Introduction to Economics 450/850

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Spring 2002

Over the past 40 years the "new economic history" has become well established. It began with Conrad and Meyer's 1958 article on slavery which, it is said, developed from a slightly inebriated, belligerent discussion with an historian. Gradual evolution produced development of new approaches to transportation, the growth of manufacturing, and the effects of government policy -- tariffs, land policy, urbanization, and the like. Now, for all practical purposes, any topic in history is seen as fair game for the once "new" approach.
What is the new economic history? Basically it is the application of economic theory to historical problems. This often means a formal (and mathematical) treatment of the subject. Although no grand theory of economic evolution has emerged, many traditional historical positions have been reversed or attenuated -- or at worst opened to new interpretation and evaluation.

For example, until the new economic history, the theory of manufacturing was explained almost exclusively in the context of supply -- new inventions, great men, and new machines. Quantitative economic historians ("Cliometricians" after Clio the Muse of history) have introduced demand into these traditional frameworks and partitioned increases in output and prices into those due to changes in supply and those arising from changes in demand.

Equally dramatic has been the reversal of the traditional analysis of slavery in the United States. Traditional analysis cast slavery as moribund, and at the time of the Civil War, it was said to be in the process of dying of its own accord.[1] Modern interpretations based on simple price theory suggest nothing could be further from the truth.

Among the aspects of the new work that have been developed are (i) better measures of economic activity; (a) extension of various economic measures such as GNP into the past; (b) economic paleontology, the construction of new data series. (ii) The use of mathematics in historical analysis. (iii) The analysis of events by measuring things that cannot be directly observed, counterfactual history. (iv) Embedded in all of this discussion is the assumption, the presupposition, that we stand on a common core of economic theory that can usefully describe historical circumstance.

Economic Measure

[1] Many of these analyses can be seen as apologies. They suggest that the Civil War was not necessary to remove slavery from the United States, and consequently the North was in the wrong to fight the South in the bloodiest fight in US history.

The extent of data development and evaluation is one of the major features of much of the new economic history. New economic historians have no monopoly on the collection and collation of historical data. But insofar as they share certain underlying assumptions about the relevance of data to hypothesis testing and the like, much more of what data are gathered is done in a manner so as aid in discriminating (efficiently) among various alternative theoretical hypotheses.

A counterfactual might be illustrated by the proposition that had canals been built instead of the railroads during the l9th century in the United States, national income would have been only slightly different by the start of the 20th century. This is a counterfactual Insofar as railroads were built and canals were not extended during the l9th century.

The Use of Mathematics

There is no doubt that by using mathematics the study of history has become less elegant -- from the qualitative historian's perspective. But (new) economic historians argue (a) they are merely making explicit what has been implicit, and (b) the use of more formal techniques may aid in deriving additional implications of implicit theoretical constructions.
For example, suppose we observe the output of pig Iron increasing from 347 in 1840 to 821 in 1860. If we want to describe the iron industry, its good times and bad, then by plotting a simple trend line, traditional historians are justified in asserting that as pig Iron production was below trend in 1860, this was a poor time for the iron industry. 3

But what precisely is being asserted. In effect, historians are arguing for a proportional relationship between pig Iron production and all iron product production: Q=kP, where P is pig production and -- Q all output. As economists, and economic historians, we should be immediately suspicious of such a rigid relationship as it rules out any substitution with other inputs that we would suspect must participate in overall iron output. Further, even if we were to accept proportionality between pig and all iron, a simple respecification lnq=a+pt turns out to have a better "fit" to the data available, and reverses the conclusion that 1860 was a bad year for total output. Thus inferences based on a simple linear model, however expressed and implicit, may not be the most appropriate interpretation of the evidence either theoretical or empirically.

A second example can be drawn from one of the most famous analyses of slavery by the historian U.B. Phillips. Phillips argued that slavery was an unprofitable institution in the South prior to the U.S. Civil War (1860-65) based on the changing returns associated with slave ownership. Yield he calculated in the following way.

Let ρ be the return to slaves where

1 . $\hat{\rho} = k(\hat{p}_c - \hat{p}_s)$

and p_c is the price of cotton and p_s is the price of slaves, and a "^' over a variable means the percentage change so that x=dlnx=(dx/x). In effect Phillips was comparing the price of the principle product, cotton, to the price of the slave. His comparison was to observe that the price of slaves had increased relative to the price of cotton and thus, he maintained, slavery was unprofitable near the start of the Civil War.

Now in general the price of an asset, in this case the slave, is related to the present value of net earnings:

2. $$p_s = \frac{A}{i}\left(1 - \frac{1}{(1+i)^n}\right)$$

where n is the relevant lifetime of the slave, A are the net earnings per period, and the i and bracketed expression are the relevant discounting. Since Phillips, too, refers to this formula, where can modern cliometricians improve on his approach?

