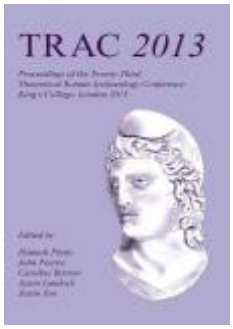

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Why Modern Economic Theory Applies, Even to the Distant Roman Past

Willem M. Jongman

The central question for every economic historian of the Roman world is a very simple one, even if the answer may be harder to give: how successful was the Roman economy in providing as many people as possible with the best possible standard of living? The answer has divided scholars for more than a century, between those like Michael Rostovtzeff, who argued that the Roman standard of living was close to that of his own day, and pessimists like Karl Bücher or Moses Finley, who argued that the ancient economy was far less developed, and indeed even less developed than that of mediaeval Europe (Rostovtzeff 1957; Bücher 1922; Finley 1985).

Rostovtzeff was quite obviously wrong, although he may have had a point when comparing early Imperial Rome with the Czarist Russia of his youth. What he failed to appreciate was that the Industrial Revolution had been an unprecedented break with the past, and had inaugurated a new world with prosperity for all, or at least for more and more people. It was the achievement of Moses Finley, Peter Laslett, and French historians such as Fernand Braudel that they realized that the past was a world we have lost (Finley 1985; Laslett 2000; Braudel 1958). The past now was a foreign country. The pre-industrial past was a world where most of the population was living, at best, barely above subsistence, and where even the rich did not escape the horrors of disease and early death (Allen *et al*. 2005; Allen 2009; Laslett 2000; Hopkins 1983: chapter 4). Finally, there was little or no economic growth. Unlike us, our ancestors could not hope to double their standard of living every generation (Clark 2007).

For an explanation of the origin of modern growth we have two sets of models. The first is that the Industrial Revolution represented a quite sudden break with the past, thanks primarily to the use of fossil fuel in new technologies (Clark 2007; Wrigley 1990). The alternative model emphasizes a long period of growing efficiency in commercial markets, and the rise, from the later Middle Ages, of an economically innovative commercial bourgeoisie (Weber 1972; Sombart 1928; De Vries and Van der Woude 1997; Mokyr 1990). The cradle of the modern world was thus in Venice, Antwerp, Amsterdam and finally London, rather than in the Midlands (Allen 2009).

For Finley, it was precisely the absence of such an economically rational commercial bourgeoisie that distinguished antiquity from mediaeval and early modern Europe. In antiquity, urban elites were landowning elites, with a rentier mentality. The dominant value system of ancient society prevented them from engaging in innovative economic activities such as trade and commerce, or finance. As a result, these sectors of the economy remained small, with little or no technical innovation. The market never developed into an integrated system (contra: Temin 2013). Consequently, there was no economic growth.

This was not an argument that came out of the blue: its immediate ancestry was in the substantivist economic anthropology of Karl Polanyi, who had been one of Finley's intellectual mentors in post-war New York (Polanyi 1957; Jongman 2012). Polanyi was a socialist intellectual who had escaped Austria. He developed an economic anthropology of different systems of economic integration, where the market only became dominant in Western society of recent times. Elsewhere and previously, to satisfy the need for material goods other systems were dominant and Polanyi argued that such systems could not be analyzed with the modern economics of the market (which he did not like in any case). Instead, in those societies the economy was embedded in the social system and its values. For Polanyi, therefore, modern economics did not apply universally, because the market was not a universal institution, and because economic rationality was not universal either.

This argument went back to the 'Methodenstreit' in German economics of the late 19th and early 20th century, and particularly to the so-called Historical School in that debate (Blaug 1997). It was a time when Germany was beginning to modernise its economy, and chose to protect its infant industry with high tariffs. Moreover, that industry developed due to close ties with big banks and the state. In short, it followed a path that was completely at variance with the prevailing English liberal ideology of free trade and a caretaker state. German economists argued that the free market was not universally beneficial, and that the past provided an important testing ground for alternatives. They started to investigate mediaeval guilds, and developed theories of the stages of economic development ('Stufentheorien') where the market only gained prominence in the final stage or stages. The similarity between these stages of economic development and Polanyi's systems of economic integration is all too obvious, and so is the insistence that economic rationality is not universal, but only emerged with the rise of the modern world, and the rise of the commercial bourgeoisie in particular.

