

HOW CLIOMETRICS HAS INFILTRATED ECONOMICS –  
AND HELPED TO IMPROVE THE DISCIPLINE

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ABSTRACT

Fenoaltea (2019) argues that cliometricians have failed as economists, historians, and economic historians. His argument is based on what he sees as a failure to appreciate the fine art of data gathering and what he perceives to be the lax attitude towards measurement. He embodies these complaints in the history of the creation of national income statistics, and the unforgivable sin of economic historians who attempt to take those measurements backward in time. He concludes his polemic with his dream, that “cliometricians can take history and the humanities as seriously as we take economics, and lead us to the promised land.” (2019: 12) We are unsure of exactly what the “promised land” might be, but argue that any recent issue of *Cliometrica*, and any article in the *Handbook of Cliometrics* will provide ample evidence that cliometrics is alive and well, takes both history and economics very seriously, and does so with a careful and critical eye toward context (clio) and measurement (metrics). Herewith we defend the accomplishments and current robust health of cliometrics.

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INTRODUCTION

Stefano Fenoaltea is neither the first (prominent earlier critics include Aitken 1960, Redlich 1965, and Hacker 1966, among others), nor the most

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damning critic of cliometrics (see Solow 1985 and Boldizzoni 2011). Nor is he the first (see North 1965), nor even the most prominent member of Clio's own tribe to highlight its deficiencies (Hughes 1966, Davis 1968, McCloskey 1985, and Parker 1986). And he is not the first economic historian (as soon as there was economic history, there were detractors, including Marshall 1897 and Veblen 1901), nor the most persistent to bemoan the fate of the discipline (Norman Gras 1920, 1931, 1962, was both consistent and persistent).

Fenoaltea (2019) argues that cliometricians have failed as economists, historians, and economic historians. His argument is based on what he sees as a failure to appreciate the fine art of data gathering and what he perceives to be the lax attitude towards measurement. He embodies these complaints in the history of the creation of national income statistics, and the unforgivable sin of economic historians who attempt to take those measurements backward in time. He concludes his polemic with his dream, that "cliometricians can take history and the humanities as seriously as we take economics, and lead us to the promised land" (2019: 12). We are unsure of exactly what the "promised land" might be, but argue that any recent issue of *Cliometrica*, and any article in the *Handbook of Cliometrics* will provide ample evidence that cliometrics is alive and well, takes both history and economics very seriously, and does so with a careful and critical eye toward context (clio) and measurement (metrics). Herewith we defend the accomplishments and current robust health of cliometrics.

#### WHAT IS A CLIOMETRICIAN?

The skills of a cliometrician include, and indeed require, those of both the economist and the historian. Indeed, they are the skills of any good economic historian. Long ago, Sir William Ashley, the world's first chaired professor of economic history, stated that he did "not approve of Economic History courses quite unaccompanied by any Economic Theory" (1927: 7). Fourteen years later, and still well before the dawning of cliometrics, Edwin Gay (1941), in his inaugural presidential address to the Economic History Association, preached that economic historians needed to wed the skills of economists with those of historians in order to accomplish their task. He believed such a union was essential, but difficult to accomplish.

Economic history is a subset of history. Both economists and historians are trying to tell plausible stories about the past, and they succeed or fail by narrative standards to connect one event to another. In the late 1950s the cliometric movement transformed the study of economic history from a narrative to a mathematical format. In the process, cliometricians have con-

tributed to the development of both economics and history by combining theory with quantitative methods, constructing and revising databases, and adding the variable of time to traditional economic theories. This has made it possible to question and reassess earlier findings, thus expanding the frontier of our knowledge of the past and its ability to portend the future. The use of history as a crucible to examine economic theory has deepened our knowledge of how, why and when economic growth and development occurs.

The main achievements of cliometricians have been to slowly but surely establish a solid set of economic analyses of historical evolution by means of measurement and theory, and, following the path blazed by Douglass North, to recognize the limits of neoclassical theory and bring into economic models the important role of institutions. Nothing can now replace rigorous statistical and econometric analysis based on systematically ordered data.