Consider the implications of the model if the production function in which slaves are employed is Cobb-Douglas. A is the net per period flow from the slave earnings, then

3. $$A = \alpha p_c\left(\frac{Q}{L}\right) - M$$

where $\alpha p_c\left(\frac{Q}{L}\right)$ is the value of the marginal product of labour in producing cotton, and M refers to maintenance costs. In this case the appropriate formulation for the change in the rate of return to slave, ρ, becomes

4. $$\hat{\rho} = k\left[(\phi p_c - p_s) + \phi(\hat{Q} - \hat{L})\right] + (1-\phi)\hat{M}$$

where ϕ is the gross income earned relative to net income (expropriated), (A+M)/A. Thus Phillips' formula is correct only if ϕ=1 and $(\hat{Q} - \hat{L}) = 0$. For ϕ=1 is to say that maintenance of slaves had a zero value -- true starvation, or 100% exploitation. Further, labour productivity growth, $(\hat{Q} - \hat{L})$, was almost 2.9% per year, so Phillips' erred here as well.

A third example where modern tools have helped shaped our understanding of significant historical issues can also be drawn from the period of American slavery. Until recently, the prevailing interpretation of slavery insisted that Southern agriculture was less efficient than agriculture in the North in the decades prior to the Civil War. Many reasons have been suggested. The institution of slavery sapped the entrepreneurial will. Slaves were

inferior workers because they were inherently inferior to white labour. Slaves were inferior workers because they were forced labour. Slavery demoralized free white labourers in the South, etc. These are but a few.

Fogel and Engerman (1971) tried to provide evidence for the lesser efficiency and ended by turning the issue upside down. To measure relative efficiency, they chose to represent output by a production function of the form:

5. $$Q = AK^{\alpha}L^{\beta}T^{\gamma}$$

where Q is an index of output, K, an index of the capital stock, L, an index of labour, and T, an index of land under cultivation.

In such a framework, A can be thought of as an index of total factor productivity as it represents output per (geometrically weighted) unit of inputs:

6. $$A = \frac{Q}{K^{\alpha}L^{\beta}T^{\gamma}}.$$

Relative efficiency can be expressed as a ratio of Southern to Northern agricultural outputs and Inputs. Using weights based on input shares, Fogel and Engerman structure the tests so as to compare the relative efficiency in 1860:

7. $$\frac{A_s}{A_n} = \frac{\frac{Q_s}{Q_n}}{\left[\left(\frac{K_s}{K_n}\right)^{\alpha}\left(\frac{L_s}{L_n}\right)^{\beta}\left(\frac{T_s}{T_n}\right)^{\gamma}\right]} = \frac{112.9}{(53.4)^{0.2}(120.7)^{0.6}(125.7)^{0.2}} = 109.2$$

These were astonishing findings. Correcting for land use, crop mix, population mix, and a wide variety of other problems led to various adjustments, but none pointed to a qualitatively different result.

Southern slave agriculture appears to have been more efficient than Northern agriculture of the same period. One hundred years of historical debate and apology have had to be revised. With the gradual accumulation of evidence through the plantation samples, this result has given birth to a major research effort aimed at revising our understanding of U.S. agricultural history.

The Counterfactual

The counterfactual in economic history had a most contentious start. Traditional historians and many philosophers of science did not like analysis that said, in effect, "If Napoleon is a great man, then the partial derivative of whatever endogenous variable you like with respect to Napoleon is large!" But counterfactual history allowed Fogel to evaluate the traditional contention that the railroads were indispensable to American economic growth by constructing an alternative reality in which canals, not railroads spread across the continent. This exercise was applied economics in use every day in "What if?" scenarios. The methodology was that common to economists. A model is set down that purports to describe the event. For example, we estimate a demand schedule. Then parameters of the demand schedule are manipulated to analyze various possible alternatives.

Arguments against this methodology claim that since there is only one historical record, to discuss what might have been makes no sense. Therefore the counterfactual is bogus and irrelevant. And indeed, if that is indeed the case -- the inevitability of the given outcome -- pushed to the extreme, all history is a mere chronology of recorded events. To evaluate inevitably implies comparison with alternatives. If Napoleon is great, then the effects of his acts are large relative to those of others. If tariffs caused an industry to grow, then in a world without tariffs, the industry should grow less…*ceteris paribus*. And it is this last caveat that sticks in the craw of so many noneconomists. The partial derivatives with which our systems abound are in some manner "not realistic" and thus are not valid approaches to the historical record.[2]

Of course economists have their answers to these kinds of challenges, ones that are taught in every economics course from the first year to the last. For the present, however, the debate is essentially over. Counterfactual history is part of the record and is as common in traditional history as it is in economics. But recognition of this "fact" came slow and hard.

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[2] There is another more difficult issue raised by the physicist Prigogine and others. They argue that history has to be studied in the context of non-integrable equations. These equations have solutions that depend on the entire path of the system.