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Economy and quality of life in the Roman world

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Walter Scheidel

Stanford University

Abstract: This paper surveys recent trends in the study of economic development and human well-being in the Roman world.

Approaching the Roman Economy

Modern debates about the nature of ancient economies have traditionally revolved around the twin problems of performance and structure. Whereas over a century ago German 'primitivists' and 'modernists' focused on the capacity of an ancient economy that was alternately envisioned as a backward conglomerate of cellular households or the equivalent of late medieval and early modern European economies (Finley (ed.) 1979), later generations of 'substantivists' and 'formalists' argued over structural characteristics, most notably the extent to which considerations of status shaped economic activity: according to what belatedly emerged as the most influential school of thought (Weber 1988; Finley 1999), pervasive conservative value systems constrained economic development and favored rent-taking over market exchange as the principal source of wealth, a model framed in explicit contrast to later western developments (Morris and Manning 2005; Morris, Saller and Scheidel 2007). Among Roman historians, the resultant picture of a highly localized, fragmented, and largely agrarian economy that sustained a thin veneer of coerced transfers and trade in luxuries and a network of towns that were dominated by landowing elites (Jones 1974; cf. also Duncan-Jones 1990) was most effectively challenged by Keith Hopkins who put greater emphasis on dynamic processes and the probable scale of exchange (esp. Hopkins 1983a & b, 1995/6 = 2002). This has coincided with a revival of empiricist critiques of what one might call the 'low-equilibrium' model of the Roman economy, marshalling data thought to be indicative of economic diversification or growth but often lacking in theoretical conceptualization. Most recently, a growing awareness of the key issues involved in the historical study of economic growth (Saller 2002 = 2005; Scheidel, Morris and Saller (eds.) 2007; Silver 2007; Scheidel forthcoming a) and a push for systematic quantification (Bowman and Wilson in progress) have opened up promising new perspectives on the Roman economy.

The Purpose of Roman Economic History

What does economic history do, and what is it good for? In a classic definition, students of past economies seeek to 'explain explain the structure and performance of economies through time' (North 1981: 1): performance, which represents the scale of output and the distribution of costs and benefits, is in itself determined by structure, created by institutions, technology, demography, and belief systems. Economic performance, in turn, is one – though by no means the only – critical determinant of human well-being or the quality of life. All these issues – economic performance, structure, and its contribution to overall human development – need to be approached within a comparative context: they cannot be assessed at all except in relation to other times and places. The Roman economy, therefore, cannot be studied in splendid isolation but only as a phase in the economic development of western Eurasia in particular and the pre-industrial world in general. This perspective not only permits us to situate the Roman case within a broader narrative but also encourages us to apply questions and theories we encounter in the economic history of other periods. More specifically, the Roman imperial economy is of interest far beyond the confines of Roman studies: the only time

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in history when the entire Mediterranean and much of its European hinterland was contained within a single state, it affords us a rare opportunity to address the question of whether large-scale political unity was conducive to economic growth and/or human development.

This agenda invites us to compare Roman conditions with the antecedent Mediterranean phenomenon of significant economic development in the Greek poleis at a time of exceptionally intense political fragmentation (Morris 2004); with the economic history of Europe from 1500 to 1800, a period of intensifying competing between emerging states when slow baseline per capita growth and soaring inequality enriched elites and certain groups of metropolitan skilled workers but caused real incomes to decline for much of the population (Allen 2001; Hoffman et al. 2005); and the cyclical development of China, where political unity gradually became the norm but particular periods of imperial stability were associated with varying economic outcomes (Elvin 1973). What economists, historical sociologists and political scientists would like to know is whether, or rather under what circumstances, a super-state tends to provide a framework that promotes economic growth. In different scenarios, Roman expansion may have fostered growth that came to be widely shared, or instead merely boosted the fortunes of the ruling class; it may have caused average incomes to rise, or resources to be more unequally distributed than before; it may have made everyone richer but the elite even more so, or may have benefited Italians relative to provincials, or city-dwellers relative to farmers. And how did these consequences change over time? We cannot hope to understand the Roman economy or its contribution to human welfare, or to tie it in with the economic history of other periods, unless we attempt to address these issues.

