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Introduction

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SETTLEMENT, POPULATION, AND URBANIZATION IN THE ROMAN ECONOMY

The chapters in this volume have their origin in a colloquium held in Oxford on 10–11 September 2007 as part of the research programme of the Oxford Roman Economy Project (OXREP). Some of them (those by Bowman, Marzano, Wilson, Mattingly, Morley, Price, and Witcher) were delivered as papers and discussed at the colloquium; others (those by Attema and De Haas, Hanson, and Keay and Earl) were contributed subsequently by invitation, specifically in order to cover topics or geographical areas that had not been discussed at the colloquium but seemed central to the topic. Even so, the geographical coverage of the areas under Roman sway in the period c. 100 BC to AD 350 is not and could hardly have been complete, but is (we hope) broad enough to offer a significant survey of the subject with which this volume is concerned: Italy, Greece, Egypt, North Africa, Spain, Britain, and Asia Minor are all represented and offer a reasonable enough range of differences in topography and settlement patterns to be useful for our purposes.

As to those purposes, in accordance with the strategy outlined in the previous volume of the series,1 we are here concerned with population and settlement. The introductory chapter in that volume dealt in some detail with methods and approaches to the demography of the Roman empire, acknowledging the value of the analysis offered

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1 Bowman and Wilson 2009.
in the recent Cambridge Economic History of the Greco-Roman World, particularly on the macro-demographic issues, which have also been discussed by Maddison.\(^2\) It is therefore unnecessary to go into that in great detail here. Maddison’s comparisons of the calculations of Beloch, Goldsmith, and Hopkins, together with his own estimates or modifications of their figures, show that there remains a good deal of subjectivity in the debates, a reliance on assumptions about major issues (such as supposed population decline in later antiquity) and a tendency to drift to compromises within the existing parameters. Such analyses are often intended to provoke challenge and debate in order to stimulate improvement. One disadvantage, from our point of view, is that they tend to be static and to mask regional or chronological variation and change except in the broadest terms (as for example with the slave population of Italy on the one hand and Egypt on the other). Another lies in the fragility of large-scale demographic estimates as a basis for the assessment and quantification of economic performance. It seems obvious to us that it would be unwise to base calculations about the economy on the platform of an overall estimate for the population of the empire in the mid-second century AD that might be as low as 55 million or as high as 75 million, with figures for individual provinces that in some cases look like compromises or averages. We have therefore adopted a conservative or cautious approach to such macro-estimates. We would, of course, be more positive if such estimates were more robust, but we must work with what we have that is reasonably secure. We have thus concentrated on the physical sizes of urban settlements and, where possible, their populations (at least relative size if evidence for absolute size is lacking). This approach is underpinned by the ongoing collection of evidence, archaeological, literary, and documentary, that will eventually be presented in a database recording information of this kind for a wide range of regions in the Roman empire.\(^3\) Evidence for the size of urban settlements can, in turn, be brought into relation with such evidence as we have for the size of cities’ territories, and the nature of rural settlement. This will illustrate the range of relationships between city and hinterland, the economic and social functions of urban settlements, the role of villages and villas as economic units.


\(^3\) To be made available on the OXREP website: http://oxrep.classics.ox.ac.uk/.
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Such an approach will inevitably not immediately produce a few ‘big’ answers to ‘big’ questions, nor, in particular at this stage, are we able to track general trends over time, but we hope that it will serve to move forward the debate about the character of the Roman economy by substituting a framework that is at once more nuanced and more varied than one that relies, for example, on the oversimplified model of a productive agrarian sector supporting consumer cities.4 We believe that this is not only desirable but essential for understanding an empire composed of so many large and diverse regions with different patterns and anatomies of settlement dictated by topography, ecology, and previous ‘political’ experience over a period of around half a millennium.

