HUMAN MOBILITY IN ROMAN ITALY, I: THE FREE POPULATION*

By WALTER SCHEIDEL

I. OBJECTIVE

How did the relentless spread of Roman power change people's lives? From military mobilization, urbanization, slavery, and the nexus between taxation and trade to linguistic and religious change and shifting identities, the most pervasive consequences of empire all had one thing in common: population movements on an unprecedented scale. Yet despite its pivotal role in social and cultural change, the nature of Roman mobility has never been investigated in a systematic fashion. In this study, I develop a comprehensive quantitative model of population transfers within, to, and from Italy, from the late fourth century B.C. to the first century A.D. Owing to the diverse and complex character of these movements, I develop my argument in two steps. The present paper deals with the demographic context, scale, and distribution of the migration of free persons. I argue that the total population of Italy in the early imperial period was of the order of five to six million rather than fourteen to twenty million (Section II); that state-sponsored re-settlement programmes dramatically increased overall levels of mobility on three occasions (during the Italian wars in the late fourth and early third centuries B.C., in the aftermath of the Second Punic War in the early second century B.C., and in the period of constitutional transition from the 80s to the 10s B.C.) (Section III); and that in the last two centuries B.C., colonization programmes and urban growth in Italy required the permanent relocation of approximately two to two-and-a-half million adults (Section IV). In Section V, I conclude that these movements were likely to have been instrumental in Roman state formation and overall culture change: high levels of human mobility were both a direct function of empire-building and a defining feature of Roman identity. In next year's issue, the final instalment of this survey will provide a detailed assessment of the probable size, occupational distribution, and demographic structure of the Italian slave population that supports a new estimate of the total volume of the Roman slave trade.[1] I will argue that during the last two centuries B.C., between two and four million slaves were imported to Italy, and that the resultant slave population of around one to one-and-a-half million was significantly smaller than commonly assumed. Together, these tentative reconstructions are meant to offer a coherent demographic framework for the study of the social, economic, and cultural impact of Roman imperialism. My discussion is explicitly quantitative. Just as any other elements of population history, the study of migration requires an appreciation of scale that must ultimately be grounded in some form of numerical analysis. Given the pervasive scarcity of usable data, Roman historians will often find it difficult or seemingly impossible to advance beyond impressionistic judgements and qualitative statements. Nevertheless, I hope to show that ancient evidence and parametric modelling can profitably be combined to establish a quantitative framework that finally permits us to gauge the probable scale and long-term patterns of population transfers in the heartland of the Empire.

* I wish to thank Nathan Rosenstein and three anonymous referees for valuable comments and criticism, and Alison Sharrock for convincing me to convert the unwieldy original draft into two more manageable instalments.

[1] 'Human mobility in Roman Italy, II: the slave population', *JRS* 95 (2005).

II. PREMISES

Population Structure

The following reconstructions are predicated upon two basic assumptions about structure and scale. Throughout my calculations, I derive the putative composition of Roman populations from conventional model life tables that associate a particular age distribution with a given level of mean life expectancy at birth.[2] As I have argued on a previous occasion, we cannot reasonably expect these models to offer a close approximation of the actual age composition of any ancient population at a certain point in time.[3] In reality, geographical and temporal variations in the disease environment would have accounted for considerable differences in local age structures. The smaller and the more localized the sample, the less we can expect it to match a model distribution. Conversely, broad-brush estimates for large areas over hundreds of years that average out local variations are less likely to be adversely affected by these problems. In the present context, I am interested only in orders of magnitude. Besides, there is no reason to assume that potential flaws of the model life tables could seriously distort my calculations.[4] Sex ratios may vary more strongly depending on circumstances.[5]