#### THE MAJOR CONTRIBUTIONS OF CLIOMETRICS

Cliometricians make use of the whole gamut of economic theory and statistical models, and the measurements they have obtained have yielded considerably more precise information than previously available. The perfect, and earliest, example of this was Fogel's railroad studies (1962, 1964). In general, the contributions of cliometrics can be placed into four categories: new techniques, new data sets, revisions of previously held beliefs, and new approaches.

#### NEW TECHNIQUES

Technique is what likely first comes to mind when one hears the term cliometrics. Certainly, the advancement of econometric theory and computing power have contributed greatly to the techniques used by cliometricians. However, technique goes beyond the latest advances of mathematical sophistication. One of the earliest techniques used by cliometricians was the counterfactual, made famous (but not created) by Robert Fogel's work on the railroads.

The counterfactual is still a useful tool. Vasta, *et al.* (2017) provide a recent implementation of the counterfactual. They combine it with a large data set of more than 300,000 directors of Italian joint-stock companies. Their counterfactual models what would have happened to the Italian corporate network in the two decades before WWII had there been no German-type universal banks.

Among the newer techniques popularized by cliometricians are age heaping models and the use of church book registries. Age heaping can be applied to approximate the basic numerical skills and hence basic education of a population, and its impact on a variety of variables, including the impact of numeracy on long-run growth (Acemoglu, *et al.* 2001, 2002), the role of religion in human capital formation (Becker and Woessmann 2009), basic educational attainment across a wide variety of countries and time periods (Mokyr 1983, Ó Gráda 2006, Budd and Guinnane 1991), gender inequalities (De Moor and Van Zanden 2010, Manzel and Baten 2009), and labor market outcomes (Charette and Meng 1998). Tollnek and Baten (2016) provide an exhaustive overview of age-heaping models and their applications. Church book registries have been used to study a wide range of demographic issues, none bigger than the question of why some countries are rich and others are poor (Weisdorf 2016).

#### COMPILATION OF DATA SETS

It is the lack of relevant data more than the lack of relevant theory that is often the greater problem in historical research. In this way, cliometricians have made some of the greatest contributions to the fields of economics and history by discovering and compiling new data sets that have been, and will continue to be, used by future researchers to better understand the evolution and growth of economies over time.

The accumulation of the data is in itself monumental in many respects, but its usefulness has been expanded by the rapid growth of computing power. The ability to handle “big data” is not a cliometric issue by itself, but the construction of significant, important historical data sets, which can then be analyzed using cutting edge econometric techniques with the latest software programs, is very much a contribution of cliometrics. In 2018 the Economic History Association began to formally recognize the importance of data set contributions with annual awards for their creation, compilation, and sharing.

The marriage of cliometrics and big data is a natural one, and has been exploited by economic historians in new and creative ways. The work of James Feigenbaum (2015) is one recent example. He uses new automated linking methods to manage mammoth volumes of census data. In less obvious ways, large-scale qualitative databases are now being used to analyze text (Gentzkow, *et al.* 2014, Wehrheim 2019), and GIS mapping allows geographic data to be quantified (Atack 2019). On a broader level is the Integrated Public Use Microdata Series (IPUMS), which provides census and survey data from around the globe in easy to use formats for a broad

range of research on economic, social, and health research topics. IPUMS USA collects, preserves, and harmonizes U.S. census microdata and provides easy and free access to the data, which includes all available census data and 21<sup>st</sup> century American Community Surveys.

