12 *Framing the Debate over Growth in the Ancient Economy*†

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Taking stock of some of the recurrent themes of the previous three chapters, this piece explores ways of advancing beyond established controversies. Richard Saller is one of the foremost authorities on Roman social history, above all on patronage and the history of the Roman family.‡ As one of the editors of the forthcoming *Cambridge Economic History of the Graeco-Roman World*, Saller has most recently begun to address economic questions from the perspective of neo-institutional and development economics, and to link his work on families and households to the study of the Roman economy. Contrary to Finley (and Cartledge, Ch. 1), Saller defends the application of the concepts and concerns of modern economics to the study of the ancient world. In this paper, he challenges the common perception of a clear-cut dichotomy of 'modernist' and 'primitivist' positions in twentieth-century scholarship on the nature of the ancient economy as represented by the works of Mikhail Rostovtzeff and Moses Finley. Urging conceptual clarification of the terms of the debate, he then focuses on the pivotal question of how to define 'significant growth' in the Roman economy.

Ancient economic history has been the arena for what must be the most voluminous debate in ancient history over the past 30 years. Much valuable research has been published, and yet, in my view, the debate is in something of a conceptual rut, and as a result the debate has not been as productive as it might have been. Moses Finley's *The Ancient Economy* has been at the center of the controversy. Since its publication in 1973, a series of scholars have attacked it and pronounced the central thesis 'demolished'. And yet 27 years later, it has

† Forthcoming as 'Framing the Debate over Growth in the Ancient Economy', in J. Manning and I. Morris (eds), *The Ancient Economy: Evidence and Models*, Stanford: Stanford University Press, in press. Reprinted by permission.

‡ See for example *Personal Patronage under the Early Empire*, Cambridge: Cambridge University Press, 1982; *The Roman Empire: Economy, Society and Culture*, London: Duckworth, 1987, esp. Chs 6–8 (with P. Garnsey); *Patriarchy, Property and Death in the Roman Family*, Cambridge: Cambridge University Press, 1994.

recently been republished in a third edition, edited by Ian Morris, and continues to be the target of attack for new work.

Indeed, Finley's name has become a kind of glib shorthand used to summarize one side of the debate, in opposition to Rostovtzeff and his *Social and Economic History of the Roman Empire* – the so-called "primitivist" versus "modernist" debate (despite Andreau 1995 [Ch. 2 above]). This discourse has taken on a life of its own, sometimes far removed from anything Rostovtzeff or Finley wrote. This becomes obvious when one reads characterizations of Finley's position, with no page reference to *The Ancient Economy* but, rather, a reference to one of the hostile critiques. As a first step toward getting out of the rut, I want to go back to original texts to clarify what Rostovtzeff and Finley really wrote and point out the considerable common ground. Next, I offer a bit of speculation about why the debate has become distorted by exaggerated or false polarities. Then, I want to suggest some possibilities for ways in which recent economic theory of development and modern economic history can frame the ancient debate for the purposes of intellectual progress.

The contrast between Finley and Rostovtzeff is commonly summed up in the following polarities: primitivist versus modernist, no-trade versus long-distance trade, autarky versus integrated markets, technological stagnation versus technological progress; no-economic-growth versus growth, non-rational traditionalist versus rational individualists. These polarities are grossly misleading for two related reasons: 1) they seriously misrepresent the views of both Rostovzeff and Finley, and 2) the polarities are very far from representing the full spectrum of possibilities, as both Rostovtzeff and Finley knew. By the latter, I mean that it is as if historians have framed the possible views as Black and White, and then proceeded with ferocious arguments against either White or Black, all the while tacitly conceding that the most probable truth is somewhere in between, in the gray. The futility of such posturing need hardly be stressed. This is not to say that there are not substantive disagreements; rather, that those disagreements are narrower than sometimes thought, and may in many cases be beyond decisive resolution, as both sides agree on closer reading.

Before going to the text of *The Ancient Economy*, let me sketch what I take to be the current characterization of Finley's position, starting with brief phrases drawn from two very distinguished Roman historians. One describes Finley's view as that of "a primitive Roman economy" (Harris 1993: 15). The other describes Finley as a "static minimalist," who stressed the "cellular self-sufficiency"

of local town-country units (Hopkins 1995/6: 56 [see p. 217 above]). Notice two aspects of these characterizations: "primitive," meaning household self-sufficiency at subsistence, and "static," meaning no growth. Most recently, Horden and Purcell (2000: 106–7) have repeated the association of Finley with the descriptors "primitivist," "minimalist," and a "stagnant" economy.

