DEBATES

Are Counterfactuals Necessary to "The Discipline and They"?

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Stephano Fenoaltea recently attacked counterfactual « new economic » history in this journal.[1] He accepted Fogel's dictum that counterfactual studies provided the only test for many historical analyses, and then proceeded to show that most such published tests were invalid. His argument does show they are invalid. It does not show that conterfactuals are the only way to test many historical analyses. We will see there are various alternatives. We will examine Gerschenkron's suggestions, alluded to by Fenoaltea, and show they meet the requirements which "tests" must meet.[2]

Gerschenkron contended, contrary to Fogel and Fenoaltea, that counterfactual tests were not the only way to examine historical interpretations. He offered two alternatives. These were argued in an allegorical bear example. A bear is found dead. The question arises whether he was shot. Someone asserts that indeed the bear died from a shot. How may we test this construction? Gerschenkron claims two alternatives to counterfactuals are open to us. In the first case we look for a bullet hole. In the second we offer a counter-explanation, one which we plan to make more credible. Fogel and Fenoaltea, on the contrary, would take the explanation and construct a counterfactual test in which we assume the bear was not shot and then observe the

1 Stephano Fenoaltea, « The Discipline and They: Notes on Counterfactual Methodology and The "New" Economic History », *The Journal of European Economic History*, Vol. 2, No. 3, Winter, 1973, 729-746.

2 Alexander Gerschenkron suggests some alternatives to counterfactuals in his « The Discipline and I », *The Journal of Economic History*, Vol. 27, No. 4, Dec., 1967, 443-459.

implications of this assertion. Both Fogel and Fenoaltea deny the adequacy of Gerschenkron's tests.

Nevertheless, Fogel, Fenoaltea and Gerschenkron all agree on one point. They all find answers by deducing them from some logical argument. Each begins with a theory or some theories, each adds observations and each deduces conclusions. Those differences we find in their positions depend only upon 1) the variety of inferences they see bearing upon "the questions", and 2) the variety of theories they see bearing upon the problem. We examine each in turn. We shall find Gerschenkron considerably more flexible in his approach. Accordingly he admits more tests of "the question".

These differences are examined using Hempel's analysis of explanations. Because Fogel cites Hempel approvingly we presume he will find the format congenial.[3] All explanations, *including historical interpretations*, are either fully developed deductive arguments, or they are sketches of such arguments.[4] In other words, they all aim to be logical. They only differ in their formality. As logical arguments they all have four parts. There are premises from which each starts (two kinds of premises), proofs and, lastly, conclusions. From two kinds of premises, 1) law-like theories or relations (L's in Hempel) and 2) initial conditions or data statements (C's in Hempel), one moves through 3) the proof (R's in Hempel, for rationalization) to 4) the conclusion (E in Hempel, for explanations or inference).

Interpretations and explanations are formed by finding appropriate law-like statements, determining initial conditions and arguing from them. Various arguments are possible. We may use the apparatus of symbolic logic, the theorems of calculus or we may simply designate our arguments using such terms as *a fortiori, mutatis mutandis, reductio ad absurdum, modus tollens* or *modus ponens*, for example. Each argument cited above is an accepted form, existent in ancient times and embodied in modern logics.

Now all three, Fogel, Fenoaltea and Gerschenkron, are interested in determining whether some conclusion (4 above) is sound. Fogel and Fenoaltea each say we can test a conclusion only by reproducing the L's, C's (excepting we now make one C a counterfactual) of the historians, and that we develop

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[3] For instance Fogel begins his *Railroads and American Economic Growth*, (Johns Hopkins University Press, 1964) with a quotation from Hempel. The quotation appears at the heading to Chapter I and it is reproduced in its entirety below.

> In history as anywhere else in empirical science, the explanation of a phenomenon consists in subsuming it under general empirical Laws; and the criterion of its soundness is not whether it appeals to our imagination, whether it is presented in suggestive analogies, or is otherwise made to appear plausible — all this may occur in pseudo-explanations as well — but exclusively whether it rests on empirically well confirmed assumptions concerning initial conditions and general laws.

[4] See, for example, CARL G. HEMPEL, « The Function of General Laws in History », *Theories of History*, edited by Patrick Gardiner (The Free Press, New York, 1959), 344-355.

our own R's to determine whether the historian's E's are valid. Gerschenkron simply says we wish to know if we can believe the E.

Gerschenkron proposes we determine the credibility of E using a *modus tollens* argument. Simply put, we accept the conclusion, some E, and deduce consequences from it. If these consequences are contradicted by observation, then he concludes the premise from which he began (the E) is false. Using his bear analogy, he argues from theories (L's, biology, ballistics and the like) and from our initial conditions (there is a dead bear, someone asserts the bear was shot and dies from the shot) to certain conclusions. One obvious conclusion is there must be a bullet hole. We examine the bear. If we find no bullet hole, we expand our aurgument using *modus tollens. Modus tollens* tells us if the inference is false, then either 1) our theories were false, or 2) some data statement or statements are wrong. If we strongly believe our theory, then we conclude some data statement was wrong. In the present case, we claim it is false the bear was shot.

Why Fogel and Fenoaltea do not accept the legitimacy of what amounts to a standard null hypothesis test is difficult to understand. It is a form of argument used at least from the time of St. Augustine and one which if not certain is at least well known. Fogel tells us we cannot use it, *but why not*? Fenoaltea tells us this amounts to assuming the problem away. To me it looks more like solving it using common logic.