Population Number

My second premise is more controversial and therefore requires more detailed discussion. The significance of migratory movements in Roman Italy can only be assessed in relation to the size of the underlying population. For the purposes of this study, I accept the general validity of Brunt's revision of Beloch's reconstruction of the size of the Roman citizenry in the late Republic and early Principate.[6] As a logical corollary, I also adopt Frier's revision of Beloch's estimates of provincial population numbers in the first and second centuries A.D.[7] In a nutshell, their 'low' estimates envision a total of five to six million Roman citizens at the time of Augustus (for an Italian population of six to seven million), as well as an increase from forty-five to sixty million people between Augustus and the mid-second century A.D. for the Roman Empire as a whole. By contrast, the 'high' count championed by Frank and especially Lo Cascio (and most recently contemplated by Morley) suggests much higher totals of at least thirteen million citizens in 28 B.C. and nineteen million in A.D. 47 which in turn translate to an early imperial Italian population of between twelve and twenty million.[8] This alternative reading would not merely qualify some of my arguments concerning

[2] A. J. Coale and P. Demeny, *Regional Model Life Tables and Stable Populations* (1983). I use Model West Level 3 Females ($e_0=25$, $r=0$) as a generic template (ibid., 57). Any reasonable alternative would not make a significant difference to my results.

[3] W. Scheidel, 'Roman age structure: evidence and models', *JRS* 91 (2001), 1–26.

[4] For example, according to Model West Level 3 Females, 63 per cent of the population is seventeen or older, compared to 62 per cent in the 'male' variant of the same model. Levels 1 ($e_0=20$) and 5 ($e_0=30$) Females predict shares of 60 and 65 per cent, respectively. Thus, the probable margin of error is unlikely to exceed 5 per cent, even if we allow for non-standard ratios of minors to adults.

[5] See below, Section IV and Scheidel, op. cit. (n. 1). For computational purposes, I reckon with a balanced sex ratio unless otherwise specified.

[6] J. Beloch, *Die Bevölkerung der griechisch-römischen Welt* (1886), 370–8; P. A. Brunt, *Italian Manpower 225 B.C.–A.D. 14* (1971, repr. 1987), 113–20.

[7] B. W. Frier, 'Demography', *CAH* XI^2 (2000), 811–14.

[8] T. Frank, 'Roman census statistics from 225 to 28 B.C.', *CP* 19 (1924), 329–41; T. P. Wiseman, 'The census in the first century B.C.', *JRS* 59 (1969), 59–75, at 72–5; E. Lo Cascio, 'The size of the Roman population: Beloch and the meaning of the Augustan census figures', *JRS* 84 (1994a), 23–40; 'La dinamica della popolazione in Italia da Augusto al III secolo', in *L'Italie d'Auguste à Dioclétien* (1994b), 91–125; 'The population of Roman Italy in town and country', in J. Bintliff and K. Sbonias (eds), *Reconstructing Past Population Trends in Mediterranean Europe (3000 BC–AD 1800)* (1999), 161–71; N. Morley, 'The transformation of Italy, 225–28 B.C.', *JRS* 91 (2001), 50–62.

the scale of migratory flows in Sections III and IV,[9] but more generally poses a serious challenge to modern narratives of Roman history that commonly (though often just implicitly) presuppose acceptance of the 'low' population estimates: if the 'high' count were correct, much of Roman history would have to be re-written. I hope to show that this particular brand of revisionism is both unnecessary and implausible.

In the absence of serial statistics covering citizens as well as allies, aliens, and slaves, modern reconstructions of the development of the gross population of Italy in the last two centuries of the Republican period depend in their entirety on three pieces of ancient evidence: the breakdown of military manpower resources in 225 B.C. reported by Polybius; the first census total after the enfranchisement of the allies, dating to 69 B.C.; and the census tallies for 28 B.C., 8 B.C., and A.D. 14 advertised in Augustus' *Res Gestae*.[10]