Assessing Roman Economic Development

Qualitative and Quantitative Approaches

How do we assess Roman economic development? The 'substantivist' camp used to rely in the first instance on impressions derived from putatively representative statements in ancient textual sources to reconstruct economic structure and to infer actual conduct from professed sentiments. This method raises serious epistemological questions: even 'true' statements need not be representative in a quantitative sense, and the rhetorical character of elite discourse necessarily undermines any attempts to link ancient texts to economic behavior. While elite preferences may indeed have constrained actions, they may also have accommodated more divergent realities. At times, however, the mere attestation of a certain practice (for instance, in finance) may allow us to glimpse levels of development even if we cannot hope to ascertain the extent of its actual dissemination. Quantitative study, on the other hand, requires time-series of reliable as well as representative data on fundamentals such as yields, prices, wages, taxes and rents, or at the very least bodies of relevant non-textual evidence that are susceptible to standardized measurement. The former, concentrated among the papyrus documents that survive from Roman Egypt, are rarely sufficient for diachronic or trans-local analysis, while the latter range from an abundance of measurable items such as coins or ceramic remains (e.g. Duncan-Jones 1994; *Amphores* 1986) to more complex configurations such as the

distribution of shipwrecks or the economic and demographic significance of surface scatter detected by field surveys (e.g., Parker 1992; Osborne 2004). Quantification is essential if we ever hope to address key questions about economic growth and compare the Roman experience with other historical cases.

Extensive and Intensive Growth

Economic growth is the single most important factor. Extensive growth – the accumulation of more output – was a simple function of population growth and must have occurred on a considerable scale as settlement densities increased in many parts of the Roman empire, especially in the west. However, the scale of intensive growth – increases in per-capita output – is both more important and more difficult to pin down. Archaeological visibility governs and potentially distorts any modern assessment. For example, we might be inclined to interpret a proliferation of monumental infrastructure or a surge in the number of recorded shipwrecks as indicative of growing consumption per person: however, shifts in the allocation of surplus (say, from competitive feasting or war-making to civilian construction and shipping) or worsening inequality that boosted elite spending on buildings and marketed goods while many others' real incomes declined might arguably have caused the same observed features. Biased distributional arrangements make it (even) more difficult to estimate the extent of intensive growth from material remains. For this reason, we need to identify robust growth indicators that are not easily distorted by class-specific consumption patterns. Without such indicators, we cannot tell when and why intensive growth arose, and when and why it ceased: whether it was gradually choked off by the very population growth it engendered (a 'Malthusian' scenario'), or whether it succumbed to exogenous shocks such as epidemics or invasions (Scheidel forthcoming a).

Proxy Evidence for Economic Performance

Existing data are completely inadequate for a reconstruction of absolute levels of output and consumption. Roman per capita or aggregate GDP is therefore unknown. Conjectures based on probabilistic assumptions about the share of total income spent on food (Temin 2006) or on the ratio of the imperial budget to the imperial population (both empirically unknown; Hopkins 1995/6 = 2002) converge in positing low average per capita output but take as a given what would need to be empirically verified: that average GDP did not exceed subsistence levels by a very wide margin (cf. now Scheidel and Friesen forthcoming for GDP approximating twice minimum subsistence). While this starting assumption, grounded in comparative evidence, must necessarily be true in the most general terms (and especially when we compare the Romans to more advanced economies), it also fails to allow for less dramatic but significant deviations from putative pre-modern norms, or indeed for change over time (cf. Maddison 2007: ch. 1 for conjectures).

Evidence for real incomes – the amount of goods and services that can be purchased at the same cost at different times – would provide insight into changes in per capita consumption but is only available for certain parts of Roman Egypt and of uneven quality (Scheidel forthcoming b). As a result, modern estimates of household budgets in

different periods (Drexhage 1991: 440-54) rest on very shaky ground, and attempts to relate apparent changes in real wages to changes in population number (Scheidel 2002, forthcoming b) likewise remain open to criticism. In the near-absence of direct evidence, we must fall back on proxy data that may arguably shed some light on trends in average per capita output and consumption levels. Due to space constraints, this section can touch only briefly on a few relevant categories.

