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THEORY AND ECONOMETRICS IN HISTORICAL ANALYSIS

Gabriele Cappelli, Nikos Benos and Yorgos Goletsis
(Guest Editors)

G. CAPPELLI; N. BENOS; Y. GO-
LETSIS. *Introduction: theory and
econometrics in historical analysis.*



K. ALEXOPOULOU; J. BATEN. *Gender (in)equality, maritime econo-
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Greece during the 19th and 20th cen-
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*From sickle to hammer: the decline
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Z. LI. *Beyond state and market: the
role of labor regimes and class dy-
namics in the East Asian miracle.*







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ARTICLES – ARTÍCULOS

Introduction: theory and econometrics in historical analysis¹

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ABSTRACT

This article introduces the special issue of the *Revista de Historia Industrial – Industrial History Review* on theory and econometrics in historical analysis. First, it briefly reviews the literature on the evolution of economic history since the so-called cliometric revolution, i.e., the growing use of theory to frame historical evidence and the increasing use of quantitative techniques, particularly to study causality. Secondly, it provides an overview of how a potential data revolution – prompted by technological progress in historical-data collection and processing – may be affecting the field. Lastly, the introduction provides a succinct summary of the articles included in the special issue, which highlight how economic theory and new quantitative analyses can be used to explore a range of issues within economic history, spanning different countries and time periods.

KEYWORDS: cliometrics, cliodynamics, economic history, theory, historical analysis, data revolution.

JEL CODES: A12, B25, B41, N01.

1. This introduction is to be considered as a guest editors' note and, therefore, has not been submitted to external review. Nevertheless, it has been reviewed by the Editorial Board of RHI-IHR.

1. Introduction

This special issue of the *Revista de Historia Industrial – Industrial History Review* includes articles that rely on theory and econometric analysis to improve our understanding of the past. The so-called cliometric revolution, which started in the US more than half a century ago (Hauptert 2019; Diebolt and Hauptert 2019), has now spread to different countries and affected the way research in economic history is conducted. The term cliometrics (stemming from Clio, the muse of history) indicates the growing use of theory to frame and discuss historical sources and evidence pertaining to the economy in the past, as well as the increasing use of quantitative techniques to answer questions related to “knowing the causes of things”, particularly in relation to constructing plausible and valid counterfactuals in social and economic history.²

Despite its importance for the field of economic history nowadays, cliometrics has not always been part of it – while its relationship with economists and historians has evolved and changed since the 1960s. The introduction to this special issue, titled “Theory and econometrics in historical analysis”, provides a brief overview of the relationship between the cliometric approach to economic history and related fields (mostly economics and history) up to the present day. Although this brief (and possibly non-exhaustive) review does not aim to shed new light on the relationship between economic history, on the one hand, and economic theory and econometrics, on the other hand, we wish to summarise existing evidence on the matter while introducing the reader to the content of this issue. Section 2 describes the relationship between economic history and related fields – economics, history, and other disciplines. Section 3, instead, discusses how a potential data revolution will affect the field. Section 4 concludes by introducing the reader to the articles which are part of the special issue.

2. The relationship between economic history and related fields

2.1. *Economic history and economics*

According to Cioni, Federico, and Vasta (2021), since the early 2000s, a new revolution within the economic history field has gained momentum, namely the diffusion and success of so-called persistence studies, i.e., research

2. This paradigm is well represented by the LSE’s motto, “*Rerum cognoscere causas*”, which highlights the importance of understanding causality mechanisms governing social, political, and economic change.

that “investigates present-day outcomes as the effects of permanent features or of specific events that happened many decades or several centuries earlier” (Cioni, Federico and Vasta 2021, p. 24; Cioni, Federico and Vasta 2022). Although the last two decades have witnessed a further diffusion of the use of theory and econometrics in economic history work, the authors are sceptical about claims that see a growing integration of the fields of economics and economic history (Margo 2018, 2021). By comparing articles on economic history topics (including persistence studies)³ in eight leading economics journals with the articles in the top five field journals in economic history, the authors analyse similarities and differences in authorship, articles, and citation patterns.⁴ Cioni, Federico and Vasta (2021) argue that the relationship between economics and economic history is not as good as the growing use of theory and quantitative methods within the latter would have us thinking. Indeed, while interest in economic history among economists has, indeed, grown significantly, the focus of research articles in economics vs economic history journals differs quite substantially, as does the profile of authors – a very limited number of them actually engage with both economics and economic history journals and issues, even though the integration between economics and economic history displays substantial differences between North America and Europe, being stronger in the former (Fernández-de-Pinedo, La Parra-Perez and Muñoz 2023).