To begin with the characterization of Finley as a "primitivist" in his interpretation of the ancient economy, it is true that he asserted that modern concepts of economic analysis designed for capitalist industrial economies are inappropriate for antiquity, which is only to say that there is an incomparability in economic organization between economies before the eighteenth century and those modern European industrializing economies of the late-eighteenth, nineteenth, and twentieth centuries analyzed by Adam Smith, Ricardo, Marx, and the neo-classical economists. It is not to say that Finley believed that the classical ancient economy was so primitive as to have consisted of autarkic households producing only for themselves without relation to markets. Indeed, the irony here is that in the early 1950s Finley broke with Polanyi who denied the significance of commercial markets in antiquity precisely because, in Finley's view, the ancient economy was *not* primitive. Contrary to Polanyi's thesis, Finley wrote in 1972, "the intrusion of genuine market (commercial) trade, on a *very considerable scale and over very great distances*, into the Graeco-Roman world had a feedback effect on peasant markets and the rest to such degree as *to render the primitive models* [of Polanyi] *all but useless*" (1975: 117, my emphases).

Finley's very definition of peasant – in his view the predominant type of laborer in the Empire – included linkage to wider markets and taxation systems. This characteristic distinguishes "the peasant on the one hand from the primitive agriculturist or pastoralist, who is not involved in a "wider economic system," and also differentiates the peasant from the modern family farm, in which the family is an "entrepreneurial unit, rather than a productive unit'" (1973: 105). Finley placed the labor system of antiquity in an intermediate position between primitive and modern, and cited for comparisons a number of studies of peasants in early modern European and modern colonial economies.[1] To burden Finley with the label "primitivist" is

[1] Finley's choice of comparisons is revealing of where he placed the Roman economy in the spectrum of development. Many of his comparisons were drawn from Shanin's classic collection on peasants (1971) and cover a range including twentieth-century Russia and colonial Africa (Finley 1973: ch. 4, nn. 29–30), Europe of the 1930s (ch. 4, n. 33), post-colonial Brazil (ch. 4, n. 49) – none of which is a "primitive society."

to ignore what he wrote or to use the word "primitive" so broadly as to be meaningless.

Clearly, Finley acknowledged the existence of markets in antiquity, and, further, noted that peasants specialized in cash crops for markets if they lived close enough to urban areas or sites of religious festivals (1973: 106). What he denied was the *integration* of markets empire-wide to a point that they can be analyzed as a single unit of supply and demand. There were markets, even linked markets, but not integrated markets. Had the markets been fully integrated, there should not have been desperate grain shortages in individual cities, at the same time that other cities were well supplied (1973: 33f.). In such cases, hungry urban dwellers did not depend solely on higher market prices to draw larger supplies from elsewhere in the Empire, but resort was made to imperial intervention.[2]

Related to markets is trade. By now, the number of scholarly papers demonstrating that Finley was wrong because of the large-scale material remains of trade is legion. Yet, Finley himself noted the amphorae "manufactured in the millions" (1973: 190), "the important foreign trade in famed regional wines" (133), and the significant group of commercial "cities which by their location were clearing houses and transfer points, deriving *substantial* income from tolls, harbor-dues and dock charges" (130, my emphasis). The major limiting factor in the expansion of trade was the cost of land transport. Yet noting the great grain mill at Arles, Finley wrote that for the towns on the rivers and sea "water transport ... created radical new possibilities ... In the first place, imports of food and other bulk commodities permitted a substantial increase in the size of the population, ... and improvement in the quality of life, through a greater variety of goods, a greater abundance of slave labor for domestic as well as productive work." This in turn opened possibilities for "specialized production" in the countryside. But "the tempo of development [was] slow and sometimes abortive" (128).

Why was the tempo slow? Because technological progress was slow – not non-existent, but slow. Finley underlined the fact of "some technological progress precisely where slavery showed its most brutal and oppressive face, in the Spanish mines and on the Roman latifundia" (1973: 83). Overall, however, comparative

[2] Similarly, Rostovtzeff (1957: 145) noted that one of the main duties of the emperor in Rome and town magistrates elsewhere was to secure the basic food supply. "The conditions under which a plentiful supply of food had to be secured were not very favourable." In an integrated market, this sort of supervision would have been superfluous because pricing would have drawn grain to areas in need.

evidence suggests that rentier systems of peasant agriculture are not conducive to innovation (109).