The ratio of agricultural to non-agricultural workers is strongly predictive of per capita output. Since we are unable to track changes in this relationship directly through occupational statistics, we are forced to rely on observable changes in the rate of urbanization, i.e. the share of the population residing in urban settlements. But to what extent is it justifiable to interpret the considerable increase in the size and number of cities during the last few centuries BC and the first few centuries AD as a shift away from farming? Urbanization is commonly considered a correlate of economic development, associated with growing division of labor and per capita incomes, and it is hard to imagine that Roman towns failed to generate similar outcomes. At the same time, urban residence need not always denote non-agricultural labor: in an environment where cities and their hinterlands were fused together as *poleis* or *civitates* and urban elite spending and euergetism attracted immigration, many city-dwellers may have continued to be involved in rural production (cf. Hansen 2006 on Greece). The economic benefits of urbanization were also mediated by the nature of the revenue streams that sustained this process: an urban economy ultimately based on rent-taking (Erdkamp 2001) may have provided lesser economic stimuli than a market-exchange system. The growth of mega-cities such as Rome itself, moreover, is best seen as a function of the coercive and redistributive capacity of the state. On balance, however, an expansion of urban residence ought to have encouraged trade and occupational specialization, creating a more complex economy and, ultimately, some measure of intensive growth (cf. Wrigley 1978). Recent comparativist work on the provisioning of Roman cities (Erdkamp 2005), urban labor (Jongman 2003b), and urban trades and retailing (Hawkins 2006; Holleran forthcoming) sheds new light on the economic consequences of urbanization.

Monetization provides a more straightforward measure of economic development. In as much as increasing liquidity facilitated investment and exchange, a great expansion of the money supply without concurrent price inflation is likely to have coincided with intensive economic growth. Recent work has reconfirmed that the volume of Roman coinage increased hugely in the late Republic (Lockyear 1999), and that the subsequent spread of gold issues greatly boosted the total value of the imperial money stock (Duncan-Jones 1994; Banaji 2007). This expansion was paralleled by a striking increase in air pollution in the northern hemisphere: lead deposits in ice cores from Greenland and in peat bogs or lake sediments from various parts of Europe are suggestive of massive lead smelting and cupellation to extract silver and copper in the last few centuries BC and the first few centuries AD (Wilson 2002; de Callataÿ 2005; Hopkins 2009). If, however, a conjectural estimate of the aggregate value of Roman imperial coinage based on die studies implies that the Roman empire as a whole enjoyed greater liquidity than the eighteenth-century Netherlands (Jongman 2003a: 187 on Duncan-Jones 1994: 168-70), this finding will primarily cast doubt on the validity of the estimate itself. Yet even if we were eventually to arrive at a more moderate assessment of Roman monetization levels, new research on the importance of credit money (Harris 2006, 2008) and the relative

sophistication of Roman financial arrangements (Temin 2004; Malmendier 2005) would nevertheless place the Roman monetary economy in close proximity to much later periods of European history. While elites would have disproportionately benefited from these advances, the sheer scale of the monetary expansion necessarily implies a rise in the volume of exchange that could hardly have been confined to a narrow circle. Once again intensive growth is the most likely explanation.

The notion of growing exchange is of course also consistent with archaeological data: although a sharp upturn in the number of shipwrecks in the late Republican period (Parker 1992) may to some extent be an optical illusion created by the unusual durability of their cargo (above all amphoras, later also marble) that facilitates discovery (Wilson 2009), ample evidence for the extensive dissemination of ceramic containers and especially of low-key ceramic consumer products such as tableware and lamps documents mass production and trade that catered to subelite consumers. The scale of these improvements in consumption is cast into sharp relief by the conspicuous decline in the volume and quality of attested consumer goods and infrastructural provisions after the end of the imperial period (e.g., McCormick 2001: 25-119; Ward-Perkins 2005: 85-187; Wickham 2005).