Italian population numbers in the early and mid-Republic cannot be known with anything even remotely resembling precision. A series of census counts for the newly consolidated Roman state in central Italy reports around 270,000 to 300,000 adult males from the 280s to 260s B.C., and some 240,000 to 270,000 in the 240s and 230s B.C., a drop that arguably reflects casualties incurred in the First Punic War. At that time, Rome's various allies inhabited about four-fifths of peninsular Italy and must therefore have accounted for the majority of the total Italian population. Their presumable number is usually derived from a single passage. According to Polybius, in preparation for war against the Gauls of northern Italy, the Romans (1) mobilized 52,300 citizen soldiers plus 54,000+ Sabines and Etruscans, 20,000 Umbrians and Sarsinates, 20,000 Veneti and Cenomani, and 64,000 further allied troops of unspecified provenance, for a total of 210,300+; (2) commissioned lists (*katagraphai*) of men 'in the ages' (*ton en tais elikias*) which reportedly tallied 250,000 Roman infantry and 23,000 cavalry as well as 250,000 allied infantry and 35,000 cavalry among the Latins, Samnites, Iapygians, Messapians, Lucanians, Marsi, Marrucini, and Frentani; and (3) were therefore able to draw on over 700,000 infantry and 70,000 cavalry.[11] This unique text has produced a plethora of conflicting modern interpretations.[12] Since all of these readings are necessarily probabilistic and inherently untestable, I see no point in adding to a debate which cannot by definition yield any conclusive results. Instead, I will confine myself to assessing the utility of these figures for the purpose of estimating the overall population of Italy in 225 B.C.

Problems abound: unless the Sabine, Etruscan, and Umbrian deployment figures are taken to equal the total military potential of these groups — and thus to imply a fantastic mobilization rate of 100 per cent — their actual numbers may only be crudely estimated on the basis of analogies with other allied populations; if the Romans were actually able to field 210,000 troops in 225 B.C., we cannot explain why they did not simply repeat this feat a few years later and crush Hannibal's forces; we cannot be sure if the lists of 'those in the ages' included all men over seventeen (the *togati*) or merely some section thereof, such as the *iuniores*; and it impossible to be sure whether or not the 52,300 Roman soldiers on active duty were part of the grand total of 273,000 eligible citizens (which closely resembles — and may therefore refer to the same population sample as — the census count of 270,713 for 234/33 B.C.). In addition, if the reported ratio of 325,000 Romans to 423,000 (peninsular) allies is taken at face value and assumed to reflect underlying population totals, the *ager Romanus* would have been more than

[9] My reconstruction of Italian slave numbers in Part II would be only marginally affected.

[10] Polyb. 2.24; Liv., *Per.* 89; Phlegon *FGrHist* 257 F 12; *RGDA* 8.

[11] Close variants of the final totals are also attested in other sources, all of them ultimately derived from Fabius Pictor: F. W. Walbank, *A Historical Commentary on Polybius I* (1957), 199.

[12] For the most comprehensive list of references, see D. W. Baronowski, 'Roman military forces in 225 B.C. (Polybius 2.23–24)', *Historia* 42 (1993), 181–202, to which one needs to add E. Lo Cascio, 'Recruitment and the size of the Roman population from the third to the first century BCE', in W. Scheidel (ed.), *Debating Roman Demography* (2001), 111–37, esp. 129–33.

two and a half times as densely settled as the remainder of the peninsula.[13] As a consequence, it is possible to extrapolate from the reported figures an overall free population of peninsular Italy ranging from two million (in a minimalist reading that takes the northern allied contingents to represent total available manpower, the deployed Roman and allied troops to have been included in the *katagraphai*, and all adult men to have been covered by these lists) to three million (the final result of Brunt's manifold and intricately complex 'corrections' of the reported totals) to as many as three-and-a-half million according to Lo Cascio.[14]

This very wide range of possibilities alone seriously limits the demographic value of Polybius' breakdown. Moreover, existing scholarship appears curiously unperturbed by the extraordinarily smooth ratios that are built into his account. Why should the total number of available Roman infantry equal the total number of allied infantry in one portion of peninsular Italy while the allied cavalry total (rounded to full thousands) amounts to one and a half times the Roman tally?[15] Why does the number of allied soldiers on active duty almost exactly add up to three times the number of mobilized Roman troops?[16] And why does this jumble of details add up so neatly to an infantry/cavalry ratio of ten to one? This quadruple 'coincidence' casts serious doubt on the validity of *any* of the allied figures proffered by this text, and raises the possibility that this breakdown was constructed from the top down, by designing seemingly precise allied tallies that fit into a preconceived template derived from known active and passive Roman troop strength.[17]

