CHAPTER I

Evidence, theories and models in Roman population history

I.I INTRODUCTION

The central importance of demographic trends to understanding economic
and social developments in pre-modern and modern societies has long been
recognized. As early as the eighteenth century, Malthus argued that if
humans failed to control their sexual passions the population would
inevitably grow faster than its agricultural output. The discrepancy between
population and food resources resulting from this would then be resolved
primarily by 'Malthusian' checks such as famines and large-scale epidemics.[1]

During the twentieth century, the study of population dynamics was
taken up and developed by various medieval and early-modern historians
working in the *Annales* tradition. Drawing their inspiration from Malthus,
they tended to regard demographic growth as an autonomous factor. In
studies of this type, demographic developments are seen as influencing a
wide range of economic parameters such as levels of production, land
productivity, labour productivity, wages, commodity prices and rents.[2]

An obvious weakness of a strictly Malthusian approach is that history
provides quite a few examples of drastic demographic downturns that had
little or nothing to do with any imbalance between population and
resources. One famous illustration is the decimation of the native popula-
tion of Peru, Mexico and North America by new diseases imported from
Europe.[3] Another classic example is the dramatic fall in European popula-
tion levels brought about by the Black Death. It is true that Malthus listed
'the whole train of common diseases and epidemics, wars, pestilence, plague
and famine' among his positive checks on population growth.[4] That,
however, does not alter the fundamental fact that the arrival and persistence
of the bubonic plague had far less to do with any decline in living standards

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[1] Malthus (1798/1992). For a lucid discussion see Livi-Bacci (2001), 64–72.
[2] The classic study in this field is Le Roy Ladurie (1974).   [3] E.g. Livi-Bacci (2001), 42–8.
[4] Malthus (1798/1992), 23.

resulting from excessive population growth than with the independent behaviour of micro-organisms, fleas and rats.[5]

Another interesting development is the recent upsurge of interest in climatic history. It has been pointed out, for instance, that from the late thirteenth century onwards large parts of northwest Europe seem to have suffered from increasingly unstable weather conditions. These caused the low-lying coastal areas of England, Holland, Flanders and Scandinavia to suffer from flooding, while the upper altitudinal margins of the rural economy in the interior districts were reduced. According to some specialists, these developments help to explain why some parts of medieval Europe began to experience serious economic problems long before the Black Death.[6] Like those publications that emphasize the major demographic impact of the arrival and spread of lethal pathogens, the recent literature on climatic change questions the validity of the Malthusian assumption that population change operated as an independent variable.

Reading through some of the key publications on the demographic history of medieval Europe, it is also possible to detect an increasing emphasis on social and political structures as major determinants of the concrete economic and social effects of changes in population levels. One illustration of this is the period following the Black Death, which witnessed the gradual abolition of traditional serfdom in England, but also saw an intensification of rural repression in eastern Europe. It has been convincingly argued that these completely different outcomes can be understood only by paying close attention to the distribution of political, social and economic power among kings, nobles, towns and peasants in the countries and areas concerned.[7]

In another wave of studies that began in the mid-1960s, the focus of attention shifted to the impact of economic, social and cultural factors as determinants of rates of population growth. Up to a point this involved a departure from the traditional Malthusian approach, because the

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[5] E.g. Hatcher and Bailey (2001), 57. The literary sources for the period that will be studied in this book report various outbreaks of epidemic disease; see e.g. Livy 27.23 (208 BC), Livy 28.46 and 29.10 (205 BC), Obseq. 6, 10, 13 and 22 (181 BC, 175 BC, 165 BC, 142 BC). Although some of these epidemics clearly had a considerable impact on a local or regional level, there is nothing to suggest that they had any discernible effect upon population trends in Italy as a whole. For this reason, epidemic diseases will play no part in this book. Recent literature on the Black Death is, of course, of fundamental importance to those interested in the demographic, economic and social impact of the *pestis Antoniniana* and the plague of the mid-sixth century AD.