In any pre-modern economy, food consumption accounted for a large share of the average household budget: thus, certain dietary changes (for example, from husked grains to bread wheat or from cereals to meat) are likely to reflect improvements in real incomes. According to 'Engel's Law', with a given set of tastes and preferences, as income rises, the proportion of income spent on food falls, even if actual expenditure on food rises. A better diet is therefore logically associated with increased consumption of non-food items as well, reinforcing the probability of intensive economic growth. In the Roman case, the growing presence of animal bones at sites of the late Republican and early imperial periods has begun to attract attention (Ikeguchi 2007 and Jongman 2007a, based on King 1999 and MacKinnon 2004), and invites us to modify the conventional notion of a pervasively vegetarian diet. This perspective converges with new optimistic assessments of the capacity of Roman animal husbandry (Kron 2002).

Consumption levels are also reflected, however imperfectly, in physiological properties such as average body height: very broadly speaking, material prosperity tends to boost stature. While the study of body height has a long pedigree in more recent economic history, systematic surveys of the Roman evidence have only just begun to appear and have thus far yielded somewhat contradictory impressions (Kron 2005a; Koepke and Baten 2005; Jongman 2007b; Giannecchini and Moggi-Cecchi 2008). Moreover, economic interpretations of stature are complicated by the fact that disease affected physical growth independently of diet.

Structural Determinants of Economic Performance

A variety of contextual factors influenced economic performance, most notably ecological conditions, demographic structure, legal and informal institutions, gender roles, and the stock of knowledge and resultant technological capabilities (Scheidel, Morris and Saller (eds.) 2007: ch. 2-6). It is true that analysis of these features tells us more about their potential impact than about actual outcomes. At the same time, thanks to the nature of the evidence, most of them are much more readily susceptible to empirical

investigation than more straightforward indicators of economic growth: we do – and always will – know much more about Roman crops or law or family relations or machinery than about real incomes or GDP. For this reason alone, these physical and cultural determinants merit careful consideration.

Climate change is a critical variable because changes in temperature and precipitation affect food production, population size, and ultimately socio-economic complexity. In the present case, a Roman 'warm period' in the first few centuries AD must have had different repercussions in different parts of the empire (Sallares 2007). The gradual spread of viticulture and oleiculture – driven by a combination of warming, trade and migration – and the shift from barley to wheat and from hulled to free-threshing wheats (ibid.) is suggestive of changing tastes associated with improving living standards.

Institutions can be defined as the 'rules of the game' that constrain economic activity, encompassing both formal, explicit rules enshrined in laws and rights as well as informal, impicit norms and conventions that tend to be established in the context of enterprises, markets, and government. The 'New Institutional Economics' school of thought in particular accords these rules a considerable role in determining economic performance. Under the influence of substantivist perspectives (see above), ancient historians have traditionally focused their attention on the informal end of the spectrum, whereas formal appraisals of the probable impact of formal laws and property rights on Roman economic development have only just begun to appear (Frier and Kehoe 2007; Kehoe 2007; De Ligt 2007). Once again, the relatively abundant evidence concerning these features invites more extensive study.

Recent work on technological advances in the Roman world calls for renewed attention to the interplay between increases in the stock of knowledge and economic development (Greene 2000; Wilson 2002). Roman universal rule was associated with the application of improved technology on an ever larger scale (most famously in mining and milling) as well as with the interregional transfer of technologies, both of which may be considered conducive to productivity growth and economic progress (Oleson (ed.) 2008). In this area, the biggest challenge lies in ascertaining the ways in which economic processes were altered through technological development, and in assessing the extent of such changes in comparative terms (Schneider 2007; Lo Cascio (ed.) 2007).