Opposition came from the so-called Austrian School that developed the deductive logic of utility maximization and the principle of declining marginal utility: i.e. the first glass of beer has a higher value to you than the last. Thus, after a couple of beers it makes more sense to spend the rest of your money on food (or coffee). Utility/pleasure is maximized and market equilibrium is reached if what is spent on the last unit of one commodity gives equal pleasure/utility to what is spent on a different commodity or service. Therefore, it only makes sense to use as much of a commodity, or service, until the utility/pleasure of the last unit equals the cost of that last unit. There is no other combination that gives more utility within the given budget of scarce resources. In fact, it is precisely the scarcity of resources that governs this behaviour, and that is the central economic question. Conversely, if there is no scarcity, economics loses its relevance. As Robbins famously put it: 'Economics is the science which studies human behaviour as a relationship between given ends and scarce means which have alternative uses' (Robbins 1932: 16).

The differences between those who favour modern economic analysis in the marginalist tradition and those who reject its use for pre-modern societies crystalize around three issues. The first concerns institutions, and the market in particular. Polanyi argued that modern economics presupposes a market economy, and that as an institution, the market has only quite recently become the dominant system of economic integration. Before that, alternative systems predominated, such as reciprocity and redistribution. For such economies, he argued, modern economic theory does not apply. What he does here, however, is to confuse the historicity of the concrete market with the abstract concept of a market that underlies modern economics. In economic theory, a market is nothing more than the point of interaction between supply and

demand. That interaction can occur in a concrete market, and it can involve division of labour, but not necessarily so. Central here is the concept of opportunity cost, in other words what you have to give up to get what you want. This can be money, or another commodity, but it can also be time. You cannot, for example, go to the ballet and sit and read a book at home at the same time. Therefore, the cost of the ballet is not just that of the price of the ticket, but is also that of the missed opportunity to sit at home and read. Time is a scarce commodity. Analytically this is important because even a subsistence peasant, who does not trade with others in the market for products or labour, still has to allocate that scarce time: should he spend his time weeding, building a better barn or sacrifice to the gods for more rain? In this example, the opportunity cost of weeding is the missed opportunity to secure more rain or invest in a barn to secure future prosperity. Thus sometimes a market involves different agents, but at other times it will involve only a single person who is the consumer of his (or her) own production or time. The example about investment in a barn also suggests that there is a time dimension to utility. Gratification now is better than gratification later, and the two are connected by the interest rate as the compensation for postponement of the return. The market of economic theory is, thus, nothing more than the abstract intersection of supply and demand for scarce goods and services. Economics is relevant wherever you cannot have your cake and also eat it.

The second point of controversy is what Polanyi calls the substantive meaning of 'economic', which he thinks is in the provision of material goods. This does indeed correspond with the layman's view, and is often used to criticise economics: there is more to the good life than material welfare. Fortunately no economist will deny that. A Picasso painting is not valuable because of the linen and the paint, but because it is scarce: there are few of them and, conversely, many people who desire to own one. Similarly, there is nothing uneconomic about a preference for leisure or altruism, but they have an opportunity cost. Thus to avoid all misunderstanding, in economics, utility is that commodity or service for which you are prepared to sacrifice something else, even if that commodity or service is frivolous. Economics does not prescribe what people should prefer, so value is subjective. The *homo oeconomicus* who craves only for more material welfare has been long dead and buried.

The same is true for the *homo oeconomicus* who is constantly, and consciously, calculating what is most advantageous. This is the third focal point of the controversy. Max Weber, Karl Polanyi and in their footsteps Moses Finley and his followers believed that such economic rationality of means was not only an important assumption for modern economic theory to apply, but was also something that only emerged during the rise of the modern world. Few individuals live with minds that work like calculators, yet, the opposite assumption that people consistently minimize profit, is even more absurd. However, modern economic theory no longer makes great introspective assumptions, if at all. The traditional marginalist tool of indifference curve analysis only assumes that economic subjects show a modest measure of transitivity in that they should not at the same time prefer one thing and the opposite. Modern revealed preference analysis abandons even that introspective assumption, and only relies on observed behaviour (Hicks 1956). In the end, the judgment here is a practical one: can the theory predict behaviour effectively?

The consequence of my argument is that economic theory does indeed apply universally as a logic of the optimum allocation of scarce resources. At the same time, my example demonstrates that such theory makes no substantive claims about economic reality. It does not say whether there will be much trade and division of labour, neither does it imply that people will have no cultural preferences to spend their resources in one direction rather than another. Similarly, it does not exclude the possibility that non-economic forces in society influence the economy. Imperialism, exploitation and oppression have not suddenly disappeared.