The collection of data has been stored at sites such as EH.net, MeasuringWorth.com and by the Global Price and Income History Group, just to name a few. EH.net hosts a large and growing variety of databases, including the historical labor statistics project series, a collection of detailed data on American labor markets; the U.S. Government Bond Trading Database, which describes a large data set of US government bond trades; rates of return to UK home and overseas investments; Confederate note prices; developing country export statistics; U.S. securities prices, U.S. customs house data, national bank notes, U.S. public debt, French wheat prices in the 19<sup>th</sup> century, and 17<sup>th</sup> and 18<sup>th</sup> century New England probate samples. The Global Price and Income History Group has gathered vast quantities of data on prices and incomes for the period prior to 1950 from around the world. MeasuringWorth.com includes series for wages, price indices, daily closing values of the Dow Jones since 1885, interest rates, and exchange rates. And this is only a partial list.

## REVISIONS

Revisionist history is not a complimentary term, but the revision of misunderstandings in history is certainly both important and necessary, not just for the reason of setting the record straight, but also for shedding light on the determinants of economic growth. Developing a clear understanding of the causes of economic growth is among the most important tasks of economic historians. Cliometrics has overturned some accepted wisdoms and in the process created its fair share of controversy. However, they have also pushed forward the frontier of our understanding of economic growth and development.

Among the notable “revisions” made by the first generation of cliometricians were the findings of Conrad and Meyer (1958), Yasuba (1961) and Sutch (1965), who used capital theory models to determine that slavery was indeed a profitable investment. Fogel (1964) showed that the railroad was not the determinant of American economic development that it was believed to have been, while Fishlow (1965) overturned the notion that the railroads were built ahead of demand, and Temin (1969) showed that President Jackson did not cause the financial panics of the 1830s.

Careers have been built attempting to solve the mystery of how and why the Industrial Revolution began when and where it did. Greg Clark

(2014, 2015) is perhaps the most persistent of those economic historians who have begun to explore an alternative explanation of the standard institution and market based stories by focusing on demographics, in particular the idea that the economically successful in a society will likely be the demographically successful. Voitländer and Voth (2013) argue that the Black Death gave rise to a European marriage pattern that in turn set in motion a process that led to the Industrial Revolution, a bold claim that leads to a dramatic revision of the economic history of western Europe. Hauptert (2019) surveys the contributions cliometricians have made to our understanding of the Industrial Revolution.

And then there is Douglass North. In his 1968 ocean shipping article, he famously argued that institutions, not technology, were responsible for the increase in the productivity of ocean shipping from the 17<sup>th</sup> to the 19<sup>th</sup> century. The decrease in piracy and quicker turnaround times in port contributed more to productivity gains than did the previously credited technological advances. This revision would ultimately lead North to pioneer an entirely new branch of economics focusing on institutions. It led to a Nobel prize, the creation of an international association of institutional economics, the creation of a dedicated journal, and a research agenda that lasted him the rest of his life.

## NEW APPROACHES

Finally, cliometrics has spawned entirely new approaches to the study of economics. Perhaps the most prominent example is the aforementioned institutional economics, which grew throughout the 1980s, spreading across disciplines from economics to anthropology, law, management, political science, psychology, sociology, and cognitive science. Anthropometrics, which counts Robert Fogel among its earliest practitioners, is another example.

Anthropometrics is the study of patterns in human body size over time. The field has its roots in the natural sciences but came into vogue as a field of study in the social sciences in the 1970s. Cliometricians originally used it as a means of measuring changes in the standard of living. They have also used anthropometrics to contribute to research in mortality trends (Fogel 1986, Floud and Harris 1997), slavery (Engerman 1976, Steckel 1979, Margo and Steckel 1982), and the outcomes of industrialization and economic development (Floud and Wachter 1982, Steckel and Floud 1997, Haines 2004). The genesis of much of this research in the United States was an NBER study on American and European mortality trends coordinated by Robert Fogel in the 1980s. Since then the scope of the field has grown to include

countries around the world. Steckel (2019) thoroughly covers the history of anthropometrics and its uses by cliometricians.