Finley added that we should not expect the kind of fast-paced innovation which in the history of mankind is peculiar to the nineteenth and twentieth centuries with their capitalist economic rationality (1973: 144). It is essential to stress here that Finley was not denying the rationality of the ancients, but was asserting that their rationality was framed by a different set of values and did not include some of the basic modern concepts such as amortization and double-column bookkeeping. Finley acknowledged that Romans kept accounts, even detailed accounts, but these were aimed at tracking production, sales, and expenditures – the sort of monitoring function so crucial to, and typical of, the absentee landlord. Monitoring is of course a rational strategy for the absentee landlord, but it is not the same as an analysis to identify profit rates in various parts of the business operation with the aim of directing investments to the points of highest profitability. Overall, Finley did not deny growth or assert that the ancient economy was "static." In fact, "the level of consumption increased in the course of ancient history, at times to fabulous proportions" (139). More particularly, "the expanded commercial activity of the first two centuries of the Empire was not [solely] a Roman phenomenon. It was shared by many peoples within the Empire" (158). As a result, Rome enjoyed some growth, but not "significant growth in *productivity*," to be distinguished from aggregate production (175, my emphasis, also p. 140) – a point to which I will return.

Curiously, some of Finley's prominent critics have heroized Rostovtzeff as the anti-Finley. And yet on certain fundamental points, the two agree. Above all, Rostovtzeff believed that the peasants constituted "an enormous majority of the population of the Roman Empire" who "lived in *very primitive* conditions" (1957: 346, my emphasis) – a stronger assertion of primitivism than I can discover in Finley. Furthermore, Rostovtzeff was far from arguing for integrated markets, allowing for the fact that "every inland city tried to become self-sufficient and to produce on the spot the goods needed by the population" (177). The reason was the expense of overland transport (146). And even sea transport was costly enough to prompt decentralization of manufacture to the provinces in order to save those costs. In addition, Rostovtzeff believed that the *annona* was the largest consumer of imperial trade (158f.), stressing the command aspect of the economy – the very stress for which Finley has been taken to task.

Where Rostovtzeff and Finley did part company was in Rostovtzeff's statements about the emergence of "big men, capitalists on a large scale" (1957: 153). Even here, however, Rostovtzeff clearly limited his assertion. He wrote that the numbers and associations of such merchants "may seem to indicate that the commerce of the first and second centuries began ... to assume the form of modern capitalistic commerce, based on large and wealthy trade-companies. The facts, however, do not support this view. Business life throughout the history of the Greco-Roman world remained wholly individualistic" (170).

Though Rostovtzeff and Finley did disagree over the characterization of villa production as "scientific," they agreed on the ultimate domination of the wealthy rentier class of absentee landlords who looked for "safe investment" – Rostovtzeff's phrase (1957: 197, 203) – in land and loans, rather than trying to maximize profits.

For Rostovtzeff, the reason that industry did not develop in the empire was a fundamental lack of demand for goods in a population whose great majority were impoverished peasants. The cities enjoyed greater wealth, but "we must not exaggerate the wealth of the cities," many of whose residents were also poor: the cities' "external aspect is misleading" (191).

Overall, I confess that I was surprised at the fundamental points of agreement between Rostovtzeff and Finley, after years of reading about the "dichotomy" between their interpretations, to quote a recent important publication (Harris 1993: 15). I have quoted in some detail, because after years of tendentious representations it is important to understand what these two great historians wrote in order to stop the fruitless jousting at straw men. Why the persistent misrepresentation of Rostovtzeff's modernism versus Finley's primitivism? A number of explanations come to mind, ranging from the individual to the late-twentieth-century cultural. First, soon after the publication of *The Ancient Economy*, a polemical tone encouraged the polarization of issues along the lines of growth/no-growth, trade/no-trade, and so on, in a way that quickly lost sight of the texts. Finley himself contributed to the polemic, for instance in the 1985 Postscript to the second edition. Second, on some issues of real disagreement, there may simply be insufficient evidence to bring the debate to a conclusion. In *The Ancient Economy*, Finley actually points to areas where further research needs to be done, but these points get lost in the polemic. Third, the polemic has been transformed into a controversy over the value of new archaeological finds. Finley was skeptical about some of the claims of archaeologists and

demanded that they address more precise issues than the question, "Was there trade?" – which he clearly acknowledged. In retrospect, I wish that he had addressed his challenge to archaeologists in a more constructive and precise way. Fourth, the debate over the ancient economy has taken on a strident, political edge as it has been caught up in the larger politics of the later twentieth century. In the first years after publication, *The Ancient Economy* was tossed around in the Marxist/anti-Marxist controversies, attacked by both sides. A recent internet publication by a Danish scholar, Peter Fibiger Bang (1998), argues that in the late twentieth century the primitivist–modernist debate about classical antiquity goes well beyond the economy to religion and other areas, and should be situated in the politics of the post-colonial era. That is, classicists are covertly arguing about whether their own European heritage is like or unlike the colonial Third World. Bang's idea is suggestive.