In view of these problems, the census figures may offer the only reasonably reliable guidance. Reckoning with an undercount of not more than ten per cent, the tally for 234/33 B.C. points to about 300,000 adult Romans, or a total citizen population of 950,000. A crude guess that allies may have outnumbered Romans by two to one yields a total of approximately three million for peninsular Italy including slaves. For what it is worth, this figure tallies well with Afzelius' estimate of 3.1 million plus slaves that is not simply derived from Polybius but also takes account of likely carrying capacity and (albeit potentially misleading) comparative data for the agricultural population in 1936, and with Brunt's equally Polybius-based but heavily modified total of close to three million free.[18] However unsatisfactory the procedures employed to establish these numbers may be, we cannot improve on them in ways that are not similarly arbitrary and untestable. In the following, I use a grand total of three million free as a purely computational mean. I do so only because I am concerned with rates of mobility, and a margin of error of (say) twenty per cent does not significantly affect my results.

The population of northern Italy is even more difficult to estimate. Brunt offers a pure 'guess' of 300,000 adult men in 225 B.C. while conceding that a total of up to 500,000 cannot be ruled out. Bandelli, in a recent study that puts an unwarranted amount of faith in the reliability of ancient reports of military strength among the Italian Gauls, argues for a minimum of 410,000 adult men (for a total of 1.3 million).[19] The

[13] I use the figures in A. Afzelius, *Die römische Eroberung Italiens (340–264 v. Chr.)* (1942), 134–5; of 25,615 km^2 for the Ager Romanus and 87,175 km^2 for the allied states listed or implied by Polybius. This apparent mismatch has been tempered by adjustments such as the common but unsubstantiated assumption that the allied (but not the Roman) totals in the *katagraphai* comprise only *iuniores* (e.g., Brunt, op. cit. (n. 6), 52), but has more recently been restored by Lo Cascio's assertion that all these numbers refer to *iuniores* (op. cit. (n. 8, 1999), 168).

[14] Brunt, op. cit. (n. 6), 44–60; Lo Cascio, op. cit. (n. 8, 1999), 168. Brunt's total, unlike the other two, includes the Greeks of southern Italy. Slaves must be added to all three estimates.

[15] viz., 250,000/250,000, and 23,000/35,000. Note that the latter mirrors the ratio Polybius reports for the troops on active duty, of 2,700 Roman and 4,000 allied cavalry, or 2:3. In the context of the *katagraphai*, this ratio makes perfect sense if it represents a *formula togatorum* (cf. Brunt, op. cit. (n. 6), 545–8) — that is, if it reflects Roman demands that the allies cumulatively match Roman infantry strength and one and a half times Roman cavalry strength. This, however, cannot explain ratios in a tally that omits Sabines, Etruscans, and Umbrians.

[16] 52,300 vs. 158,000+, or 1 to 3.02+.

[17] For a possible parallel, see P. Hunt, *Slaves, Warfare, and Ideology in the Greek Historians* (1998), 33–7, on Herodotus' Spartiate/hoplite ratio of 7:1 at Plataea (9.10, 28–9) which may simply be extrapolated from the conventional depth of the phalanx. Note that Fabius Pictor (*FGrHist* 809 F 9) also 'knew' of the existence of 80,000 adult male citizens under Servius Tullius, an impossible number.

[18] Afzelius, op. cit. (n. 13), 98–135; Brunt, op. cit. (n. 6), 54.

[19] Brunt, op. cit. (n. 6), 189; G. Bandelli, 'La popolazione della Cisalpina dale invasioni galliche alla Guerra sociale', in D. Vera (ed.), *Demografia, sistemi agrari, regimi alimentari nel mondo antico* (1999), 189–215.

putative average population density of 9/km^2 in Augustan Gaul and the Rhineland, if applied to pre-Roman northern Italy, translates to a population of about 1.1 million.[20] It seems unlikely that in the late third century B.C., northern Italy (which after all includes mountainous Liguria) was much more densely settled than Gaul over two hundred years later. I will adopt a notional round total of one million not because I consider it superior to rival guesses but once again because some deviation does not undermine my computation of migration rates.

