Ancient economics: the dialectic of quantity and quality

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FRANÇOIS DE CALLATAŸ (ed.), *QUANTIFYING THE GRECO-ROMAN ECONOMY AND BEYOND* (Pragmateiai 27; Edipuglia, Bari 2014). Pp. 260, figs. ISBN 978-88-7228-744-6. EUR 60.

The 13 chapters of this edited book on the subject of quantification in the field of the Graeco-Roman economy result from a conference held in Brussels in October 2009. In his foreword, the editor, F. de Callataÿ, notes that such events have not been rare of late; he is able to point to no less than 16 conferences on the subject of Greco-Roman economics held in the period between 1995 and 2009. In both the opening chapter and his foreword de Callataÿ displays a strong enthusiasm for the rôle that quantification can potentially play in the study of ancient history. He believes that we have entered an exciting new era in which rich datasets, never before exploited, can be analysed with ever-improving scientific tools and techniques (10).

The opening chapter attempts to give an overview of quantification in ancient history from the Second World War down to the present day. De Callataÿ describes a "cultural turn" spanning the 1980s and 1990s during which period book titles in ancient history and archaeology, under the influence of post-modernism and post-processualism, shifted to focus on topics such as cultural change and identity formation. From his point of view, this period was detrimental to the development of quantitative approaches in the humanities in general: qualitative information tended to be sought before quantitative (13). Taking as indicative recent conferences held in Brussels and Oxford (the latter organised under the auspices of the Roman Economy Project), de Callataÿ believes that an end of the primitivist/modernist debate has been reached, and that the concerns of Cliometric and New Institutional economic history have begun to influence approaches to the economics of the ancient world (5; 20-22). We are already, he notes, in possession of figures roughly of the right order of magnitude to be able to begin to draw significant conclusions about ancient economic growth and performance. All the signs indicate that quantification is back on the agenda (6).

An essay by N. Morley on the application of quantification to the Roman economy follows. While the book contains no overt division into sections, his chapter provides an important companion to de Callataÿ's introduction. Morley believes it should be taken as read that more and better quantification in ancient history is highly desirable (29). He observes, however, that econometrics is still rarely practiced in ancient history, due to the poor quality of datasets available by comparison to other periods of history (31). That there has been little or no engagement with the methods of quantification and argumentation employed by R. P. Duncan-Jones on the Roman economy is an obstacle to further progress (32-34). Morley finds it of the utmost importance to stress the difference between the procedure practiced by Duncan-Jones and that which he believes constitutes the majority of current work in ancient economic history. The latter, he argues, tends to construct abstract models of high-level economic structures, quantifying them only in the sense of assigning often arbitrary or invented values to different factors, regardless of the availability and quality of the evidence to support the use of such figures. In short, works of this nature start not from a set of data inherently amenable to quantitative analysis, but from an idea, usually derived from modern economic assumptions, of what their authors wish to achieve (34). Morley reminds us that there are various different elements which are involved in conducting this sort of model building; these include the availability of quantifiable empirical data, the end which the model is intended to serve, the individual scholar's overarching ideological and theoretical outlook, and the ways in which researchers try to bolster or disguise weaknesses in their arguments through their use of rhetorical style.

The reader is appropriately forewarned, since several of the chapters of the book could be described as fine examples of precisely the sort of abstract modelling, number-fudging and rhetorical argumentation with which Morley is concerned. The chapter by G. G. Aperghis, for example, addressing the use of computer technology in the building of economic models for antiquity, can serve to demonstrate the gulf which separates the likes of Morley from some of the other contributors. Aperghis argues that the many seemingly unrelated economic facts we possess about the ancient world can be collected and interpreted for us by carefully designed computer programs. Key elements are the selection of the correct variables, and the relation of those variables to one another in a logical manner. In cases where the gaps in our knowledge are too large, comparative data should be sought and used. As a control, the figures provided by the comparative data should be compared to the sort of figures one believes at the outset to be reasonable (64-65). In other words, they can be used only if they fit in with one's initial assumptions. Thus it quickly becomes apparent that what one scholar views as gradually working towards the correct orders of magnitude through commonsense assumptions and comparative data, another would not consider as quantification at all, and indeed might dismiss as circular reasoning. One is reminded of E. Badian's critique of K. Hopkins' *Conquerors and slaves* (1978) with regard to estimates of the population of Augustan Rome: "in cases such as these, although it is eternally fascinating, it has nothing to do with scholarship".[1]