[6] E.g. Bailey (1991). For a brief examination of the impact of climatic change on population change in Roman Italy, see section 1.4.6.

[7] E.g. Aston and Philpin (1985).

underlying assumption was that population trends in the past were partly determined by the economic and social structures of the societies concerned. It has been suggested, for instance, that the relatively slow pace of population growth in northwest Europe in the early-modern period may have been connected to a pattern of late marriage for women.[8] In at least some areas, this pattern, in its turn, seems to have been linked to opportunities to acquire farmland, determined by the distribution of property rights and by inheritance customs.[9]

Finally and perhaps most importantly, many specialists on demographic history have been influenced by the theories of Esther Boserup, who argued that both in the distant and in the more recent past population growth has often stimulated people to intensify production by employing more effective technologies, whether new or pre-existing. One of the insights underlying this theory is that it makes little sense to develop or use more intensive methods of agricultural production when demographic pressure is low because, at least in pre-industrial economies, the adoption of such methods often results in lower levels of productivity per hour worked. Boserup and her followers suggest that, precisely because pre-industrial societies offer plenty of scope for agricultural innovation, many pre-modern populations were able to avoid the Malthusian trap of diminishing returns by increasing *per capita* and overall output. This approach, in other words, overturns the Malthusian model by taking population growth as one of the main factors determining economic development, rather than as an inherently uncontrollable process that pushes a given agrarian economy to its productive limits.[10]

Although this brief survey of some important trends in historical demography is of necessity superficial, it suffices to show that, even if we abandon the Malthusian thesis of demographic development as an independent force that determines the fate of pre-modern populations, it is still possible to see population change as a major determinant of economic and social change. In fact, the extensive literature on demographic developments in pre-modern Europe makes it clear that we cannot hope to understand the

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[8] This approach was pioneered by Hajnal (1965). Cf. also Crone (1989), 152–4.

[9] E.g. Kertzer and Bretell (1987); Van Bavel (2002). For a brief discussion of Roman patterns of inheritance and their impact on ages of marriage, see Chapter 4, at notes 41–2.

[10] Boserup (1965), Livi-Bacci (2001), 72–5. For a critical assessment of Boserup's theory from an archaeological perspective, see Morrison (1994). As Morrison observes, processes of intensification are often driven by factors other than population pressure (for instance, by market-driven, prestige-driven or politically driven demand). In Morrison (2007), she emphasizes the importance of power relations in a given society. Brookfield (2001), 199, followed by Fisher (2007), 93, holds Boserup responsible for imposing 'a deterministic template' on a diverse set of actual histories.

economic and social history of this or any other part of the world if we do not take population trends into account.

In my view, there can be no doubt that this conclusion applies to the economic and social history of late-republican and early-imperial Italy. Here, too, competing reconstructions of population levels and of demographic developments are highly significant to our understanding not only of economic structures and social conditions, but also of at least some episodes of Roman political history and of the burden imposed by Roman imperialism.[11] For this reason alone, it is not a realistic option to ignore Italian demographic history on the grounds that the surviving evidence is too scanty or too ambiguous. At the very least, we should try to clarify the economic, social, and military implications of the proposed reconstructions. It is equally important that we should assess the strengths and weaknesses of these reconstructions, using every method available, and examine the feasibility or otherwise of resolving whatever weaknesses may come to light.

This book will focus principally upon demographic change in mainland Italy between the late third century BC and the first century of the Principate. One reason for narrowing down the chronological scope of our investigations is that our written sources concerning Roman or Italian population levels during the first 250 years of the Republic are few and of dubious quality.[12] For the early-imperial period we have four census figures, but since three of these are Augustan it is difficult to say much about later developments.