I think it is fair to say that marginal utility analysis has won the day, and is the standard fare of every course in economics, at least at the level of the behaviour of individual consumers and producers. It is what hostile critics prefer to call neo-liberal economics, in my view unfairly associating it with Thatcherite economic and social policies, or even with the horrors of South American dictatorships. The association is unfair, in that this is mainstream economics practiced equally by liberals and social democrats, and even by professional economists known for their outspoken left-wing views such as Robert Fogel. What is liberal about it is that – at least in theory and under specified conditions – equilibrium in a free and competitive market provides the most efficient allocation of scarce resources and ensures maximum utility/welfare for all (what is technically called Pareto optimality). In reality, a free market is not always the best solution, but that too can be demonstrated precisely with modern price theory (Jongman and Dekker 1989 for a historical example). Nor is the world of economics one without oppression (Domar 1970). At the aggregate level of the larger economic system debate continues, with Keynesian economists arguing that at the macro level equilibrium does not necessarily occur at full employment or capacity, and thus fails to bring about the greatest welfare for all.

Finley's intellectual eminence, unfortunately, ensured that for the last few decades modern economics was a contentious concept among ancient historians and classical archaeologists. Pessimistic primitivists sided with Polanyi's substantivist anthropology and its rejection of economics. They argued that antiquity lacked a system of interconnected markets, and that economic behaviour was not governed by economic rationality, but was 'embedded' in social norms, a preference for self-sufficiency and autarky, and the elite's disdain for involvement in trade and manufacturing in particular. Unlike in economic anthropology, where Polanyi's so-called substantivism was countered by so-called 'formalists' who favoured the use of formal economic theory (e.g. LeClair and Schneider 1968), little conceptual criticism emerged in ancient history or archaeology (but see Jongman 1988; cf. Temin 2013). Finley's more optimistic 'modernist' critics, almost invariably, were merely naïve positivists who were only too happy to agree with Finley on one thing: economics was irrelevant. (In that case, I think, for no other reason than that it could get them off the hook from having to learn all that mathematics). The result of this was that ancient economic history completely lost touch with more modern economic history and was rarely taken seriously by other economic historians.

A second unfortunate consequence was that the study of the ancient economy became restricted to a limited set of problems: the scale of trade and manufacturing, and the social position and norms of those involved. It was often more cultural history than proper economic history. Moreover, it was largely confined to an analysis of the causes of antiquity's economic failure. That failure was taken for granted, and rarely, if ever, did anyone try to measure the extent of Rome's economic success or failure. So when I was asked to write a chapter on Roman consumption and standard of living for the *Cambridge Economic History*, there was virtually no bibliography to build on (Jongman 2007). Ancient economic history had been a cultural and social analysis of the supply side of just one relatively small sector of the economy.

A third consequence was an almost complete neglect of economic change. If the Roman popular standard of living was never much above subsistence there would be no growth, and thus little point in a chronological perspective. This is all the more true if the driving force behind this stagnation was a set of cultural norms and values that changed little over all of antiquity. Thus, in Finley's magisterial *The Ancient Economy* (Finley 1985), the analysis freely mixes anecdotes from archaic and classical Greece with accounts from Late Antiquity or Republican Rome. The story is all about structure rather than change. On the other hand, if we decide to

investigate Rome's actual economic performance itself (rather than possible causes for its failure to perform), we need to study its chronology. Was there really no difference in the standard of living of people in Archaic Greece and early Imperial Rome (compare Morris 2010)? Economic growth is, after all, a process over time.

How, therefore, would a new paradigm look? One of the things I learned from Finley is that you have to ask the right questions first. If the question is wrong, so too will be the answer. The most fundamental question for an economic historian is a very simple one: how successful was the economy in meeting people's demands when the means to do so were scarce? How prosperous and happy were people, and how and why did the economy succeed or fail in this respect? At the macro level, this boils down to the interaction of aggregate demand and aggregate supply or, more concretely, to trends in total population and total output.

