definition); My neighbors dog is aggressive (synthetic a posteriori statement = can be verified by our sense experience)
- So if our economic models and the predictions that they make are only based on postulates that are true by the experience of our senses, than a logical positivist would agree with the above formulation.
- A logical positivist would not be negative towards experimentation in general however. In case a postulate cannot be verified without experimentation, logical positivists would agree to it. So in this sense a logical positivists is in opposition to the generality of the above-made claim that we generally do not need "*controlled experiments to establish their validity".*

Question 3:

In the section "Predictionism" (starting page 119) Hausman discusses Milton Friedman's "Methodology of Positive Economics".

Please explain Milton Friedman's view according to Hausman and explain why Friedman's view is in opposition to John Stuart Mills view.

Tentative answer: The answer to this question can be found in the lecture slides to the lectures 3 and 4 and Chapter 1 of Hausman, Daniel M., "The Philosophy of Economics: An Anthology", 3rd ed. Cambridge: Cambridge University Press, 2007.

The possible points that should be included with regard to the first part of the question emanate from the text itself. Possible points that should be included in the answer of the second part are:

- Milton Friedman proposed that the quality of a theory should be judged on the basis of its predictive quality. For him the validity of the underlying postulates was not important.
- Thus, the testing of predictions/consequences of models is central to Friedman's methodology of positive economics. It is the benchmark which allows us to judge the quality of our models
- Mill, on the other hand, postulated that the testing of predictions/consequences is only of minor value and certainly not the way to distinguish good from bad models.
- Testing of conclusions serves only as a check on deductions and as an indicator of whether there are significant "disturbing causes" not accounted for
- Economics is a complex and inexact science in which many causal factors are responsible for certain behavioral phenomena. The complexity and inexactness make it necessary to use the deductive (indirect inductive) method "a priori"

Question 4:

On page 125 of the article Hausman says: "*The notion of rationality in strategic and uncertain circumstances presents difficult open questions.*"

Please explain how "rationality" is defined in economics. Furthermore describe two behavioral examples from the course which contradict the commonly held view that people are rational decisions makers.

Tentative answer: The answer to the first part of this question can be found in the lecture slides to lectures 2 (Rationality is defined on slide 9 of the lecture)

Possible points that should be included for the second part:

- First: often people do judge the likelihood of uncertain events not according to Bayes rule, but using the "representativeness heuristic". The taxi cap experiment was one example that we used to highlight this point
- Second: we are often influenced by anchors (see the slide 25 of lecture 14 on Neuroeconomics)

Question 5:

Regarding the same quote (see question 4), explain how economists have traditionally analyzed situations of strategic uncertainty (which we also called strategic indeterminacy). Explain the objections to this approach which we discussed in the course and describe an alternative methodological approach taken in the economic literature (i.e. evolutionary game theory)

Tentative answer: The answer to this question can be found in the lecture slides to lecture 9 on Rational Choice and chapter 6 of Kincaid, Harold, and Don Ross, eds. The Oxford handbook of philosophy of economics. Oxford Handbooks Online, 2009.

Possible points that should be included:

- Traditionally economists use Equilibrium concepts like Nash equilibrium to analyze strategic interactions and to formally "handle" the issue of strategic uncertainty.
- An objection to these concepts is that they usually rely on very strong assumptions regarding what people know (i) about the knowledge of other people (common knowledge

of the structure of the game and the payoffs) and (ii) about the rationality of other people (common knowledge of rationality)

- In response evolutionary game theory was developed that does not make these kind of assumptions.
- In evolutionary game theory players do not choose strategies as in “non-cooperative” game theory but players are born with a strategy. They repeatedly interact with each other and it is analyzed which strategies survive many rounds of repetitions.
- Further details which should be included in this answer can be found in the lecture slides and chapter 6.