I am certainly not the only historian to feel that the Finley/anti-Finley debate has become increasingly sterile, but it is less easy to figure out how to break out of it. A first step would be to dispense with the misleading polarities. The next step, to my mind, is to try to specify the areas of contention more precisely, both through models and through more conceptual sophistication.[3] To argue endlessly over whether there was "significant" growth or not is futile, unless we specify what we mean by "significant." It is quite possible that the answer is both "yes" and "no," depending on the implicit frame of reference. By making explicit the frame of reference, by insisting on certain critical conceptual distinctions, and by drawing on recent economic theory of development, some progress may be possible.

Let me begin with a few brief assertions about development economics. Given the vast research in the field, they will necessarily be simple and crude. Yet, for all that economists disagree among themselves, certain basic points have gained broad adherence and have stood up to repeated empirical tests. In thinking about economic growth, it is absolutely essential to distinguish conceptually between per capita growth in production and aggregate growth. Hopkins (1980) has made this point, but it has been ignored in the debates. Total economic production can grow either because the productivity of each worker grows or because the number of workers grows or both. The two extremes would be, on the one hand, the recent experience in the US when productivity per worker

[3] Finley (1985: 182) made a similar programmatic statement, but did not develop it in a constructive fashion.

Table 12.1 Fastest growing economies (Ray 1998: 48)

Country	*Period*	*%/year*
Netherlands	1580–1820	+0.2
United Kingdom	1820–1890	+1.2
United States	1890–1970	+2.2
Total growth OECD countries	1870–1978:	570%

has jumped and, then, on the other hand, some densely populated Third World countries today where total population and production are multiples of what they were a century ago, but much of the population hovers around subsistence income, not noticeably more productive or better off than ancient rural populations. Even Finley at times conflated those two types of growth (e.g., 1973: 146f.), and that has muddled the argument. It seems beyond doubt to me that some regions of the Roman Empire increased aggregate production as the population increased (as Finley and Rostovtzeff recognized), but it does not follow that the per capita productivity noticeably increased. It is in the latter type of growth that development economists are interested, because it is the only type of growth that raises living standards in the long run. But if the issue in question is the tax base of the Empire, then aggregate production is the relevant measure. In the end, to assert only an increase in aggregate production based on an increase in population is a fairly weak claim in as much as it is to assert no more than that the Roman Empire fits into a very much longer progression of humans more densely populating the earth over the millennia.

A second fundamental point is that scale is critical, and in particular, scale over time. To have much meaning, the phrase "significant growth" should be pegged to some notion of rate of growth. To say, for instance, that productivity and standard of living increased by 50% sounds "significant," but takes on a different meaning if one adds "over a thousand years." It may well be that time span is the element in the estimation of growth rate that can be guessed at most confidently. Some comparative figures for economic growth can offer a sense of perspective. The fastest growing economies in per capita GDP through the modern era have been the Netherlands during the seventeenth and eighteenth centuries, followed in the nineteenth century by the United Kingdom, and in the twentieth century by the United States (Table 12.1).

Clearly, the great threshold here is between the Netherlands and Britain, and comes around 1800. Before 1800, growth in per capita

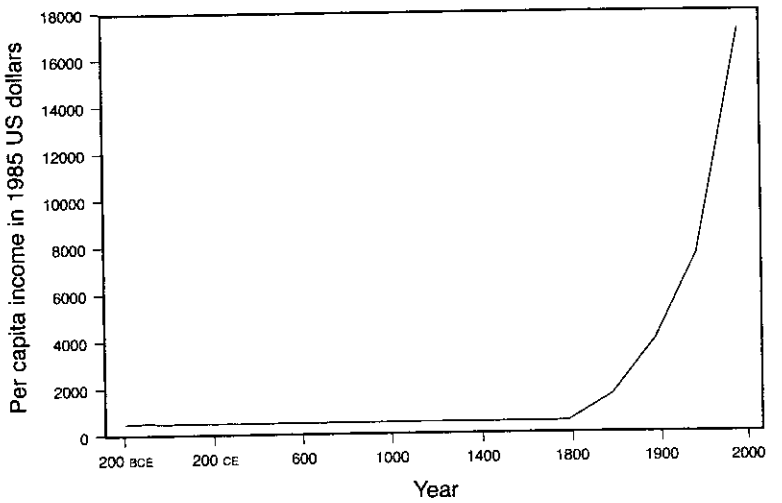

Figure 12.1 GDP per capita 200 BCE–2000 CE in leading economies. Source: after Lucas 1998: Figure 3