Since land is in more or less completely inelastic supply, changes in population imply changes in the land-labour ratio. Analytically these changes in the land-labour ratio are shifts along the production function (Jones n.d. for a handbook of economics, specifically for Mediterranean archaeologists). A production function describes the output that can be achieved from using different combinations of factors of production (land, labour, capital) at a given technological level. The choice of a particular combination of factor inputs is, then, determined by the cost of those factors. If, for example, labour becomes cheaper, more of it will be used until, once again, the marginal cost of an extra unit of labour will equal the marginal return from that extra labour. At the same time, relatively less land and capital will be used, so their marginal returns improve (with higher incomes for owners of capital and land). Here, economic change clearly impacts on social (in)equality. Marginal productivity is thus always connected to one factor: there is marginal labour productivity, but also marginal productivity of land or capital. Such movements along the production function should be sharply distinguished from shifts of the production function itself when the same quantities of land, capital and labour begin to produce more output. A shift of the production function is the economic expression of technical progress, and should not be confused with using, for example, more capital goods. Just using more machines is not technical progress, but a different production strategy. Only improved machines represent technical progress. Technical progress is thus not limited to machines, but to any change in the production process that produces more output form the same input. That change can come from better machines, but also from better educated labour, or improved management techniques. This is then called 'Total Factor Productivity'.

For the modern world, growth of aggregate output has consistently outstripped population growth, and therefore *per capita* production and consumption have grown almost every year. There was a shift of the production function, and Total Factor Productivity increased. For pre-industrial societies this was not normally the case, because population growth was usually at the expense of prosperity. The underlying cause for that was declining marginal labour productivity in agriculture: if we double the number of workers in the field, output increases, but rather less than double. Similarly by reducing population pressure, epidemics often raised the standard of living of the survivors – their marginal labour productivity had increased (Campbell 2010). Analytically, these are shifts along the production function rather than shifts of the production function.

Therefore, what these pre-industrial societies experienced was expansion and contraction, rather than real growth. For real growth both population and output should move in the same direction, with output increasing more than population. That implies that society has, somehow,

found a solution to declining marginal returns to labour, and succeeded to generate increasing marginal labour productivity, and Total Factor Productivity.

These are, indeed, big issues. One reason why, perhaps, no one until recently attempted to address them is that it is difficult to imagine how the traditional methodologies of ancient history and archaeology could answer such questions. As Finley only too successfully pointed out, we do not have the kind of national statistics that modern economists require. The futile efforts to interpret the confusing census data for Republican Italy are a good case in point (Jongman 2009). Similarly the surviving data on wages and prices are so scarce that, bar a few exceptions, they are better ignored (Scheidel 2010; Jongman 2014). Compared with those excuses for data, archaeology often offers much better prospects to measure the circular flow of the economic system, even if we measure it at points on the circle that are different from the conventional points of modern national accounts.

To be successful we need to generalize, and abandon the cult of the particular and the exceptional. Similarly, we perhaps need to pay a little less attention to the ecological specificities of zones and regions. Landscapes set constraints, but that is not the whole story, because the same landscapes could host totally different economies over time (Acemoglu and Robinson 2012). Equally, ecologically quite different regions could experience the same economic trends. By definition, economic growth is a process of change over time. It is the story of the escape from constraints.

Figure 1. Population trends from field survey data (Source: De Haas, Tol and Attema 2010, Fentress 2009).

