

### Cliometrics or the Quantitative Projection of Social Sciences in the Past

*Claude Diebolt\**

**Abstract:** The objective of this paper is quite modest: to outline some of the new devices being employed, at an international level, in cliometrics – the use of economic theory in general and model building in particular, the reliance upon quantification to buttress those models with historical data, the use of the historical discourse, and the use of statistical theory and econometrics to combine models with data in a single consistent explanation. The cliometric models are powerful in part because of their internal consistency, in part because, combined with statistical and econometric techniques, they can assure consistency between available data (quantification) and the causal assertions embedded in the model, in part because they may facilitate the derivation of conclusions not intuitively obvious from the outset (counterfactual speculation).

The New Economic History (a term proposed by Jonathan Hughes) or Cliometrics (coined by Stanley Reiter), meaning literally the *measurement of history*, is of very recent origin. The first to claim involvement in it were Conrad & Meyer in 1957 and 1958<sup>1</sup>.

---

\* Address all communications to: Claude Diebolt, Bureau d'Economie Théorique et Appliquée (BETA/CNRS, UMR 7522), Université Louis Pasteur de Strasbourg, Faculté des Sciences Economiques et de Gestion, 61 Avenue de la Forêt Noire, 67085 Strasbourg Cedex, France; e-mail: [cdiebolt@cournot.u-strasbg.fr](mailto:cdiebolt@cournot.u-strasbg.fr); <http://www.cliometrie.org> BETA/CNRS.

<sup>1</sup> The step was taken in 1958 with the publication of the famous article on the profitability of slavery. This called into question the commonly accepted interpretation of slavery in the United States. Academics had hitherto held that slavery was an irrational institution with no links with the economy and that was already collapsing because of its own weight before the 1861-1865 Civil War. They mentioned in particular the increase in the cost of slaves for

The birth of cliometrics amounts to a revolution, a total break with traditional economic history. Whether this is true or not, is doubtless of little importance today. As eminent a defender of the new school as Robert Fogel<sup>2</sup> perceives a clear continuity between old and new economic history. What is certain is that economic history has awarded an increasingly important position to theory since the end of the 1950s. It also used increasingly rigorous statistical and econometric analysis for the simple reason that a fair number of the problems that remain unsolved in economic history are such that the only intellectually satisfactory answers are quantitative by definition.

Cliometrics does not concern economic history in the limited, technical meaning of the term. It modifies historical research in general. It represents the quantitative projection of social sciences in the past. For example, the question of knowing whether slavery benefited or not the United States before the Civil War or whether the railways had substantial effects on the development of the US economy<sup>3</sup> is as important for general history as for economic history and will necessarily weigh on any interpretation or appraisal (anthropological, legal, political, sociological, psychological, etc.) of the course of American history.

Furthermore, cliometrics challenges one of the basic hypotheses of the idealistic school that consists of holding that history can never provide scientific proof as it is never possible to subject to experiment historical events that are by definition unique. It replies that on the contrary, it is possible—at least in suitable cases—to construct a fictitious (contra-factual) situation that can be used to measure the deviation between what actually happened and what could have happened under different circumstances. This methodological principle, that is to say the measurement of the influence of a factor on a development by using the difference between the development actually observed and the hypothetical development that would have been observed if the factor in question had not existed, is perhaps, along with the historical econometrics of time se-

---

the southern planters. Conrad and Meyer first of all demonstrated that previous writing has underestimated the importance of the direct quantitative evidence that show that in fact that the plantations using slaves were profitable. They then stressed the fact that the economic theory showed that the rise in the price of slaves did not reflect the collapse of an unprofitable system but rather the increased profits that planters hoped to earn from their capital. Far from collapsing, the economy based on slavery was growing strongly.

<sup>2</sup> Winner of the Nobel Prize for Economics in 1993, with Douglass North, “for having renewed research in economic history by applying economic theory and quantitative methods in order to explain economic and institutional change”.

<sup>3</sup> Fogel called into question the commonly accepted interpretation of economic growth in the United States at the end of the nineteenth century. It had previously been claimed that the railways had been the determinant factor as they had opened up new territories and provided large scope for investment. Fogel contested this and developed a complex statistical model showing what the US economy would have been like in 1890 without the railways. He reached the conclusion that the national income would have been 5 percent less at the worst. Far from being indispensable, the railways were a secondary factor in the overall growth process in the US.

ries analysis<sup>4</sup>, the most important contribution of cliometrics for researchers in social science in general and historians in particular.

Fogel defined the methodological features of cliometrics. He considers it fundamental that cliometrics should lay stress on measurements and that it should recognize the existence of close links between measurement and theory. There is no doubt that the distinguishing feature of the new school is the second characteristic and not the first. Indeed, unless it is accompanied by statistical and/or econometric processing and systematic quantitative analysis, measurement is just another form of narrative history. It is true that it replaces words by figures but it does not bring in any new factors. In contrast, cliometrics is innovative when it is used to attempt to formulate all the explanations of past economic development in terms of valid hypothetico-deductive models. In other words, the essential characteristic of cliometrics is the use of these hypothetico-deductive models that call on the closest econometric techniques with the aim of establishing the interaction between variables in a given situation in mathematical form. This generally consists of constructing a model—of general or partial equilibrium—that represents the various components of the economic evolution in question and showing the way in which they interact. Williamson's general equilibrium model (1974) is a key reference here. Correlations and/or causalities can thus be established to measure the relative importance of each over a given period of time.