We should also emphasize that our approach to the evidence for these different areas and different aspects of economic experience, which essentially aims to open up new questions and areas for debate, has to be both incremental and recursive. It is incremental in that we have chosen to approach the wider subject of the economy thematically rather than regionally or chronologically, dealing consecutively with settlement, agriculture, trade and commerce, and metal and money supply; hence the evidence here assembled for settlement and urbanization patterns will be augmented and enhanced in future volumes by evidence for the other activities and sectors. It would be premature to attempt to bring this evidence to bear on the agricultural economy here and now. This compartmentalization is inevitably an obstacle to stressing the interdependence of the different themes, but we hope that this will emerge more clearly and usefully as the work progresses. It is recursive in the sense that future work will require revision or modification of the views and perspectives (if not the actual evidence) of the individual contributors. Few of them, we guess, would wish to claim their contributions as definitive.

The attempt to impose a degree of coherence on a multi-author volume—especially one on topics where the methodological questions are a subject for such lively debate—without being unduly dirigiste has its own problems. We have tried to do this by clearly identifying the issues that we wished to address: size and relationship of settlements; the role of urbanization and urban communities in the context of wider settlement patterns; methods of estimating sizes (relative or

4 Morley, Chapter 6, this volume.
absolute) of populations or units of population (city, village, household, and so on). There remain significant differences of approach and treatment, as also of types of evidence, between our contributors that it would have been impossible and indeed undesirable to eradicate. The volume thus includes a variety of perspectives, which we hope are representative of the current state of debate. Even though the evidence is patchy and sometimes uncertain or ambiguous to interpret, we have encouraged authors to attempt to indicate the physical sizes of sites and settlements. With such evidence as is available, some have chosen to work with more or less hypothetical figures for population densities in order to derive estimates for population sizes or at least parameters, while others are less confident of the utility of this approach (which might indeed vary between regions). We note, for example, that the average population densities derived for the Roman provinces in the Cambridge Economic History are all below 50 per km², with the exception of Egypt, which is 167–200! Such an exercise may have its uses, but averaging over such diverse provinces that will have very different proportions of habitable or cultivable land seems to us very unhelpful from a macro-economic point of view. Since urbanization bulks large in the volume, it is not surprising that two of the chapters (Marzano, Hanson) address the configuration of urban settlements in different regions with the familiar tool of rank-size analysis, even though there remains a debate as to precisely what such analysis can tell us in the ancient context. We must surely reckon with the likelihood that there are significant regional differences between Spain, Britain, Asia Minor, and Egypt (not least because of topography), but believe it will be useful from an economic point of view to help determine the relationships between very large or medium-to-large urban centres and villages that range in size from a few thousand to a few hundred or fewer. Those relationships will obviously not be determined by size alone. Location, distance, and complexity of ‘administrative’ facilities also have an important role: modelling spatial relationships in detail may offer some interesting insights, even if some recent attempts have not proved very convincing. Overall, it is our impression that the

6 It might, of course, be useful from the point of view of estimating the costs of trading or moving goods over distance.
7 Müller 2003a; 2003b.
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‘traditional’ concept of city and *territorium* with dependent villages, which central place theory would articulate in more sophisticated terms, has tenaciously persisted in influencing our approach to settlement patterns in many parts of the ancient Mediterranean. It may involve gross oversimplification and underestimate the self-sufficiency of village communities (which does not mean isolation from or independence of the major urban centres).

On the basis of the volume of recent scholarship on Roman economic history both in its own context and in comparative perspective, it would be possible to review the issues and the debates at very great length with little prospect of definitive conclusions. Given the focus of this volume, however, it seems most useful to add some brief remarks about methodology in relation to population and urban/rural settlement patterns, bearing in mind particularly the fact that we have asserted our view that urbanization is a proxy for economic growth and prosperity. Although it would be possible to choose many others, our points of departure can be those raised by Morley in this volume and by Ziche in a recent contribution that focuses on late antiquity. For Morley, ‘What is clear is that the traditional view, that Rome was a world of cities and that is significant for our evaluation of its economy, is entirely correct, even if the definition and interpretation of that significance needs further work.’ And for Ziche, ‘Our attempts of understanding [sic] the interrelations between city, countryside and trade cannot be dissociated from an explicit model of the late imperial socio-economic, political and even cultural background.’