production was almost imperceptible, and the classical economists writing around 1800 simply did not dream of the possibility of dramatic increases (Lucas 1998;[4] Johnson 2000). At the early modern growth rate of the Netherlands, productivity would have improved only 6% over a generation of 30 years. By contrast, in nineteenth-century Britain from one generation to the next productivity improved by 50%; and in the twentieth century US productivity and living standards doubled with each generation.

Perspective is essential to ground the claims about growth. To the economist Robert Lucas, the very long-term graph of economic growth looks something like Figure 12.1 (from Lucas 1998: Figure 3). Looked at from a closer perspective, the section of the graph for the Roman Empire could – without contradicting Lucas – look like Figure 12.2. This graph postulates economic growth in the first centuries of Roman rule of the Mediterranean. Let me stress that it is a heuristic device to clarify the debate, designed to illustrate that it is possible to specify a growth curve consistent with both sides. In particular, it is consistent with the arguments of Keith Hopkins, who has put forward a sophisticated case for some economic growth stimulated by imperial taxes (Hopkins 1980, 1995/6 [Ch. 10 above], and personal correspondence). In total, the growth amounts to per-

[4] I am especially grateful to the author for permission to cite this work prior to publication.

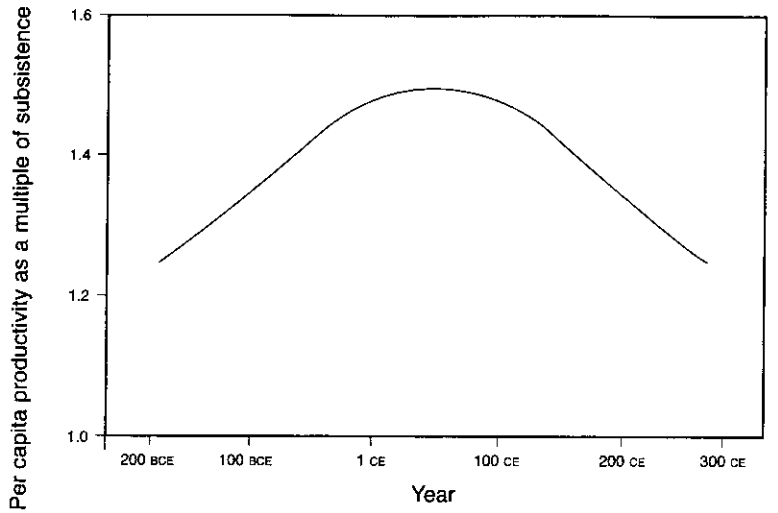

Figure 12.2 GDP per capita productivity 200 BCE–300 CE. Source: from lower lefthand corner of Figure 12.1, after Hopkins 1995/6 [Chapter 10 in this volume]

haps as much as 25%. The peak of production allows room for urbanization and for 4 billion HS per year in non-agricultural production, and hence for plenty of trade to generate those millions of amphorae and hundreds of shipwrecks that Finley, Hopkins, and the many critics of Finley point to. And yet, in comparison with the nineteenth century – the comparison of interest to Finley and Lucas – it is still correct to stress the limits of the growth. After all, total growth of 25% over three centuries would amount to less than 0.1% per year, and even that rate was not sustained.

Was there "significant" growth? From the perspective of a near-subsistence economy in parts of the western empire in 100 BCE, the answer could be "yes." But from the perspective of Robert Lucas at the end of the twentieth century, the answer is "no" (1998). I see no point whatever in arguing about which perspective is the right one: that would be tantamount to arguing about whether the glass is half-empty or half-full. The critics of Finley might well say: "of course, Rome did not have a modern, industrial economy; that is so obvious, why make the claim?" To which the ghost of Finley, or at least his student, might respond: "Earlier in the twentieth century some prominent historians argued that there was no serious gap between imperial Rome and modern Europe; and even today, it is useful to place Rome in that top graph in order to be reminded of some basic

limitations of Rome's predominantly agrarian economy."[5] On the other side, this is not to minimize the value of the perspective of 100 BCE and Hopkins' suggestion of "modest, though significant, economic growth" (1995/6: 57 [p. 219 above]).