Indeed, one serious bone of contention between the various contributors is whether or not there is any value in attempting to arrive at concrete numerical estimates of growth in *per capita* GDP (usually expressed in sesterces, kilograms of wheat, or — as those with a comparative bent favour — 1990-standard international dollars). A number of chapters include attempts to quantify ancient economic growth rates, real wages, and *per capita* income, while others dismiss the exercise as either meaningless or impossible. Most reminiscent of Hopkins' method of argument and rhetoric is the chapter by J. Ober, who asserts that the ancient Greek economy outperformed that of the Roman empire in terms of aggregate and *per capita* growth-rate, urbanisation, and the percentage of the population living above subsistence (103).[2] He begins with observations and estimations of scale with regard to the Bronze Age, and then uses these to argue (just as Hopkins once did) that economic growth must have occurred between the Bronze Age and classical antiquity.[3] One wonders whether the transferral of the kind of debate that occurred in the late 1970s and 1980s from the Roman economy to the sphere of classical Greece advances it very much; from Max Weber through A. J. Toynbee to Finley it was generally accepted that significant economic changes resulting from the acquisition of Rome's Mediterranean empire separate Roman economic relations fundamentally from those of the Greek *poleis*, not only in terms of character but also in terms of scale. Although this narrative has begun to change in recent years, it seems odd that no attempt to engage with this intellectual inheritance should be made in a chapter on this subject which makes such bold claims. Familiar problems arise. Ober claims a high level of probability — close to certainty — for his estimations of the correct orders of magnitude, but one has to question whether a dataset of 450 house sizes can really be considered large enough to argue for a significant increase in *per capita* consumption in a population which Ober estimates to have risen from 0.5 million to around 4 million.

A balance to this is provided by A. Wilson. In probably the most worthwhile chapter in the book, he analyses the potential and pitfalls of using archaeological data to attempt to judge ancient economic performance. He covers a number of proxies for the scale of ancient economic activity which have become a familiar part of the debate: shipwrecks, human stature, consumption of meat viewed by way of animal bone assemblages, and pollution caused by lead and copper. He also explores some newer possibilities such as the quantification of inscriptions, fish-salting sites, and the technology of watermills. Through his excellent handling of both the quantitative analysis of these forms of data, as well as their inherent biases, he manages to dispel a number of commonly repeated myths associated with them. Ancient historians are chastised for the unhelpful practice of graphing figures derived chiefly from their starting assumptions, falsely presenting arguments as though they had substantial empirical or

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1 E. Badian in *JRS* 72 (1982) 164-69.

2 This amounts to the observation that a more developed part of the Mediterranean would yield higher values of *per capita* income, and so forth, than if the whole was taken as the unit of analysis.

3 K. Hopkins, "Economic growth and towns in classical antiquity," in E. A. Wrigley (ed.), *Towns and societies: essays in economic history and historical sociology* (Cambridge 1978) 35-77.

statistical support (150). One learns, for example, that in an influential article by R. P. Saller a graph of *per capita* GDP over two millennia possesses no evidential basis whatsoever for the period before A.D. 1200. The foundation of this part of the graph is exposed as being the assumption that in pre-industrial societies average *per capita* income could only reach a maximum of twice subsistence (148-50). Wilson argues convincingly that there is a need for us to seek out quantifiable proxies for economic performance and to display them in a manner which makes clear both their usefulness and their limitations. While he accepts that GDP *per capita* would be a good index to track economic growth, he regards the task of arriving at any meaningful representation of GDP for the Roman period as "wholly impossible" (148-49).

A survey of previous attempts at estimating GDP conducted by E. Lo Cascio and P. Malanima, by contrast, has the intent of confirming that such attempts remain valuable. Somewhat paradoxically, however, they argue this at the same time that they wish to overturn completely the consensus opinion that has developed from prior publications. Their survey reveals that most scholars have arrived at the conclusion that the Roman world acquired about half the level of *per capita* income as Europe had in the Late Mediaeval and Early Modern period. Lo Cascio and Malanima's contention is that no such difference between the two periods can be discerned, and that there was no gradual rise in *per capita* wealth from antiquity into the early modern period.