Given the apparent impossibility, present and future, of addressing some of the key macro-demographic questions with robust data, we resort to asking how best to analyse the economic issues with the data we have. Given the practical constraints of data collection (when, where, how?), we need to ask rigorous questions in relation to our sampling and make no prejudicial assumptions about comparability and contrast. The analyses offered here highlight the issues of regional and temporal variation: Italy, Spain, Britain, Egypt, Crete, Asia Minor from classical Greece to the early Byzantine period. It is our

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8 Christaller 1933.
9 Below, p. 158.
10 Ziche 2006: 274, save for his concentration on trade (reserved for a future volume) and the late period.
basic contention that it is only on the basis of an understanding of exactly how the differences played out in detail in a number of scenarios (where we have the evidence) that we can begin to analyse the major trends and patterns in economic behaviour; and that this understanding is hindered rather than enhanced by exclusive concentration on the need to produce estimates on a macro-economic scale. For the present, although they are by no means exhaustive, the contributions to this volume sketch out the varied landscapes in which the many general issues raised need to be further analysed. The relationship between urban settlements and their environs and the economy of rural settlements in or beyond those environs is crucial, and we suggest particular aspects that might repay analysis: in particular the physical size of settlements and the relationship between size, location, and distribution.11

On the one hand, it can be argued that our method of identifying and counting ‘cities’ is inevitably crude (we are hardly nearer to establishing definitive and universally accepted criteria than we were half a century ago).12 Attempts to base a count on a minimum population size are bound to falter for lack of robust statistical data. It is in any case perhaps more useful to set aside the relatively very few enormous conurbations and think in terms of a functional approach. In a comparative perspective, what counts as ‘city’ in Britain or Dalmatia might be only the size of a ‘large village’ in Egypt or Syria. Thus, in a given region what is significant is the number of comparatively large and more functionally complex settlements. And there will be a hierarchy of complexity, exemplified by the fact that many ‘large villages’ in the East had administrative, social, and economic institutions beyond the level appropriate to what might crudely be characterized as subsistence agricultural communities. If, then, for the sake of argument, there is urban decline or contraction in the later period, at what level of economic efficiency and growth (or not) can such villages function? Might their populations increase at the expense of the declining and shrinking cities, or is it inevitable that if urban populations shrink, rural population must also? How do we compare different areas in the context of the costs of the ‘technologies’ that cities support with revenues derived to a significant extent from the rural economy? There might, for example, be landscapes in

11 Prominent in Bintliff and Sbonias 1999 and in several other recent works.
12 Hanson, Chapter 9, this volume; cf. also Maddison 2007: 40–3.
which it becomes more viable to support those technologies in nuclei
that are smaller than conurbations but large enough to achieve the
required functional complexity in a rural environment. That, we
suggest, is a proposition that could perhaps only be tested for the
later empire in the East. If that were possible, it might also lead us to
consider the balance between the effects of Malthusian population
controls and violent ‘shocks’ (such as plague or earthquake) on
changing patterns of settlement. Behind these extremely complex
and challenging questions, which would take us beyond the chrono-
logical horizons of our present project, must lie a robust scenario of
overall population increase and urbanization in the ‘high empire’ and,
at least in some areas, a decline in urbanization in the later period.13
Until the end of the fourth century, economic vigour and prosperity is
evident in many areas, certainly in the sweep from Asia Minor
around the southern Mediterranean to the Straits of Gibraltar and
arguably also in much of Spain, Gaul, and Italy.

Clearly, however, there are changes in the third and fourth cen-
turies, and if these are not simply a matter of straightforward ‘decline’
or a shrinking economy, any closer analysis will have to identify and
address the functional relationships between urban and rural com-
munities that are now recognized to be much more complex than
the balance between rural production and urban consumption. The
implication of the quotation from Ziche is that urban communities
provide administrative facilities, technology, media of information
exchange, markets, and social ‘norms’ that are essential to economic
growth and prosperity (and he sees this as implicit in the way in
which cities are characterized in literary sources). Further extrapola-
tion will lead us to consider hierarchies of settlement in the charac-
teristic classical pattern of city plus territory, the way in which those
entities are defined, from the highest to the lowest level: the empire as
‘city of Rome plus territory’; regional and local hierarchies; and then
more precisely the identity and the nature of the ‘instruments’ that
enable them to function in economic cohesion (which essentially
leads us on to topics in future volumes). It is our impression that
the application of useful but limited analytical tools such as central
place theory, Thiessen polygons, and rank-size analysis, which are
used explicitly or implicitly by some of our contributors, do not take