Some basic theory of economic development can, I believe, help us to understand why the growth was no more than modest and why, ultimately, it was limited. One might start with four or five basic causes for growth in per capita production identified by economists (Mokyr 1990). The first was emphasized by Adam Smith: trade, which in turn allows for specialization. The most obvious aspect of specialization was the fundamental split between rural and urban production. A second cause of growth is intensification of capital investment. That is, the more that a society saves in order to invest in tools of production, the more productive each worker can be. But over 40 years ago, Robert Solow (1956) made the fundamental observation that additional capital investment will have diminishing returns, unless the technology of the capital also improves. The logic is clear: give a farmer an ox and iron plough in place of hand tools, and his productivity will increase; but a second or third plough for the same farmer won't double or triple the production. Hence, the emphasis of Joseph Schumpeter (1934) on improved technology as the engine of sustained growth: this is a third basic cause of growth and the one of central concern in much contemporary research. Over the past 15 years, Chicago economists and others have refocused their theories on a more fundamental cause than technology, and that is the human capital that invents and uses the technology (Becker, Murphy, and Tamura 1990; Lucas 2000; Johnson 2000). That is to say, sustained technological improvements should not be treated as random strokes of good luck, but as an outcome of the education and training of people. It is a striking fact that in the late twentieth century the total value of human capital in the US economy – the investment in education and training – was larger than the value of physical capital. These economists make the theoretical argument that human capital investment is the only basis for indefinite *sustained* economic growth in productivity per worker (Ehrlich 1990), and that increased education of ordinary workers explains a large part of the economic growth of the twentieth century (Lucas 1998).

There is an important corollary of the human capital argument, and that is its tie to the demographic transition [more people work-

[5] This broad understanding, from the point of view of an agricultural economist, is the point of Johnson 2000.

ing in service sector than in production] (though cause and effect are unclear). Increased investment in education makes sense against a background of longer life expectancy and fewer children per family, each of whom receives more attention and education, which is then employed through a longer working life (Becker, Murphy, and Tamura 1990). One other dimension of economic growth has been emphasized by Douglass North (1973, 1990): the institutional framework for economic activities. In particular, North argues that some societies have frameworks that do more to encourage productive innovation and to reduce the difficulties and costs of economic activity than others.

Let me offer a few reflections about how we might think about each of these factors in regard to the Roman Empire. First, consider trade. Clearly, as both Rostovtzeff and Finley wrote, the Empire benefited from trade in volume, and that long-distance trade probably increased under Roman rule. Hopkins (1980, 1995/6) has further argued that the increase was stimulated by taxation that required the provincials to earn back at least some of their denarii taken as taxes – in other words, to reach a balance of payments. Even with all of the caveats of the critics (e.g., Duncan-Jones 1994), Hopkins' argument is likely to be right, in my view. But we should understand the limits of his claim about the importance of long-distance trade in the economy by comparison with agriculture (and, in fact, Hopkins himself is careful to circumscribe it). For instance, Hopkins (1995/6: 59, pp. 222–3 above]) calculates the amount of grain consumed by Rome as the huge consumption center of the Empire, and then estimates the number of ships needed to supply the grain, and suggests that the capital investment in these ships must have been of the order of 100 million HS – a large number that underlines the significance of this trade. But how far does this modify the stress on land as the overwhelming investment of Rome's wealthy? 100 million HS is less than some individual fortunes of a few senators and imperial freedmen, and less than 1% of the total capital assets of senators (if we take Pliny's fortune as the rough average for senators).

Now, it is reasonable to suppose, with Hopkins, that Roman taxation demanded more surplus from rural labor, forcing peasants to intensify their labor, and that the surplus supported larger urban populations who manufactured goods for trade. Hopkins' evidence, though indirect, does point to an increment in trade in the last two centuries BCE (1980; revised numbers in 1995/6: n. 48 [p. 211 above]). It is also true that Hopkins' graph of dated shipwrecks, used as a proxy for trade and growth, does *not* show a rise in the first two centuries CE. If we accept the logic of his argument, we should ask for an economic model that explains not only the growth in wrecks through the first century BCE, *but also the absence of growth thereafter, before the decline of the third century*. It would be wrong to read this graph to show that the Roman economy displayed a consistent capacity for sustained growth through the Principate before the political shocks of the third century.