Variation in Economic Development

Geographical divergence likewise requires careful consideration: the experience of premodern Europe and China shows that even under the fundamental constraints that inevitably rein in 'organic' economies, some regions (such as the Netherlands or the Yangzi Delta region) may pull well ahead of all their neighbors. Similar imbalances may have arisen in the Roman world: in this case, the spatial concentration of state power and concurrent innovations in the organization of labor represent the most likely agents of regional differentiation. Thus, recent models informed by comparative evidence and economic theory suggest that accelerating non-reciprocal inflows of plunder, taxes and rents into the Italian heartland may temporarily have raised living standards at the political core (Scheidel 2007b) but ultimately undermined its economic performance (Freyberg 1989). The expansion of chattel slavery (Bradley and Cartledge (eds.) 2009) in

the same area is logically associated with rising real wages (Scheidel 2008a) and may also be indicative of productivity growth. Beyond the economic differentiation of core and periphery, regional trends were shaped by the different growth potentials in the eastern and western halves of the mature empire, by the stimulation of economic activity and specialization through state extraction, and by the sustained net transfer of surplus to the military frontier zones (Hopkins 1995/6 = 2002; Bang 2007; Scheidel, Morris and Saller (eds.) 2007: ch. 24-27).

The emergent 'globalization' model of Roman rule (e.g., Hitchner forthcoming) is consistent with the notion that while large elements of the population stood to benefit economically, elites gained much more than most others, exacerbating overall inequality (Jongman 2006). For evidentiary reasons, formal measurements of inequality as expressed in patterns of landownership are largely confined to Roman Egypt (Bowman 1985; Bagnall 1992) and only rarely possible in other regions (Duncan-Jones 1990: 129-42). In principle, however, class-specific differences in consumption levels are amenable to archaeological inquiry, and even textual evidence affords an occasional glimpse (Matthews 2006). Distributional issues matter not as much for estimates of average economic growth as for our understanding of how economic performance related to the quality of life, the topic of the remainder of this chapter.

From Economic Development to Human Development

Economic output is a powerful yet ultimately insufficient indicator of human well-being. Other variables that tend to be correlated with economic performance but at the same also vary autonomously need to be taken into account, most notably health and longevity, literacy and education, political participation, security, gender equality, and human rights. For the present, the *Human Development Index* of the United Nations documents the – generally limited – extent to which these factors diverge from economic capacity around the world. In more archaic societies, however, we may expect greater elasticity: at a time when wealth could not buy longer lives and high attrition from organized violence often coincided with real income growth, non-economic conditions would have played a greater role in determining overall well-being.

Demography

Longevity is probably the best example. In as much as we can tell, mean life expectancy at birth was low, mostly from 20 to 30 years or so (Scheidel 2001b). Unlike today, wealth and status did not normally translate to greater longevity (Scheidel 1999): instead, population density, altitude, and the consequent level of exposure to infections were the principal determinants of morbidity and mortality. In this area, it is not at all clear that economic real growth generated demographic benefits: if anything, wealth-driven urbanization may have placed an additional burden on vulnerable immigrants from lower-exposure backgrounds (e.g., Scheidel 2003), causing material and physiological well-being to diverge (as happened most recently during the Industrial Revolution). Recent research on urban seasonal mortality profiles from Roman Italy and Egypt has revealed conditions that appear to have been much more severe than in more recent

periods (Scheidel 2001b). Imperial unification also seems to have facilitated the spread of both endemic and epidemic disease, from malaria and leprosy to smallpox (Sallares 2002; Zelener 2003). High mortality, in turn, necessitated high fertility. There is currently no compelling evidence that would lead us to believe that Roman populations were generally inclined or able to parlay productivity gains into lasting improvements in living standards by deliberately limiting family size (Frier 1994). Many basic incentives for such a move were missing in any case (Scheidel 2007a). Under these circumstances, some measure of family planning in elite circles would merely have served to increase inequality (Caldwell 2004). At the same time, attrition caused by war or urbanization may well have constrained demographic growth, thereby ensuring at least temporary advances in real incomes (cf. Wrigley 1978).

In the most basic sense, under a given regime of reproductive practices and normative living standards, population size is a function of economic performance. For that reason, solid evidence for Roman population numbers would give us a better idea of overall productive capacity. Recent notions of a Roman Italian or Mediterranean population that was very large by pre-modern standards (Kron 2005b; Lo Cascio and Malanima 2005; but cf. Scheidel 2008b) logically imply correspondingly high agricultural output (e.g. Kron 2000) but make it harder to envision substantial improvements in living standards. By contrast, traditionally dominant more moderate estimates of Roman population size (Frier 2000; Scheidel 2004) are more readily consistent with intensive economic growth. Compromise scenarios (Hin 2008) may help to establish a middle ground between these competing options.