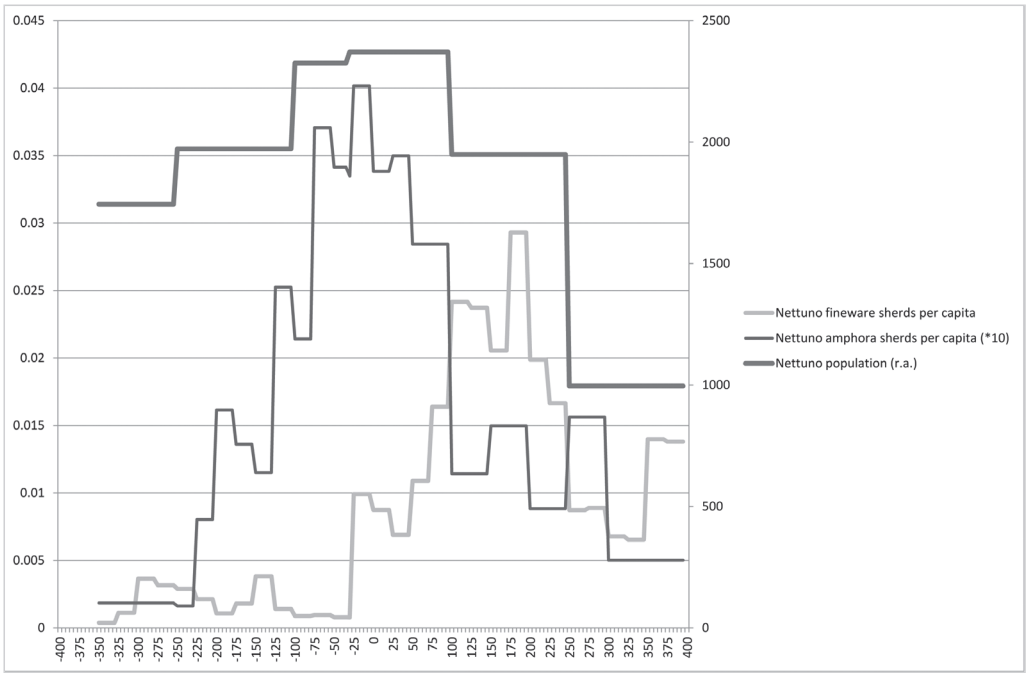

Figure 2. Population and per capita consumption in Nettuno (data from De Haas, Tol and Attema 2010).

I wish to conclude with a few examples of what can be done, and of what our research group in Groningen is trying to achieve. Population estimates are the obvious foundation for any aggregate analysis, but we have almost no usable ancient statistics. On the other hand, people leave traces in the land, and field surveys can provide good proxy data for a demographic analysis. The way this can be obtained is for surface finds to be grouped into 'sites' of different size and function. The next step in the analysis is to assign to these site types population numbers (a few for what is believed to be a small farm, more for a villa, and yet more for a village). This is clearly a hazardous procedure, particularly for any estimate of *absolute* population numbers, although that is what many have principally tried to use them for. Population numbers from field surveys are, however, quite reliable indicators of *relative* changes over time. Interestingly these trends show remarkable differences in population densities between periods but also, and quite reassuringly, great similarities between regions. For Italy, Launaro has indeed argued for such similarity between the demographic trends in various regions, but this is an argument that promises opportunities for much more advanced analysis (Launaro 2011). As a starting point, above are two graphs of demographic trends based on Lisa Fentress' analysis of her survey in the Albenga valley, and from the Groningen Nettuno survey.

The lines in figure 1 are both reconstructions of the absolute population numbers for different periods in the respective regions, and they are both based, approximately, on the same methodologies. The similarity between the chronological trends is remarkable, and the overall picture is dramatic. Republican expansion and subsequent late imperial contraction are equally spectacular. Clearly the primitivist insistence that the Roman economy was essentially static is

wrong. Such dramatic demographic change obviously imposes the urgent question as to whether the population pressure of Rome's heyday depressed the standard of living of the mass of the population owing to declining marginal labour productivity (Jongman 1988). For that we need data on production and consumption. Recent years have seen the publication of numerous aggregate graphs of shipwrecks, meat consumption or fish salting installations, and they all suggest a significant increase in output and consumption (Jongman 2014; Brun 2012). What these graphs do not directly answer, however, is the ultimate question of *per capita* performance. Moreover, they are not directly connected to demographic datasets. To obtain a more precise answer, we have used lifestyle data from the same Nettuno survey as the demographic trend data, and used the shape of the demographic trend to decompose the finds time series into a shape that reflects the *per capita* trend.

Figure 2 presents the plot of the demographic trend represented in figure 1, together with plots of fineware and amphora sherds corrected for the demographic trend (find numbers divided by people for each period). The shape of these plots, therefore, represents the shape of the trend in the *per capita* consumption of amphorae and fine wares. The conclusion is obvious: population did not depress *per capita* consumption of these – rather the opposite. Since demand for wine or fine wares typically has a high income elasticity (that is consumption increases disproportionately more when income rises) it suggests a big increase in standard of living. Perhaps population was actually the dependent variable: it may have been rising precisely *because of* rising standards of living. If these conclusions indeed applied more widely, it means that for a while the Roman economy escaped its Malthusian constraints, and witnessed some real growth.

As a methodological conclusion, I strongly advocate proper economic analysis, to direct us to the right questions, and to provide the logic for analysis. Since TRAC is an archaeological conference, I wish, also, to make two requests. The first is for more attention to precise chronologies. Growth is a process in time, and to document it, the chronology of the time series needs to be as precise as possible (imprecise chronologies create more statistical problems than imprecise estimates for numbers of finds and the like). At the moment, published chronologies are often needlessly imprecise. The underlying data often have more chronological resolution than what is published, and that impoverishes subsequent analysis. The second request is for more aggregate analysis, and more advance planning to facilitate this. If one survey is great, dozens of them are much better.

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