G. Kron reaches an even more extreme modernist position, seeking to demonstrate through a wide variety of proxies (and some benchmark calculations which he himself admits are misleading) not only that Greek and Roman society was more equal in terms of income distribution than many parts of the 19th c. world, but also that it achieved higher levels of *per capita* income. The wild divergence of the various estimates for *per capita* income contained in these chapters may confirm Wilson's suspicion that the output of these exercises is simply a function of the assumptions which govern the input values (149). At the very least, it puts to rest the idea, aired in de Callataÿ's introductory chapter, that any true *rapprochement* between primitivists and modernists has been achieved.

The highest level of zeal for neoclassical theory and any of its related branches of economics is displayed in W. Jongman's chapter "The New Economic History of the Roman Empire", a title clearly reminiscent of the 1960s when all at once there emerged the New Geography, the New Archaeology (processualism), and the New Economic History (cliometrics). All of these approaches were deeply enamoured of the potential of newly-acquired computer technology to conduct statistical and spatial analyses, a preoccupation with which provoked the later critiques described by de Callataÿ and Jongman as the "cultural turn". Jongman argues in favour of applying modern economic theory to the ancient world, displaying (169; 170 n.4), for example, a strong belief in the value of the concept of equilibrium. In keeping with his recent articles and chapters on this subject, various proxies for economic activity are used to suggest a general growth and decline of the Roman economy. The explanation offered is that Roman imperialism and the expansion of empire encouraged economic growth in the provinces, and that the spread of Roman law reduced "transaction costs" (a New Institutionalist term), creating a more integrated market system (177). The new element appears to be that Jongman now rejects the model of the Malthusian trap as an adequate explanation of the decline — that is, he no longer believes that population growth outpaced economic growth, leading to system failure. While the Antonine plague, perhaps linked to changes in climate (182-83), marked the beginning of the contraction, Jongman believes that it was an increase in the oppression of the peasantry and middle classes by both landlords and the state that ultimately strangled market forces (184-85).

Market integration, or lack thereof, forms the subject of the contribution by R. J. van der Spek and B. van Leeuwen. Their price data comes from Babylonian astronomical diaries from the final four centuries B.C., some of them newly discovered. They believe the price data indicate that, after presumed shortages caused inflated prices in Babylon, long periods of price recovery followed, with harvest time playing a strong rôle in bringing prices back down to normal levels. Their tentative, though reasonable, conclusion is that the strong influence of local supply and demand fluctuations show that Babylon was not integrated into a market system in which external imports significantly influenced price formation.

On a related theme, P. Temin argues that there must have been other causes of Late Roman inflation than simply the debasement of the coinage; his submission that political instability also played a part will raise no eyebrows.

So-called exogenous factors, such as the Antonine plague, raise their head in several places. A. Bresson argues that an understanding of ancient climate is vital for our comprehension of the basic parameters within which the ancient economy could operate. He seeks to dispel the idea that the global climate was essentially stable between 500 B.C. and A.D. 500, and that temperatures and humidity were similar to modern times. By contrast, famine, plague and population decline are some of the favourite explanatory factors used by W. Scheidel in his examination of real wages, as they have been in his previous analyses of ancient economic growth. The idea that famine or plague might cause a shortage of labour seems less objectionable than the idea that mass losses of life would have improved the level of *per capita* income, which Scheidel has expressed a number of times elsewhere. One can see that a shortage of labour could potentially increase wages in a competitive labour market, although the logic of Scheidel's examination of this subject often seems to be anchored in a rigid *a priori* relation between variables, akin to the highly reductive economic models of someone like Gary Becker. One might take issue also with the assertion that adopting the use of wheat equivalents, in place of consumption baskets, allows the comparison of real wages across three millennia to become a meaningful exercise.

Finally, R. Bagnall uses fragments of papyri of the 4th- and 5th-c. A.D. from Oxyrhynchus to put forward the case that the Roman authorities were in fact interested in the collection of statistics in one form or another (222). He also recommends that ancient figures where they survive should be assessed within their context, and not dismissed out of hand. All of this seems reasonable, but doubts remain to what extent it is possible to extrapolate from the few meagre examples we are provided with to the broader world of late antiquity. One is reminded of Finley's deliberately provocative comment, that he preferred to judge the mentality of the later emperors from the practice of Constantinople, "rather than from what may have been done for a few years by the insignificant Egyptian village of Oxyrhynchus".[4]