My second cause of growth is the intensification of capital investment. Here the fundamental starting point, agreed by all sides, is that production was predominantly agricultural – probably of the order of at least 75 or 80%. In some regions of the Empire, there was agricultural investment in the sense of extending cultivation, including specialized crops for market. This would have increased aggregate production, and to a lesser extent per capita production. But limits were reached in the absence of major improvements. The willingness of Roman landowners to invest more intensively was limited. As Dennis Kehoe (1992, 1997) has argued, the best description of the dominant attitude toward investment was "satisficing" – that is, the strategy of a safe return for a minimum investment in land. It is plausible to think that there were narrow limits to increases in productivity to be had by pressing peasants and slaves to work more intensively with more or less the same capital (the Hopkins scenario). And such pressure in the longer run may have turned out to be counterproductive in some areas, as capital was sucked out of the countryside, depriving peasants of, e.g., their plough animals and even their capacity to raise children (the scenario in Plin., *Ep.* 3.19). Kehoe's research on rural investment, especially in Roman Egypt (1992), suggests that economic decline in some areas in the Principate is consistent with the evidence and with comparative studies in development economics.[6]

Of course, there were exceptions to the rentier mentality – emphasized by Finley's critics, but on a closer look some of them actually support Finley's view of land acquisition as a matter of windfall rather than efficient markets and calculated capitalist investment. The elder Pliny (*HN* 14.49–51) reports the exceptional example of Remmius Palaemon, who in the mid-first century CE bought a run-down vineyard outside Rome, invested in it heavily with traditional technology, and increased annual production so much that he sold

[6] Comparative studies show that the more skewed the wealth between rich landowners and tenants, the lower the productivity (Rosenzweig and Binswanger 1993).

one year's crop for two-thirds the original cost of the land just a few years after purchase. One could stop at that point and take the story as an instance of a capitalist investment, but the end of the story also bears emphasis. Pliny does not say that Palaemon's example inspired similar capital investment by other Romans, but rather that Seneca moved in to buy the vineyard at four times its original price because he was captivated by a desire (*amore*) to possess this model estate, not to make his own profit by similar investments elsewhere.

Another example recently held up to exemplify capitalist investment is Claudius' draining of Lake Fucinus, studied by Philippe Leveau (1993) as an illustration of entrepreneurship. The elder Pliny (*HN* 36.124), Tacitus (*Annals* 12.56f.), and Suetonius (*Claudius* 20) all noted this massive project, and Suetonius claimed that Claudius did it as much for profit as for glory. According to the biographer, the project required the labor of 30,000 men over 11 years. Archaeologists estimate that 5,000 hectares were recovered. The land was distributed to those private individuals who offered to help finance the project. If we take Suetonius and his numbers at face-value, we can do a simple calculation: at a cost of 36 million HS (30,000 men × 11 years × 110 HS in bare subsistence/man-year), Claudius recovered 20,000 *iugera* of land, worth something less than 20 million HS[7] – that is, the project cost nearly twice the value of the land. Leveau, who did not do the arithmetic as far as I can see, concluded that "this is a rare example for Antiquity of agricultural investment, i.e., of an expense made in the hope of a profit in return" (1993: 12). Ironically, given the cost and benefits, its rarity may attest more to Roman rationality than the project itself. What's more, the drainage was allowed to fall into disrepair soon after, suggesting that it cannot have been profitable to maintain and that some of the colossal investment must have been at least partially wasted.

To crystallize my point about capital investment, let me briefly comment on Columella's famous illustration of a model investment in a vineyard – a comment unrelated to the ongoing debate about Columella's accounting. My point is more basic: Columella exhorts his readers to invest in a productive vineyard: 7,000 HS for the land, about as much again for a slave vinedresser, and 14,000 HS for stakes and slips (3.3.8). This kind of investment no doubt had the capacity to increase productivity above subsistence production, but it had

[7] Duncan-Jones (1982) argues convincingly from the indirect evidence of returns to investment that Columella's 1000 HS per *iugerum* is likely to be on the high side for land prices in Italy.

no capacity to generate sustained growth, only one-time growth. The fact that Columella was writing about essentially the same mode of intensification to increase productivity as Cato more than *two centuries earlier* says something obvious about economic growth.