Demography has also drawn the interest of numerous cliometricians, in large part due to the ability to create and analyze large databases. Federal and state censuses have long been available as sources of big data, but only relatively recently has technology made them accessible for serious research. Joe Ferrie has long been a leader in this field. One of his earliest contributions was a sample of males linked from Federal censuses of 1850 to 1870 (Ferrie 1996). This has created longitudinal datasets allowing scholars to track the economic and geographic mobility of individuals and families over time. When combined with 20<sup>th</sup> century data compiled from the National Longitudinal Surveys (NLS) and the Panel Study of Income Dynamics (PSID), Ferrie's data set provides a historical benchmark, and the linked samples provide information on occupation, wealth, family structure, and location for individuals across time.

The construction of longitudinal population databases is not confined to the United States. Pfister and Fertig (2010) created an aggregative reconstruction of the population of Germany from the sixteenth to the mid-eighteenth century. Their estimates of population size and an annual series of crude birth, marriage and death rates were built on partial censuses, parish registers, and the protostatistical material on population size and vital events that states began to collect in the mid-18<sup>th</sup> century. Without modern computing power, it would have taken an army of scholars a lifetime just to compile the data, let alone make use of the results. Without cliometrics, the compiled data would lay fallow.

The Longitudinal, Intergenerational Family Electronic Microdata (LIFE-M) is a project that exemplifies new data sets, new techniques, and new approaches. LIFE-M is a large-scale public database that extends from the late 19<sup>th</sup> into the 21<sup>st</sup> century. It uses vital records as a basis for linking with census data from 1880 to 1940, providing birth to death coverage of individuals identified in the census. When completed, the combination of birth, death, and marriage records with data across censuses will produce a four generation database, including for the first time substantial numbers of women and minorities (Bailey *et al.* 2019).

## WHERE ARE WE NOW

Cliometricians have contributed to the development of economics and history by combining theory with quantitative methods, constructing and revising databases, discovering and creating new ones entirely, and adding the variable of time to traditional economic theories. This has made it pos-

sible to question and reassess earlier findings, thus increasing our knowledge, refining earlier conclusions, and correcting mistakes. It has contributed greatly to our understanding of economic growth and development. The use of history as a crucible to examine economic theory has deepened our knowledge of how, why, and when economic change occurs.

What differentiates cliometricians from economists and historians is not their use of historical data or their focus on the past, but that they study the growth and evolution of economies over the long term. The attention they give to noneconomic factors, such as legal and political systems, distinguishes them from economic theorists. Given the longer time span cliometricians consider, doing so gives fuller attention to changes in institutions.

Economic history is a field that crosses many disciplines. Recent work by Ran Abramitzky (2015) noted the rise in the percentage of economic history articles in top general economics journals over the past forty years. This optimism is buttressed by Diebolt and Hauptert (2019), who show that over the past seventy years, the readers of economic history articles are branching far afield.

Long ago, economic historian John Nef recognized that the work of economic historians “has provided a hunting ground for anthropologists, sociologists, philosophers, political historians, economists, and for almost all other kinds of scholars [and] is an indication of the relevance which economic history has for all other subjects” (Nef 1944: 16). That is still true today. One need look no further than the sources of citations of economic history articles (ranging from the *American Journal of Public Health* to the *Annual Review of Political Science* to the *Journal of Social Issues*) or the creation by economic historians of journals dedicated to the study of anthropometrics and institutional economics, to cite two recent examples.

## CONCLUSION

So in the end, what is cliometrics and what is its place in the practice of economics and the study of history? Robert Fogel defined the methodological features of cliometrics. He considered it fundamental that cliometrics should lay stress on measurements and that it should recognize the existence of close links between measurement and theory. Indeed, unless 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 with 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.

History is indeed always a discipline of synthesis. It is also the case for cliometrics. Its main contribution has been to mobilise all the relevant information that can be gathered from history, including cultural and institutional development, in order to enrich and challenge economic theories. Over more than half a century of practice it has performed admirably, and it shows no signs of slowing down, nor of letting either the disciplines of history or economics down. To paraphrase Mark Twain, the reports of Clio's demise are greatly exaggerated.

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