Discussion

There is no doubt that the book provides the reader with a reasonable sample of the range of opinions and methods being applied to the ancient economy in the Anglo-American world around the year 2009. Alongside other works such as the *Cambridge economic history of the Graeco-Roman world* and the *Cambridge companion to the Roman economy*, it bears the hallmarks of an increasing focus on the subjects of economic growth and living standards.[5] A brief comparison with literature on the ancient economy emanating from continental Europe, such as the volume published in honour of J. Andreau,[6] demonstrates how much this standpoint has come to dominate in the English-speaking world since the work of Hopkins.[7] The main element missing in all of this, it seems to me, is a deeper level of reflection about what one could potentially learn from the economic organisation of the ancient world. Ancient economies were a complex nexus of quantifiable material elements *and* social phenomena, and one will not arrive at satisfactory historical explanations by focussing only on the former.

Having said this, in postprocessual archaeology there is ample room (as there always has been) for quantification. To argue to the contrary is to misunderstand the central issues which

4 M. I. Finley, *The ancient economy* (3rd edn., London 1999) 204.

5 W. Scheidel, I. Morris and R. P. Saller (edd.), *The Cambridge economic history of the Graeco-Roman world* (Cambridge 2007); W. Scheidel (ed.), *The Cambridge companion to the Roman economy* (Cambridge 2012).

6 C. Apicella, M.-L. Haack and F. Lerouxel (edd.), *Les affaires de Monsieur Andreau: économie et société du monde romain* (Bordeaux 2014), with a review by N. Morley at *JRA* 29 (2016) 684-87.

7 K. Hopkins, "Taxes and trade in the Roman Empire (200 B.C.–A.D. 400)," *JRS* 70 (1980) 101-25; id., "Models, ships and staples," in P. Garnsey and C. R. Whittaker (edd.), *Trade and famine in classical antiquity* (Cambridge 1983) 84-109.

were at stake in the debates of the 1980s:[8] it is the appropriate sort of quantification in pursuit of the correct sort of research questions that is desirable. One can determine what appear to be the most important elements in our available data, attempt to standardize our observations in some explicit manner, measure, weigh and quantify them if one wishes; but there is always an element of subjectivity in the categories which one selects and in the elements one chooses to quantify. The methods and interests of economics and economic history do not exist in a vacuum: they link to certain definite social conditions, and to deny this, as one of the contributors to the recent volume has done elsewhere,[9] is problematic. As this reviewer has previously observed, there is a strong danger of logical inconsistency in a discipline which claims to have thrown off modes of thought and categorization dating back to colonial times, while at the same time making new adjustments in order to accommodate a different configuration of power and imperialism.[10] The desire to rank all past human societies by their level of *per capita* income has an ideological element to it that those within the discipline would do well to reflect upon further.

Morley's chapter adds balance to the beginning of the book by supplementing de Callataÿ's optimism and enthusiasm with some careful reflection and by underlining various important caveats. It is a pity, however, that in the publication none of these reservations were related in a more specific manner to the contents of the individual contributions. In de Callataÿ's foreword, for example, some glaring differences between the various contributors have escaped without comment. The reader gains little idea of whether or not heated debate occurred on the occasion of the conference, but as he or she progresses through the book it becomes increasingly clear that much disagreement still exists between the individual contributors. This has to do not only with what may constitute useful, or unhelpful, quantification of Greco-Roman economies; there are also very significant divergences in the final figures achieved by the various methods of estimation. A broad unanimity over the general value of applying modern concepts such as GDP and *per capita* income to all historical societies has been the most fundamental shift from the prevailing wisdom of the 1970s. Though disagreeing over the precise figures, modernists and primitivists have largely come to share the same methodological and theoretical underpinnings, borrowed from post-War and neoliberal development economics.[11] Yet barely detectable cracks in this edifice do begin to show in this volume, though whether or not this is the result of the financial crisis, which de Callataÿ notes may represent a threat to the current neoclassical and New Institutional ascendency, is too early to tell.

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8 I. Hodder, *Reading the past: current approaches to interpretation in archaeology* (Cambridge 1986); M. Shanks and C. Tilley, *Social theory and archaeology* (Cambridge 1987).

9 W. Jongman, "Why modern economic theory applies, even to the distant past," in *TRAC 2013* (Oxford 2014) 27-36.

10 M. S. Hobson, "A historiography of the study of the Roman economy: economic growth, development, and neoliberalism," in *TRAC 2013* (Oxford 2014) 11-26.

11 A. Escobar, *Encountering development: the making and unmaking of the Third World* (Princeton, NJ 1995).