Since even for the period 225 BC–AD 14 the written record is fragmentary, we cannot afford to ignore the rich body of archaeological data brought to light by the extensive field-walking campaigns carried out in the Italian countryside over the past 50 years. For the specific purposes of my investigations, the most important archaeological periods are those during which black gloss pottery and early-imperial Italian *sigillata* were the most popular finewares in Roman Italy. These two periods span the last three centuries BC and the first century AD.[13]

Geographically, my enquiries will be limited to mainland Italy. This focus partly reflects the fact that most of the textual evidence relating to

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[11] Cf. below, at notes 36–7.
[12] According to Beloch (1886), 339–40 and Brunt (1971/1987), 26–7, all census figures relating to the period before the Latin War of 340–338 BC are unreliable. Cf. also the brilliant discussion by Alföldi (1977), 125–7, who argues that even some of the figures for the early third century BC are likely to be fictitious. For a more optimistic view see Coarelli (1988); Ward (1990); Lo Cascio (2001b), 566.
[13] Production of mid-republican black gloss may actually have begun in around 350 BC (Witcher 2008a, 276). According to some recent publications (e.g. Bousquet, Felici and Zampini 2008), the transition from early-imperial to mid-imperial Italian *sigillata* took place at around AD 80.

Roman population history between the end of the First Punic War and the death of Augustus refers to developments in this area. Literary and archaeological material relating to the demographic history of the entire region is, moreover, so abundant (and so problematic) that no single monograph could do justice to it.[14] It is not, of course, difficult to identify various forms of demographic and economic interaction between Italy and the provinces that directly affected population levels and urbanization rates in mainland Italy. Of these, emigration from Italy and the importation of large amounts of tax grain are perhaps the most obvious examples. Although it is extremely difficult to gauge the quantitative dimensions of these phenomena, they cannot be ignored. I shall not, however, attempt to contribute to the debate about population levels in the provinces, partly because my discussion of developments in Italy is already overloaded and partly because the surviving evidence seems to offer no basis for reliable conclusions.[15]

1.2 ROMAN DEMOGRAPHY: LOW COUNT VERSUS HIGH COUNT

In the light of the intensity and theoretical sophistication of scholarly debate concerning the causes and effects of demographic developments in medieval and early-modern Europe, it is in a way surprising that it has taken so long for ancient historians to accept certain of the challenges posed by historical demography. In fact, as Frier and Scheidel observed in 2001, demography played no part in the intense debates ignited by the publication of Finley's *The Ancient Economy* and continued to languish as a marginal field of research until the early 1990s.[16]

This does not, of course, mean that ancient historians had no interest in the sizes of Greek and Roman populations prior to the publication of Parkin's book on Roman demography and that of Bagnall's and Frier's monograph on the demography of Roman Egypt.[17] In fact, when a growing number of specialists began to apply approaches and concepts originating in the field of historical demography to the ancient world, some of them did so

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[14] As noted in the preface, this book is just one product of a much larger research project investigating the demographic history of Roman Italy. For an in-depth discussion of the impact of demographic developments on patterns on landholding and on the evolution of property rights, see Roselaar (2010). Hin (2009) offers a systematic discussion of Roman patterns of fertility, mortality and migration. Pelgrom (forthcoming) looks at the evolution of settlement patterns as revealed by rural surveys and discusses attempts to establish a meaningful relationship between known or estimated population levels and changes in the archaeological record.

[15] Cf. below, note 35.   [16] Frier (2001), 158; Scheidel (2001c), 3–10, 72.

[17] Parkin (1992); Bagnall and Frier (1994).

with the aim of rekindling an old debate about the size of the Roman
population that began in the late nineteenth century. One of the most
important landmarks in this controversy was the appearance of Julius Beloch's
Die Bevölkerung der griechisch-römischen Welt (1886), in which it was argued that
during the early years of the Principate the free population of mainland Italy
stood at around 4 million. Eighty-five years after the publication of Beloch's
monograph, his overall reconstruction was endorsed in Peter Brunt's massive
Italian Manpower (1971). In recent years the most prominent defender of this
view has been Walter Scheidel, who has tried to buttress it with a plethora of
new arguments, many based on comparisons with other pre-modern societies.[18]
In scholarly literature, the term 'low count' is now often used as convenient
shorthand for the basic interpretation defended by this group of scholars.