13 But perhaps far from universal and not beginning in earnest until after AD 400
us as far as we would wish to go. We might, for example, think of ways in which different classifications and agglomerations of evidence for port sizes and facilities and the exchanges of goods and services that they enable illuminate patterns of economic behaviour on a local and inter-regional level.\textsuperscript{14}

The chapters in this volume fall into two main groups, the first dealing with the evidence for rural settlement as revealed by archaeological field surveys, and the attendant methodological problems of extrapolating from that evidence to a view of population; and the second with city populations and the phenomenon of urbanization.

In the first group, the chapters by Witcher, Mattingly, and Attema and De Haas respond to the approach set out by Fentress in the earlier volume.\textsuperscript{15} These are preceded by Price’s chapter, analysing the potential contribution of field survey to demographic reconstruction using data on site sizes from the Sphakia survey on Crete. Although there are more than occasional glances at the Roman period, many of the data that he discusses derive from the Greek and Hellenistic periods and thus may seem to sit somewhat uneasily in a volume on the Roman economy. There are, however, good reasons for including it, particularly from a methodological point of view. The relationship between size of site and size of population is central to analysis of this and other areas of interest in the Roman period, as are the estimates of sizes of house and household; both of these issues are discussed elsewhere in the volume in relation to other parts of the Mediterranean. Furthermore, it places the Cretan settlements in the context of a \textit{longue durée} on the basis of newly collected data that are suggestive of change from the classical Greek into the Hellenistic and Roman periods and beyond. Price points out, for example, that \textit{comparanda} from Ottoman census records in the same area suggest that population densities below 100/ha, perhaps in the range 40–60/ha, are more likely for villages and small Cretan \textit{poleis} than the ranges of 100–150/ha more commonly assumed by field surveys in Greece. However, planned towns or larger sites may have had higher densities and we need to consider whether these are more characteristic of the post-classical period and may be compared with developments in other areas such as Egypt and Asia. And further thought is needed about the best use of population \textit{density} estimates. These clearly vary

\textsuperscript{14} Schörle 2011. \textsuperscript{15} Fentress 2009.
greatly across time and space, dependent (among other factors) on the nature of the terrain. This analysis will help us to address key questions about possible changes in patterns of economic behaviour over these periods. Witcher emphasizes the need to consider site recovery rates—that is, how effective a survey has been in identifying sites—and take into account the fact that these are affected not only by the post-depositional factors more usually discussed, but also by behavioural factors in antiquity, such as whether or not the inhabitants of sites had access to the kinds of diagnostic pottery, usually finewares, that help us assign sites to particular date parameters. He then uses two alternative models to examine the effects of different site recovery rates on the question of a high or low count for the population of Roman Italy in the early imperial period, arguing that if we want to believe that survey evidence suggests a low population count (because of a high site recovery rate), then that population was well integrated into pottery supply networks that make them archaeologically visible; if we wish to believe that the population was larger, we need to assume a lower site recovery rate and the corollary is that the rural population had less access to diagnostic finewares, suggesting that they were less well integrated into economic networks. This does, however, assume that ancient behavioural factors (use of finewares) are more important than post-depositional factors (erosion, alluviation, landscape change, surface visibility) in determining site recovery rates. Mattingly’s chapter, by contrast, demonstrates the potential impact of the latter—he compares the results of population extrapolations from arid-zone surveys, where visibility is good and site recovery rates should be high, with those from plough-zone surveys. They produce, on the face of it, similar population densities, but as it is implausible that arid pre-desert zones were as densely settled as fertile Mediterranean landscapes this suggests that the plough-zone surveys are probably recovering a much lower fraction of the total number of sites, and that overall population densities were probably higher in these regions. Attema and De Haas then attempt a population extrapolation for the Pontine region around Antium, using Fentress’s methodology as refined by Witcher.16 One of the important points that they demonstrate is the variable recovery rates for different types of sites achieved by three surveys of differing