The relationship between economic and demographic development is highly complex and encompasses a whole network of interconnected variables that Roman historians will find easier to model in the abstract than to explore in practice (Scheidel 2007a). A surfeit of 'known unknowns' – from population number to productivity – forestalls detailed empirical analysis. Nonetheless, proper appreciation of the significance of demographic factors in shaping economic development already represents considerable progress over the long-standing neglect of this linkage: existing models of the ancient or Roman economy that pay scant if any attention to population are unfit to frame our research agenda.

Quality of Life

Health, even more so than income, is a critical factor in human well-being and overall development: disease and premature death curb productivity, thereby impeding intensive economic growth. They burden women with numerous pregnancies and childbirths, limiting their net contribution to the economy and hence their social standing and entitlements: modern surveys show a clear correlation between fertility decline and female well-being. Likewise, an unpredictable mortality regime discourages investment in education, curtailing human capital formation, and exacts a heavy toll on economic activity by destabilizing businesses and disrupting the trust networks that underpinned financing and trade. As modern development economics stresses the role of human capital and the stock of knowledge in fostering economic development, the debate over the extent of Roman literacy (e.g., Harris 1989) assumes special importance. Besides, literacy and education can be regarded as valuable in and of themselves, in as much as

they enhance the quality of life. Much the same is true of political rights or freedom of worship. As I have argued elsewhere (Scheidel 2006), ancient historians stand to gain new insights into overall well-being by modeling their inquiries on modern human development indices. For example, a simple comparison of the quality of life in classical Athens, Republican Italy and Roman Egypt would yield a complex matrix of features: each of these cases would score quite differently on each of a variety of factors from income growth, health, and literacy to safety, political participation, and gender equality. Each of these societies would lead in some areas but lag in others. A better understanding of human development in the Roman world requires careful consideration of the configurations of contributing factors that could be highly specific to a particular time and place.

The Road Ahead

This brief survey has taken us a long way from traditional perspectives on Roman economic and population history, and towards a more comprehensive approach to the pivotal issue of human well-being. At the end of the day, there is little point in studying the Roman economy unless doing so gives us some idea of how it benefited, or failed to benefit, the inhabitants of the ancient Mediterranean world. As I have repeatedly emphasized above, this requires explicitly comparative contextualization of the Roman experience: relative to the Greeks (Morris 2004), relative to later Europe (e.g., Allen 2001; Maddison 2007), relative to other premodern empires (e.g., Deng 2000; Bang 2008). Comparing and theorizing also help us decide which questions are more fruitful than others, how to go about addressing them, and how to interpret our findings. In converging with the preoccupations of the economic history of more recent periods, the study of the Roman economy and human development will still face the same old problems of inadequate data but will overcome its growing self-imposed conceptual isolation: while we may never be able to give the right answers, we should at least ask the right questions.

Further Reading

Chapters 18 to 28 of the *Cambridge Economic History of the Greco-Roman World* (Scheidel, Morris and Saller (eds.) 2007) provide the latest analytical survey of the Roman economy. Scheidel (ed.) (forthcoming) will revisit the most salient issues. General syntheses are in short supply: Finley 1999, first published in 1973 and still a classic unsurpassed for the elegant coherence of its model of ‘the ancient economy’, deals with Rome as well as Greece but is stronger on the latter. Hopkins 1995/6 = 2002 and forthcoming are among the most accessible and stimulating shorter pieces on Roman economic development, while Harris 1993 gives a useful survey. For brief summary overviews of Roman demography, see Frier 2000 and Scheidel 2009; for critiques of the field, Parkin 1992 and Scheidel 2001a; for a pioneering case-study, Bagnall and Frier 1994. Scheidel in preparation will provide a systematic introduction. MacKinnon 2007 surveys material evidence of physiological well-being.

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