In the final analysis, the low count espoused by Beloch and Brunt rests on
the interpretation of two pieces of numerical evidence found in the written
sources. One of these is the famous survey of Roman and Italian manpower
resources contained in the second book of Polybius' *Histories*.[19] These figures
relate to the military strength of Rome on the eve of the Gallic invasion of
225 BC. According to Beloch and Brunt, the Polybian figures suggest that
central and southern Italy had a free population of between 2.7 and 3 million.[20]
Beloch assigned between 0.5 million and 1 million inhabitants to Cisalpine
Gaul, while Brunt put the free population of northern Italy at between 1 and
1.4 million.[21] Using this last figure, Brunt ended by suggesting that mainland
Italy might have had some 4.5 million free inhabitants in 225 BC.

The other building block of the low count is a certain interpretation of the
results of the census of 28 BC, when 4,063,000 *capita civium* were registered.[22]
Both Beloch and Brunt assumed that, unlike the republican census figures,
this figure should be interpreted as including all men, women and children of
citizen status. Assuming that an additional 1 million citizens remained
unregistered, Brunt eventually arrived at an estimate of 4 million people of
citizen status in Italy and a further 1 million in the provinces.[23]

Building on the figures for 225 BC and 28 BC, it is possible to draw certain
conclusions about the trajectory followed by the free population of Italy.

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[18] E.g. Scheidel (1996a), 167–8. In some publications, for instance Scheidel (2008), Scheidel seems to
adopt a more evasive position, but all of his recent publications on the sources of slaves, human
mobility, political participation rates, real income growth and the size of the economy take the low
count as their starting point. See e.g. Scheidel (1997), (2004), (2005a), (2006), (2007a) and (2009c).

[19] Plb. 2.24.   [20] Beloch (1886), 413, 418, 435: 2.7 million; Brunt (1971/1987), 59, 120: 3 million.

[21] Brunt (1971/1987), 189. Although Beloch was reluctant to offer any specific estimate for Cisalpine
Gaul (1886, 428), he did suggest 3.5 million as a maximum figure for the free and non-free population
of peninsular Italy in 225 BC and 4 or 4.5 million as a maximum figure for Italy as a whole (1886, 435).

[22] Aug. *RG* 8.2.   [23] Beloch (1886), 372–8; Brunt (1971/1987), 116.

Table 1.1 *Hopkins' version of the low count*

| | A – Population changes, 225–28 BC | | | |
| | Men, women and children | | Adult males (aged 17+ years) | |
	225 BC	28 BC	225 BC	28 BC
Free	4,500,000	4,000,000	1,350,000	1,220,000
Slave	500,000	2,000,000	150,000	600,000
Total	5,000,000	6,000,000	1,500,000	1,820,000
	B – Rural/urban split			
Rural free	4,100,000	2,900,000	1,230,000	870,000
Rural slaves	500,000	1,200,000	150,000	360,000
Urban slaves	in all	800,000	in all	240,000
Italian towns free	250,000	500,000	75,000	150,000
City of Rome free	150,000	600,000	45,000	200,000
Total	5,000,000	6,000,000	1,500,000	1,820,000

C – Migration from Italy overseas Adult males (aged 17+ years)		D – Decline of free rural population Adult males (aged 17+ years)	
Before 69 BC	125,000	Migrants 225–28 BC	
69–49 BC	25,000	to provinces:	265,000
49–28 BC	165,000	to Italian towns:	100,000
Sub-total:	315,000	Total loss:	365,000
Killed/counted twice over:	50,000 –		
Net migration	265,000		

Brunt argued that this trend was negative. He believed that there were about
500,000 fewer free Italians in the early years of the Principate than just prior
to the Gallic invasion. At the same time, he argued that the slave population
of Italy increased from *c.* 500,000 in 225 BC to *c.* 3 million in 28 BC. This figure
would give early-imperial Italy a population of *c.* 7 million.[24]