16 Fentress 2009; Witcher, Chapter 3, this volume.
intensity in the region (two one-person surveys in the 1970s, and a more intensive recent survey in the 1990s but after substantial urbanization in the intervening years); and since the areas of some of these surveys overlapped, some assessment can be made of maximum recovery rates by the different surveys. They estimate a population density for the region of c. 55–60 people/km² in the early imperial period, a figure matching that suggested by Witcher for the extended suburbium of Rome. These are much higher density figures than for the early and middle Republic, suggesting the scale of population increase in central western Italy in the last centuries BC, fuelled perhaps by improved trade and communications connections to Rome through Nero’s harbour at Antium.

The remaining chapters address the issue of urbanization. Morley sets out some of the theoretical debate about urbanization in the Roman world and its possible relationship to the economy, reminding us in particular of the city’s importance as a location of demand and of the concentration of political power; Wilson’s contribution looks at some of the physical evidence for Roman towns to see how we might establish the parameters of the plausible in estimating population densities for Roman cities in different regions, and therefore creating a set of possible estimates for population sizes of towns whose physical extent can be measured. A rough estimate is then presented for how the aggregate total of the urban population living in centres of 5,000 people or more in the mid-second century AD might relate to guesses about the total size of the population of the Roman empire. Marzano’s chapter applies a rank-size analysis to datasets of physical areas for cities in Britain and the Iberian Peninsula, with results suggesting that the urban systems of these areas show a high degree of interaction with the outside world. Within the Iberian Peninsula, the urban system of Lusitania appears more self-contained than those of the provinces of Hispania, where the deviation from the expected rank-size distribution suggests that we are not in fact looking at a complete urban system within the province, but at an urban system integrated into wider Mediterranean connections and whose primate city is Rome. Hanson extends this approach to Asia Minor, showing both that the population estimates for some of the major cities of the region (Ephesus, Pergamon, Miletus, etc.) have been considerably exaggerated in previous literature, and that the model suggests that the region as a whole was closely integrated into a wider urban system focused on the Mediterranean.
The analysis of urban territories is clearly important in the assessment of the economic role of urban systems, but is even less straightforward than the analysis of cities. Is a large territory indicative of a large city and lots of resources, or of a large but not very fertile area that is thinly populated (as some of the notional territories suggested by Hanson’s Voronoi diagram analysis for eastern Asia Minor)? In other words, is territory size really a measure of city importance (as Tacoma’s study for Egypt assumed), or sometimes inversely correlated? Keay and Earl’s chapter on cities and city territories in Baetica addresses the problem using multiple criteria and approaches to the definition of territories, thus enabling the attribution of a hierarchy of urban settlements to the territories of top-level settlements, something a simple Voronoi diagram or calculation of Thiessen polygons is unable to do.

Bowman reviews the evidence for the population of Roman Egypt and its distribution among different kinds and sizes of settlement; possibly 20 per cent of a (high count) population of 7.5 million lived in (large) cities; and indeed, settlements in Roman Egypt were remarkably large by comparison with those elsewhere, some villages apparently being larger than major towns in other provinces. There is good evidence for population increase from the Ptolemaic period through to the mid-second century, when the Antonine Plague seems to have had an important impact, but there appears to have been some recovery by the third century; the evidence for what follows is far from conclusive and whether it is to be regarded as recovery, stagnation, or decline is still open to debate. Given the claim (now commonly accepted) that Egypt was very heavily populated by Roman standards, further claims about its broader significance in the context of the Roman Mediterranean highlight the counterpoint of regional idiosyncrasy versus generic patterns and need to be carefully formulated. In an empire composed of very diverse regions, the concept of ‘typicality’ is elusive and probably illusory, but the position here adopted is that analysis of Egypt’s population structure and the economic relationships between ‘units’ of population (cities, villages, households) is significant for patterns of human behaviour in the eastern Mediterranean in classical antiquity.