Cioni, Federico and Vasta’s (2021) perspective echoes that of Abramitzky (2015). The author had previously argued that economic historians should keep on placing themselves at the junction of history and the social sciences, contributing to economics, as much as demography and political science, with their own methods and focuses. Yet, Abramitzky sees economic history as a subfield of economics, which is likely to grow in the future as new technologies and the declining cost in data collection and processing imply a greater use of historical data. Along the same lines, the book edited by Bloom and Colvin (2018) serves as a comprehensive guide to economic history for economists. It covers various topics, methodologies, and debates within the field

3. Persistence studies are articles that typically deal with present outcomes but explain them as the consequences of specific events in the distant past, i.e., at least a century before the outcome (even dating back to prehistory). Perhaps the most famous example is the highly cited article by Acemoglu, Johnson and Robinson (2001) on the colonial origins of development.

4. The eight economics journals include the so-called top 5, i.e., American Economic Review (AER), Econometrica (ECMA), the Journal of Political Economy (JPE), the Quarterly Journal of Economics (QJE), and the Review of Economic Studies (RESTUD), as well as ‘other economics journals’ - Economic Journal (EJ), the Journal of Economic Literature (JEL), and the Review of Economics and Statistics (RESTAT). The five top economic history journals are Cliometrica (CLIO), Explorations in Economic History (EEH), the Economic History Review (EHR), the European Review of Economic History (EREH) and the Journal of Economic History (JEH).

of economic history. The book provides a valuable resource for economists seeking to engage with historical perspectives and understand the relevance of economic history in shaping economic theories and policies. As both the Great Recession and the Covid-19 crisis have clearly shown, economists do not just engage with the past by studying persistence. Instead, economists do engage with economic history in terms of “change”, when abrupt change occurs in the present shaking the equilibria of our social and economic systems, and little evidence on how such shocks may unfold in the nearest future is available (see, e.g., Clay, Lewis and Severnini 2018; Velde 2022).

2.2. Economic History and History

The mutual connection, exchange, and alleged integration of economic history and economics has been widely debated but must be somewhat acknowledged. Nevertheless, historians have been less enthusiastic than economic historians and economists about the evolution of economic history since the cliometric revolution. More than a decade ago, Boldizzoni (2011) discussed the “poverty of Clio” in his homonymous book, quite well known and debated at the time, particularly among historians. Boldizzoni’s critique of the cliometrics revolution is based on the view that neoclassical economic theory has been too predominant within economics and cliometrics, as well as the fact that cliometricians may have been quite untidy with the use of primary sources (Brownlow 2012). Although Boldizzoni confronted the cliometric revolution with a harsh tone, his call for a more diversified approach to economic history, like using theories alternative to the neoliberal or institutional paradigms or a tighter genuine connection with sociology and anthropology, are recognised to be important, albeit somewhat marginal, particularly among the practitioners of persistence studies.

Criticism of the way that the field of economic history has evolved since the cliometric revolution has come from scholars engaged with both economic history and economics, albeit more sporadically. One example is McCloskey’s (2017) discussion of the way that Fogel and North influenced the field up to the present day (McCloskey 2018; see also Diebolt and Hauptert 2018). According to McCloskey, the “measurement” of the economy should be approached with careful consideration, incorporating insights from the humanities. McCloskey does not argue for a reduction in the use of theory and/or mathematics in the field of historical economics,⁵ yet she maintains that it is

5. The term historical economics is sometimes used similarly to economic history. However, while the latter is understood to indicate research aimed at understanding the past and challenging existing historiography, the former normally concerns research that looks at history to improve our understanding of the present.

crucial that the tools that economic history uses are relevant and meaningful in the context of the actual economic world. Merely proving the existence of a competitive equilibrium based on certain axioms does not contribute anything scientifically valuable – likewise, one may add, neither do proving that “history matters” or that political and economic institutions show a tendency to persist over time. What matters is the magnitude of the evidence provided that concerns certain phenomena. To put it succinctly, McCloskey argues that historical economics needs to move past the unfortunate division between facts and values, and science and humanities. Peter Temin, interviewed for the edited book *Reflections on the Cliometrics Revolution*, recognised, how, in the early days of the rise of the new economic history, the focus on economic theory and re-assessing historical narratives with new data disappointed traditional historians, and gave birth to a strong divide between practitioners of economic history in economics vs history departments (Brown 2008).

2.3. Economic History and other disciplines

Mejía (2015) offers a more balanced – and perhaps optimistic – perspective on the state of economic history, acknowledging its enduring influence within the field of economics over the past few decades, particularly in the last twenty years. The author contends that, in recent decades, diverse and competing agendas have been converging, forming what can be identified as an emerging or evolving paradigm that can be labelled “cliodynamics”. In contrast to cliometrics, cliodynamics offers a more flexible approach to studying history, drawing closer connections to fields like palaeontology, archaeology, and population genetics. It focuses on the mechanisms driving historical evolution rather than solely relying on data, emphasizing qualitative research and speculation to comprehend observed developmental patterns. One example of cliodynamics is provided by Grinin, Markov and Korotayev (2013), who use mathematical modelling to analyse similarities and differences between biological and social macroevolution, suggesting – to some extent – the presence within the biosphere of an analogue of the collective learning mechanism. Another example is the dataset by Turchin et al. (2012), the Historical Database of Sociocultural Evolution, which is used by the authors to investigate the origin of human ability to cooperate in large groups of individuals that are not bonded by genetics.