   Some other scholars who favour a low-count interpretation consider
Brunt's estimate of slave numbers too high. One such scholar is Hopkins,
who puts the number of urban and rural slaves at *c.* 2 million and the total
population of Italy at 6 million (Table 1.1).[25] In his view too, however, the

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[24] Brunt (1971/1987), 124.
[25] Hopkins (1978), 68, following Beloch (1886), 415–16. Lower estimates in De Ligt (2004), 745–6;
Scheidel (2005a), 70–1.

period 225–28 BC witnessed a significant decline in the free Italian population, a marked increase in the number of slaves and a robust expansion of the combined free and non-free population of Italy as a whole.

Until recently, the only alternative theory was that by 28 BC there were about three times as many free Italians as Beloch and his followers believed. This view too dates from the late nineteenth century. It is, however, especially associated with the American ancient historian Tenney Frank, who put the number of free adult male Italians during the time of Augustus at 3.5 million and the total Italian population (including slaves and foreigners) at 14 million.[26] During the second half of the twentieth century, this theory was taken up first by Wiseman and then by Lo Cascio. Their reconstruction has become known as the 'high count'.[27]

Polybius' manpower figures had only a marginal role in early expositions of the 'high count' theory. In a series of recent publications, however, Lo Cascio has used these data to estimate the size of the Italian population on the eve of the Second Punic War, arguing that they point to a free population of *c.* 3.4 million for central and southern Italy (excluding Bruttium and the territories of the Greek cities). Extending the average population density implied by this figure to the areas not mentioned by Polybius (including Cisalpine Gaul), he arrives at an estimate of between 6 and 8 million people for pre-Hannibalic Italy as a whole.[28]

Lo Cascio's interpretation of the Augustan census figures is more or less identical to that of Frank, who took them to refer to adult male citizens only. Assuming that males aged 17 years or over made up *c.* 30 per cent of the population, we arrive at a total citizen population of *c.* 13.4 million at the time of the census of 28 BC. Since it is probable that at least 10 per cent of the population went unregistered, this figure must be increased to *c.* 14.75 million.[29] Of these hypothetical 14.75 million citizens, roughly 1.25 million can be assigned to the provinces,[30] leaving us with a figure of 13.5 million for the free population of Italy at the start of the Principate. If we repeat these calculations for AD 14, when 4,937,000 *civium capita* were registered, we end up with a free Italian population of about 16 million, if we assume that the number of citizens living abroad had risen to 1.9 million by this date.[31]

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[26] Frank (1924).   [27] Wiseman (1969); Lo Cascio (1994).
[28] Lo Cascio and Malanima (2005), 201–2.
[29] Scheidel (1996a), 167. I do not understand Lo Cascio's failure to address this important point in his most recent publications.
[30] Lo Cascio (1999a), 164.   [31] $(4{,}937{,}000 \times 3.3 \times 1.1) - 1{,}900{,}000 = 16{,}021{,}310$.

In various publications, Lo Cascio has also argued that slaves made up between 10 and 20 per cent of the population of early-imperial Italy.[32] This would imply that there were between 1.5 million and 3.5 million slaves.[33] Adding these to the free population of Italy suggests that in 28 BC the total population was between 15 and 17 million. According to this argument, the minimum figure for AD 14 would be 17.5 million. In the end, Lo Cascio assigns mainland Italy 14 million inhabitants in 28 BC and 15 to 16 million inhabitants in AD 14.[34] All these estimates are on the low side. They could, however, be defended by assigning an additional 2 or 3 million citizens to the provinces.[35]

As we have seen, the most recent version of the high count proposes that the population of 225 BC was between 50 and 100 per cent larger than the low count would suggest. For the early Augustan period, the difference climbs to at least 150 per cent.