17 Tacoma 2006.
The variation in approach and the ongoing debates between some of the chapters might suggest that we need to be cautious about drawing any major conclusions from these diverse contributions. However, the juxtaposition in this volume of studies attempting to extrapolate rural and urban populations throws up some interesting points. For example, urban population studies assume between five and six people per household, while rural population studies assume five per farm. Is this last figure large enough; do rural farms contain no more people, or even fewer, than urban houses? Nevertheless, a number of points emerge. Both the field survey evidence from Italy and the documentary evidence from Egypt support the impression of population growth from the late Republican period to the mid-second century AD, accompanied by intense urbanization, especially in the west, from the Augustan period through to the middle of the second century. There are good reasons to believe that the Antonine plague caused a sudden and severe population drop in many areas, but also that some recovery had taken place by the middle of the third century. After the middle of the third century, however, decline is not certain and in some areas demonstrably untrue.

The contributions by both Price and Witcher suggest a very high urbanization rate—c. 50 per cent—for the ancient Greek world, but this is achieved by including the population of all poleis, many of which were very small, instead of setting a population threshold (as other studies in this volume have done, usually with a threshold of 5,000). Moreover, not only were many Greek poleis physically small but if their population density was—as argued by Price—in the region of 40–60/ha, then they were substantially less thickly populated than were planned Greek or Roman towns (where this can be checked by house counts, as at Olynthos, Pompeii, Sabratha, and Timgad), and were in the same density range as Rathbone proposes for many Egyptian villages, and which might be thought likely for Roman villages elsewhere. This may in fact reflect the nature of those polis settlements; they were chiefly agrovilles in which a considerable proportion of the population farmed surrounding fields, and this helps explain the apparently high urbanization rate. This is a very different kind of urbanization from the pattern in much of the Roman world, where towns were frequently much larger and a smaller proportion cultivated adjoining land; Roman city populations much more often exceeded the amount that could be supported within the radius of a daily commute to fields.
Roman-period cities in the empire as a whole, by contrast, are typically much larger than poleis of classical Greece; and, in different ways, both smaller and larger than we might have expected. Smaller, because closer scrutiny of the evidence for some larger cities of Asia Minor cuts them down from 100,000–225,000 to closer to 40,000–90,000 (Hanson, Chapter 9, this volume); larger because there are a surprisingly high number of middling to large cities by pre-industrial standards (5,000–50,000). The urbanization rate at a threshold of 5,000 in the mid-second century is comparable to seventeenth- or eighteenth-century northern European economies; many provinces boasted several towns of 10,000 or more, equivalent to late medieval York and larger than the capital of the Republic of Ragusa. In some regions especially, notably Egypt, the size of both urban and non-urban settlements is much larger than expected—Egypt had a remarkable number of cities whose population probably exceeded 30,000, and the physical extent of Egyptian villages is striking, with a number exceeding the physical size of cities like Sabratha and even Pompeii, even if population density cannot have been as high. There is also a remarkable number of large cities in the eastern provinces more generally. And cities even of under 5,000 people built an impressive amount of monumental structures, ranging from the overtly utilitarian, religious, ideological, and ornamental—eloquent testimony to their role as a concentrated locus of political power and social theatre. We are still at the beginning of trying to form a picture of the urban system of the Roman empire as a whole, but it is clear that an empire-wide view is necessary as the rank-size analyses of urban size in individual provinces suggest that provincial urban systems are not entirely contained within provincial boundaries but that the phenomenon of urbanism is an empire-wide development resulting from integration into a pan-Mediterranean system focused on Rome (as one might expect).

The studies in this volume thus emphasize something of the considerable regional diversity and different paces of development evident from studies of population and settlement across the empire, which clearly means that we need to be careful about making generalized statements. Nevertheless, they provide a foundation on which it may be possible to base certain generalized claims, and even more importantly, many of them set out the evidence for regional and in some cases chronological variation that is indispensable if we are to develop both a larger and a more nuanced picture. In attempting that
development for specific sectors in future volumes, we emphasize that the aim of the present collection is not to answer ‘big’ demographic questions that have so far resisted definitive solution, but to see how we can best use the imperfect available data to quantify economic behaviour and activity.

**BIBLIOGRAPHY**


Part I

Survey method and data