Not content with having produced one counter-example to Fogel's dictum prescribing counterfactuals, Gerschenkron produces another. Again he uses a very familiar argument. He simply attacks the problem using an alternative theory (different L's). Fenoaltea, of course, counterposes Marxist to bourgeoise economic thought.[5] Hence he seems willing to admit the conditional credibility of alternative theories and so could not object to this test. Having produced an alternative set of L's (knowledge of biology, electricity, meteorology) and statements of initial conditions (there is a dead bear, someone asserts there could have been lightning) Gerschenkron produces conclusions. The bear was killed by lightning. This explains the bear's death. If the new L's are as or more believable than the original set, and if other inferences from the argument accord with observation (there is a burn on the bear's shoulder and burns on the soles of his feet) then we have produced an explanation as or more credible than the bear-shot inference. And we accept the more believable inference in preference to the less believable, whichever that may be.

As I have argued elsewhere this is an entirely credible test.[6] It is commonly used. We test an explanation by seeing if it is consistent with

[5] Stephano Fenoaltea, « The Discipline and They », 743-746 *passim* in his discussion of British-German relationships.

[6] David J. Loschky, « What's Happening in The New Economic History », in *The Journal of European Economic History*, vol. 3, n. 3, Winter 1974, pp. 747-758.

other well-known and accepted theories. Or we test one theory against another as did Friedman and Meiselman.[7] We test theory against theory as did Copernicus. Each of these slightly different uses of theory against theory in a test is well-established and accepted. Certainly Chicago will get hot if Fogel denys the value of Friedman's test.

We conclude Gerschenkron has offered us two completely acceptable alternatives to counterfactual tests. Neither produces a grandiose counterfactual exercise. But this is to their credit.[8] Neither has the form of Fogel's railroad study, but Fenoaltea argues that is to their credit. Neither of Gerschenkron's alternatives determines whether railroads were sufficient to produce growth, but they certainly do test an axiom of indispensability, and that goes also to the heart of Fogel's question, and hence to their credit. Contrary to Fogel and Fenoaltea, they do test propositions. And, contrary to Fenoaltea, neither test begs the question according to any common understanding of the term begging-the-question.

Still, these obvious answers to both Fogel and Fenoaltea may not do justice to their positions. Are there hidden reasons supporting them? As they are not explicit the question is difficult to answer. Yet there are clues in Fogel suggesting his rationale, and we now turn to them.

Fogel frequently cites Hempel with approval. Moreover, his research follows Hempel's outline for what is to be done. And his attacks upon historians for weak specification and implicit theorizing all smack of Hempel-at-work. Hempel's position is outlined above. Every explanation is either an explicit deductive enterprise or it is a sketch of such an endeavour. If it is simply a sketch then when we "fill in" the weakly specified, implicit theories, we can check the sketch to see if the argument is valid. These are the counterfactual tests Fogel would have us perform. This is Fogel's programme. We should use our economic theories to fill out these sketches. We see if the historian's sketch is correct by checking it against a logically rigorous counterfactual test.

This explication of counterfactual tests accounts for Fogel's failure to see the possibility of Gerschenkron's second test. For if we wish to check the historian's sketch to see *if his implicit theories could lead to his conclusions,*

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7 Milton Friedman and D. Meiselman, « The Relative Stability of Monetary Velocity and the Investment Multiplier in the United States, 1897-1958 », *Stabilization Policies*, by E.C. Brown, *et. al.*, a Series of Research Studies Prepared for the Commission on Money and Credit, Englewood Cliffs, N.J., 1963.

8 See J.D. Gould, « Hypothetical History », *The Economic History Review*, SS, Vol. 22, No. 2, Aug., 1969, 195-207 and David J. Loschky, « Counterfactuals in Logically Formed Economic Analyses », *The Journal of European Economic History*, Vol. 2, No. 2, Fall, 1973, 421-437 for examinations of the extreme difficulties inherent in counterfactual exercises. These difficulties arise in part due to problems with keeping the analysis consistent. Additionally there are serious difficulties with ordinary logics for they patently are unable to cope satisfactorily with counterfactual arguments.

then there is no alternative to using his now explicitly stated theories. *But* if we simply want to see whether reasonable men would agree the bear died from a shot (would agree railroads were important to U.S. growth; would agree the Navigation Acts led to the U.S. Revolution), then we are not restricted to the historian's implicit, weakly specified theories (L's). We can use *any* theory we find credible. Hence tests need not be Fogel's counterfactuals.

And why do they not accept Gerschenkron's first non-counterfactual test? Fogel's and Fenoaltea's insistence upon scientific experimentation explains the oversight. "Scientists" experiment. They determine whether A caused B by repeating an experiment in which they keep A from happening. As Fenoaltea points out, if A is a necessary condition for B's occurrence, then if no A, then no B. So adopting this scientific approach, we employ counterfactuals. We experiment using non-A (no railroads) to test historians' conclusions.

It is easy to see how this notion of a truly "scientific" approach to history could lead to counterfactual studies. It is easy to see how one could lean upon them to the neglect of other equally satisfactory tests. It is also easy to see that a) this is an unsound and unduly restrictive view of what it means to test scientifically, and b) the overly hasty generalization of this unduly restrictive "scientific" view to economic history was unwarranted.

I conclude there are no substantial grounds for the claims that 1) we can only test historical interpretations using counterfactuals, and 2) Gerschenkron's use of *modus tollens* is unsound, and 3) Gerschenkron's use of alternative theories is unacceptable.[9] Lastly, because of the extreme difficulty in constructing sound, internally consistent counterfactual tests,[10] I conclude Fogel's test is quite inferior to the two proposed by Gerschenkron.

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[9] For analysis of the role of alternative theories in counterfactual exercises see RAYMOND DACY, « The Role of Economic Theory In Counterfactual Exercises », forthcoming in *Philosophy and Phenomenological Research*.

[10] I refer to those difficulties mentioned in footnote 8 above.