If the high count could be proved to be correct, ancient historians would be forced to abandon many cherished conceptions about Roman society between, say, 250 BC and AD 150. For instance, if mainland Italy really had some 13.5 million free inhabitants in 28 BC, its population during the middle and late Republic must also have been much larger than previously thought. This would mean not only that military participation rates were far lower than has previously been believed (which would require a revision of republican Italy's 'militaristic' image), but also that rates of political participation were lower (which would undermine any theory that we should take Polybius' identification of a democratic element in the Roman constitution seriously).[36] We would also have to accept that the demographic impact of the Second Punic War was quite limited and that Tiberius Gracchus' claim that the expansion of slavery was pushing the free Italian peasantry into decline was completely false. It would, moreover, follow that the emigration

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[32] Lo Cascio and Malanima (2005), 204.

[33] In another article (2002, 62), Lo Cascio argues that slaves cannot have made up more than 15 or 20 per cent of the Italian population. The former figure would imply 2.5 million slaves.

[34] Lo Cascio and Malanima (2005), 203, 208, Table 2.

[35] The view that more citizens may properly be assigned to the provinces has been defended by Crawford (2008), 640–1. Cf. also Launaro (2008), 183–4. Valerius Maximus' claim that Mithridates' supporters killed 80,000 citizens in Asia in 88 BC (Val. Max. 9.2, ext. 3) is, however, generally rejected as utterly unreliable, and Cicero's statement that 'Gaul was packed with business-men, full of Roman citizens' (*Font.* 11) has no clear quantitative implications. Note that there is nothing to support Crawford's suggestion that Sertorius, Pompey and Caesar might have bestowed Roman citizenship upon several million provincials. Interestingly, some experts on the history of particular provinces have argued that Brunt's estimates for the number of citizens living in the provinces are too high rather than too low. Cf. Appendix IV.

[36] For contrasting views regarding the Roman constitution's democratic element, see Millar (1984) and (1998), North (1990), Mouritsen (2001). On political participation rates, see Scheidel (2006).

of large numbers of veterans to colonies in the provinces between 49 BC and 28 BC had little to do with any boom in slave-staffed estates, but was a natural consequence of rapid population growth throughout Italy. Finally, and perhaps most importantly, we would have to posit the existence of a sophisticated economy capable of feeding 13.5 million free persons and between 1.5 million and 3 million slaves. As some high counters have pointed out, this ought to imply high yields in Italian agriculture, far larger imports of provincial tax grain than the existing literature would suggest, or a combination of both.[37] This would make complete nonsense of the widely shared view that Italy's economy was less sophisticated during the late Republic and early Empire than it was to become during the High Middle Ages and in early-modern times. In fact, we would have to face the possibility that by 28 BC or AD 14 the Italian population had grown to a size that would not be surpassed until the late eighteenth or early nineteenth century.

The proposition for which I shall argue in this book is that the high-count theory runs up against insuperable difficulties. I shall also, however, try to demonstrate that none of the various versions of the low count formulated by previous scholars is entirely satisfactory. In particular, I shall argue against the traditional low-count assertion that the Roman citizen body began to decline or to stagnate from the mid-second century BC onwards and also against the widely held view that accepting the low count necessarily means accepting that a dramatic decline in the number of free people living in rural Italy took place during the last two centuries of the Republic. It is my contention that, if these misconceptions are abandoned, the low count provides us with an interpretative framework superior to that offered by the high count.

1.3 TRADITIONAL TYPES OF EVIDENCE: LITERARY SOURCES AND RURAL SURVEY DATA

As we have seen, most early reconstructions of the demographic history of Roman Italy were based on competing interpretations of a handful of figures found in the written sources. In recent years, a number of scholars have expressed their dissatisfaction with the ways in which this type of evidence has been used by participants in the debate about population numbers.[38] The reasons for this unease are easily detected. The ingenuity

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[37] Cf. below, sections 1.4.4 and 1.4.7.
[38] E.g. Scheidel (2004). Cf. also Jongman (2003) for a complete rejection of all literary references to rural depopulation and of the entire literary tradition concerning the background to the Gracchan land reforms. For a salutary warning against the dangers posed by this hypercritical approach, see Santangelo (2007b), 473.