Sustained growth per capita requires sustained technological improvement. There were certainly some technological innovations through the Principate – to assert this as if it were an attack on Finley seems pointless, since he acknowledged as much. The important questions are how much did productive technology improve over what timeframe, and for what proportion of the work force. Scale is essential, as one example may illustrate. Orjan Wikander has written about the invention and diffusion of animal- and water-powered mills. On Wikander's account (1984), the mills could save labor and improve production of basic food processing by as much as 10%; the use of these mills required three to five centuries to spread around the Empire. On the assumption that this improvement was exploited to the very fullest (clearly it was not), it would have contributed to growth at a rate of less than 0.025% per year. I say this not to trivialize the water mill, but to suggest that it would have required a whole series of such inventions that increased the productivity of the mass of rural workers to reach growth levels comparable to the early modern Netherlands. Perhaps the argument can be made, but Rostovtzeff and White (1970: 450), like Finley, saw little evidence for dramatic innovation in peasant agriculture.

In the urban sector, technical progress – much of it in the public domain in the form of building techniques, aqueducts, and other amenities – certainly did improve living standards, and that fact should be taken into account in assessing economic growth. At the same time, the limitations of improved technology should also be acknowledged, as Rostovtzeff and Hopkins have been careful to do. It is generally agreed that the urban population constituted no more than 20% of the population. It follows that if the productivity and living standard of the urban minority increased as much as 50% over several centuries (say, 100 BCE to CE 200), that would constitute growth of only 10% for the Empire as a whole, spread over three centuries – that is, much less than 0.1% per year. And there are reasons to think that such a rate is too generous, because, as Rostovtzeff noted, much of the urban population remained underemployed and at bare subsistence (as in Third World economies today).

Perhaps most fundamentally, those urban amenities did not have the effect of changing the basic demographic regime of the popu-

lation in a way to change the decisions about human capital investments, as happened in the nineteenth century. That is to say, recent research has reaffirmed the sense that, despite the aqueducts and sewers, mortality in Rome and other cities of the Empire remained appallingly high and life expectancies very low (Shaw 1996; Scheidel 1996: Ch. 4 and 1999). In that environment, there was no shift toward smaller family size, more investment in the education of each child, and a longer average work life to utilize that human capital. Education and training outside the household were the privilege of the elite few for the most part, and the standard elite education in literature and rhetoric would have had little benefit in increased productivity. To state this is only to state the obvious about differences in cultural values, recognized by Finley and his critics (e.g., Wikander 1984: 40).

The question of the institutional framework for economic growth – the last on my list of causes of growth – is quite interesting and complex – too complex for a satisfactory discussion here. Suffice it to say that the Roman Empire may be used as a test case for Douglass North's claim about the importance of institutions. In many respects, Roman imperial institutions should have encouraged growth on North's theory: the large potential market of the Empire, the long periods of peace across much of the empire, the relatively low average taxes, the legal system protecting property rights. And yet, the area of the Empire in which these characteristics were most strongly felt, tribute-exempt Italy, did not lead the Empire in sustained growth. Historians argue about whether and when the Italian economy declined, but no one to my knowledge argues that Italy led the empire with consistent growth through the Principate, as would be predicted by North's neo-institutionalism.

To conclude, the framing of the debate over growth in the Roman imperial economy in the polar terms of primitive vs. modern seems pointless to me: it misrepresents the positions of the supposed protagonists, and it obscures areas of both agreement and disagreement. I have suggested that, rather than arguing about whether or not there was "significant" growth, without defining the adjective, we might imagine a gentle growth curve for the Roman Empire that is consonant with the observations of Finley and Rostovtzeff, and with the propositions of Hopkins and Lucas. It can accommodate a rise in the level of urbanization in the western Empire to a point commensurate with the eastern provinces, and also an accompanying increase in trade. From the perspective of the period of Roman annexation of the eastern Mediterranean, the aggregate growth could be defined as

"significant;" from the perspective of the industrial age, the growth as represented in Figure 12.1 is imperceptible and unsustained. Most recent work in the economic theory of development would lead us to expect nothing else.

My hope is that this broad framing will lead either to some consensus about the parameters of the debate or to more clarity in the challenges to Finley (and Rostovtzeff). Are the critics prepared to argue that the growth was so "significant" as to exceed substantially that depicted in Figure 12.2 (say, to exceed "twice subsistence")? That would be a claim of major importance, of interest not only to ancient historians but also to economists. If that claim is advanced, what evidence would be required in corroboration? "Millions of amphorae" and monumental urban architecture will have to be taken into account but will not be enough, because Figure 12.2, despite the very modest growth postulated (modest not only by late modern standards, but also by early modern standards), can accommodate one trillion HS in urban production over the two and a half centuries of the Principate.

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