While cliodynamics maintains the scientific ambitions of early cliometrics by testing general theoretical descriptions of history using appropriate quantitative tools and historical data, there are noteworthy differences between the two approaches. Notably, cliodynamics emphasizes the role of ecological context, particularly the biological determinants of human interaction during periods when human groups were more susceptible to the natural environment.

Due to the challenge of measuring several of these aspects directly or easily, qualitative research and debates on the mechanisms behind observed patterns become crucial, distinguishing cliodynamics from the increasingly data-driven approach of cliometrics. Additionally, cliodynamics exhibits a broader breadth and scope compared to cliometrics. It incorporates simulations, mathematical tools, and a theoretical framework that extends beyond traditional economic theory, including game theory, institutional analysis, and recent advancements in behavioural economics. This shift in conceptual vision is also reflected in the revitalization of non-quantitative data, which aligns closely with cliodynamics in the research agenda of economic history. This resurgence has been made possible by the adoption of more flexible empirical tools, such as nonlinear models, time series analysis, and simulation methods. Indeed, even if Mejía (2015) does not explicitly address this issue, the data revolution currently affecting the social sciences (and economic history, specifically) will perhaps bring the field towards his definition of cliodynamics even further. Furthermore, as Crafts (2012) argued, economists will engage more with economic history, only insofar as economic historians can and will engage with economics and present their research results by showing the relevance and potential of their findings for policy-related questions, not just their understanding of the past.

3. A new (data) revolution?

The topic of the evolution of cliometrics, briefly reviewed and discussed in the previous sections, brings about the discussion of another revolution with the potential to reshape the field in the coming years, namely a data revolution – a potential exponential increase in the availability of historical data due to new advances in technology. The concurrent rise in the extent of digitised primary sources and data, the evolution in technologies that allow generating datasets from historical sources, the rise of AI and of the computation of qualitative sources (e.g., web and text scraping) is changing the field, by bringing about new information, and making it possible to tackle issues and questions that might not have been researchable – at least, not within a reasonable amount of time and limited resources – in the past decades. As much as the evolution of regression analysis and software has accompanied the spread of the cliometric revolution in the late twentieth century, this data revolution has the potential to reshape the field, not just in terms of methodology, but also in terms of aims and scope. If assembling large, comparative datasets concerning with historical time series and long-term development was a daunting task in the past, and has often involved a large number of scholars and universities – like the Maddison Project (Bolt and van Zanden

2020), ClioInfra (OECD 2014, 2021), and the Jordà-Scholarick-Taylor Macroeconomy Database (Jordà et al. 2019; Jordà et al. 2021), to mention a few – today’s advances in digitisation and data computing and elaboration will likely further change the way historical data is produced and analysed.⁶

Extensive discussions on the implications of “big data” in the field of economic history have been undertaken by Gutmann, Merchant and Roberts (2018). The authors delve into the meaning of this term for economic historians and explore the potential opportunities that will arise in the coming years regarding big data within the discipline. The integration of analog data, encompassing text and images, has the potential to revolutionize the field as it can be converted into machine-readable formats. A defining characteristic of modern big data is that the volume of stored information surpasses human analytical capacity and tests the limits of currently available computing power, thus continuously expanding the magnitude of what is considered “big”. Today, it has become increasingly common to work with datasets comprising 40 million records or more, whether obtained from a single source or aggregated in a standardized format from various sources.

Economic historians have already started leveraging big data in the domains of population and the environment. While the collection and analysis of big data are not novel endeavours, because governments have conducted comprehensive censuses since the eighteenth century, compiling and publishing results for the entire population. However, these datasets have often been collected and organized at the national, regional, or local levels, leading to a reduction in the volume and diversity of information compared to the original source. Notably, economic historians have increasingly used IPUMS data, employing the back-casting method that relies on the age structure of the population to infer historical well-being conditions for regions such as Sub-Saharan Africa where systematic and representative census data is scarce until the latter half of the twentieth century (see, e.g., Joerg Baten et al. 2021). Simultaneously, the North Atlantic Population Project (NAPP) has provided extensive individual-level data from historical censuses during the eighteenth and nineteenth centuries (Gutmann, Merchant and Roberts 2018, p. 272). In their extensive discussion, Gutmann, Merchant and Roberts elucidate the benefits of employing complete individual-level records (100-percent samples) to examine population dynamics and causality across various aspects of society and the economy in the past, particularly highlighting the importance

6. Such projects are also important as they allow data to be shared with the scholarly community and replications of previous analyses to be performed, something which has been quite difficult until the last decade. Indeed, in the last few years, economic history journals are increasingly adopting a policy that allows replication, requiring authors (perhaps after an embargo) to share their main dataset and replication files, following the “credibility revolution” discussed by Angrist and Pischke (2010).