So far, hypothetico-deductive models have mainly been used to determine the effects of innovations, institutions and industrial processes on growth and economic development. As there are no records saying what would have happened if the innovations in question had not occurred or if the factors involved had not been present, this can only be found out by drawing up a hypothetical model used for deducing a fictitious situation, that is to say the situation as it would have been in the absence of the circumstances in question. It is true that the use of propositions contrasting with the facts is not new in itself. Such propositions are implicitly involved in a whole series of judgements, some economic and others not. What would have happened, for example, if there had been opposition to Hitler's remilitarization of the Rhineland in 1936.

The use of propositions contrary to the facts has not escaped criticism. Many scientists still consider today that the use of hypotheses that cannot be verified does not produce history but quasi-history. Furthermore, the results obtained by the most elaborate cliometric applications have been less decisive than many cliometrics specialists had hoped for. Critics are doubtless right to conclude that economic analysis in itself, with the use of econometric tools, is unable to provide causal explanations for the process and structure of change and development. There appear to be non-systematic breaks in normal economic life (wars, bad harvests, collective hysteria during stock market crashes, etc.) that

---

<sup>4</sup> Cf. Darné & Diebolt (2004).

require overall analysis but that are too frequently considered as extrinsic and abandoned to the benefit of an *a priori* formulation of theoretical suppositions.

Nevertheless, in spite of the disappointments resulting from some of its more extreme demonstrations, cliometrics also has its successes, together with continuous theoretical progress. The risk would obviously be that of allowing economic theory to neglect a whole body of empirical documentation that can enrich our knowledge of the reality of economic life. Conversely, theory can help to bring out certain constants and only mastery of theory makes it possible to distinguish between the regular and the irregular, between the foreseeable and the unforeseeable.

At the present stage, the main achievement of cliometrics has been to slowly but surely establish a solid set of economic analyses of historical evolution by means of measurement and theory. Nothing can now replace rigorous statistical and econometric analysis based on systematically ordered data. Impressionistic judgements supported by doubtful figures and fallacious methods and whose inadequacies are padded by subjective impressions have now lost all credit with serious, honest scientists. Economic history in particular should cease to be a story illustrating with facts the material life during different periods and become a systematic attempt to provide answers to specific questions. By extension, the more the quest for facts is dominated by the conception of the problems, the more research work will address what forms the true function of economic history in the social sciences. This change of intellectual orientation, of cliometric reformulation can thus reach associated disciplines (law, sociology, political science, geography, etc.) and engender similar changes. Indeed, the most vigorous new trend in the social sciences is without a doubt the preoccupation with quantitative and theoretical aspects. It is the feature that best distinguishes the concepts of our decade from those current from after World War 2 until the 1980s. Everybody is ready to agree to this—even the most literary of our colleagues. There is nothing surprising about this interest. One of the characteristic features of today's younger generation is most certainly that its intellectual training is much more deeply marked by science and the scientific spirit than that of the generations that preceded us. It is therefore not surprising that young scientists should have lost patience with regard to the tentative approach of traditional historiography and have sought to build their work on foundations that are less artisanal.

The social sciences are thus becoming much more elaborate in the technical respect and it is difficult to believe that a reversal of the trend might occur. However, it is clear that many colleagues—perhaps the majority—have not yet accepted the new trends aimed at using more elaborate methodology and clear concepts conforming to new norms in order to develop a truly scientific social science.

## References

- CONRAD A., MEYER J.: "Economic Theory, Statistical Inference and Economic History", *Journal of Economic History*, 17, 1957, pp. 524-544.
- CONRAD A., MEYER, J.: "The Economics of Slavery in the Ante Bellum South", *Journal of Political Economy*, 66, 1958, pp. 95-130.
- CRAFTS N.: "Cliometrics, 1971-1986: A Survey", *Journal of Applied Econometrics*, 2, 1987, pp. 171-192.
- DARNÉ O., DIEBOLT C.: "Unit Roots and Infrequent Large Shocks: New International Evidence on Output", *Journal of Monetary Economics*, 51, 2004, pp. 1449-1465.
- DEMEULEMEESTER J.-L., DIEBOLT C.: "How Much Could Economics Gain from History: The Contribution of Cliometrics", *Cliometrica*, 1, 2007, in press.
- DIEBOLT C.: "New Light in Cliometrics", *Historical Social Research*, 26, 2001, pp. 219-221.
- DIEBOLT C.: "The Cliometric Framework", *Historical Social Research*, 26, 2001, pp. 250-254.
- FOGEL R.: "The Reunification of Economic History with Economic Theory", *American Economic Review*, 55, 1965, pp. 92-98.
- FOGEL R.: *Railroads and American Economic Growth: Essays in Econometric History*, The Johns Hopkins University Press, Baltimore, 1964.
- FOGEL R.: "Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes on the Making of Economic Policy", *American Economic Review*, 84, 1994, pp. 369-395.
- GOLDIN C.: "Cliometrics and the Nobel", *Journal of Economic Perspectives*, 9, 1995, pp. 191-208.
- MCCLOSKEY D.: "Does the Past Have Useful Economics?", *Journal of Economic Literature*, 14, 1976, pp. 434-461.
- MCCLOSKEY D.: *Econometric History*, Macmillan, London, 1987.
- MEYER J.: "Notes on Cliometrics' Fortieth", *American Economic Review*, 87, 1997, pp. 409-411.
- NORTH D.: "Economic Performance Through Time", *American Economic Review*, 84, 1994, pp. 359-368.
- TEMIN P. (Ed.): *New Economic History*, Penguin Books Ltd, Harmondsworth, 1973.
- WILLIAMSON J.: *Late Nineteenth-Century American Development: A General Equilibrium History*, Cambridge University Press, London, 1974.
- WRIGHT G.: "Econometric Studies of History", in: INTRILIGATOR M. (Ed.): *Frontiers of Quantitative Economics*, North-Holland, Amsterdam, 1971, pp. 412-459.