Somewhat paradoxically, modern population estimates for the Augustan period differ much more dramatically than for the more remote third century B.C. As is well known, the 'low counters' regard the tallies of the censuses of 28 B.C., 8 B.C., and A.D. 14 of, respectively, 4,063,000, 4,233,000, and 4,937,000 *civium Romanorum capita* as grand totals of all Romans including women and children (though perhaps excluding infants). This interpretation implies an unreported shift from the Republican practice of confining the count to men aged seventeen plus. Conversely, if we follow the 'high counters' in assuming that this practice continued into the Principate, the overall population would have amounted to at least three times the reported totals.[21] In both scenarios, some undercounting must have occurred but cannot be properly quantified. Because at that time a large majority of the Roman citizenry was still based in Italy, our estimates of total Italian population size are primarily a function of these competing readings of the Augustan census figures.

Perhaps the only point the two camps can agree on is that both scenarios entail serious problems.[22] However, while this unfortunate situation may well be emblematic of the 'uncertainty and fragility of our knowledge of even the most basic aspects of economic and social life in antiquity' invoked by Morley in his recent contemplation of the 'high count',[23] proper contextualization of these competing claims suggests that the arguments against the 'low' count are weaker and the logical corollaries of the 'high' count much more implausible than previously thought. I touch very briefly on three main points regarding the former.

First of all, the fundamental alteration of census practices implied by the 'low' count need not have constituted a flagrant break with the very Republican traditions Augustus took great pains publicly to uphold. In fact, we have no idea at what point in Augustus' reign this change took place. In the absence of contemporaneous evidence for any of his censuses prior to A.D. 14, we cannot simply take it for granted that Augustus published gross population numbers as early as 28 B.C., or even twenty years later. By the end of his reign, the monocratic regime had become more firmly entrenched and the details of the Republican past had almost completely faded from living memory, and, more specifically, a whole new system of provincial censuses that kept track of men, women, and children alike had been operating for decades and may arguably have provided a more obvious model than an increasingly distant Republican procedure that had lapsed before Augustus' own lifetime.[24]

Second, it is true that the 'low' count necessarily implies very high rates of military mobilization during the Second Punic War, the Social War, and the second triumviral period. Lo Cascio condemns as a 'mere absurdity' Brunt's estimate that, between 218 and 203 B.C., a population of 325,000 adult male Roman citizens could have endured 125,000 war fatalities.[25] On the same logic, we ought to dismiss much of Thucydides' narrative as fiction since it would be even more incredible that the Athenians could have lost at least half of their adult male population between 431 and 412 B.C. and nevertheless kept fighting for almost another decade.[26] Lo Cascio's reference to lower mobilization figures in emergent territorial states in early modern Europe fails to account for the

[20] Frier, op. cit. (n. 7), 812. Note, however, that the population of Gaul is similarly unknown.

[21] See above, at the beginning of this section.

[22] W. Scheidel, 'Progress and problems in Roman demography', in idem, op. cit. (n. 12), 55, 57.

[23] Morley, op. cit. (n. 8), 62.

[24] For the fading of the past, see W. Scheidel, 'Emperors, aristocrats, and the Grim Reaper: towards a demographic profile of the Roman élite', *CQ* 49 (1999), 279–80. For the census, see, e.g., L. Neesen, *Untersuchungen zu den Staatsabgaben in der römischen Kaiserzeit (27 v. Chr.–284 n. Chr.)* (1980), 39–41; R. S. Bagnall and B. W. Frier, *The Demography of Roman Egypt* (1994), 2–5.

[25] Lo Cascio, op. cit. (n. 12), 128–9, with reference to Brunt, op. cit. (n. 6), 66, 422, 714.

[26] M. H. Hansen, *Three Studies in Athenian Demography* (1988), 22, 27.

ability of more cohesive city-states to involve and mobilize their population.[27] What is truly remarkable is not so much Rome's ability to field large forces and weather massive casualties, as her ability to extend a *polis*-style levy system across a larger territory.[28] Besides, the Confederate States during the Civil War provide a powerful example of a slave-holding territorial state whose military mobilization rates rivalled Rome's. Between 1861 and 1865, approximately 900,000 soldiers were on active duty at one time or another, equivalent to about half of all seventeen- to forty-five-year-old men and in keeping with Rome's performance at the height of the Hannibalic War.[29]

Third, contrary to Lo Cascio's claims, the average urbanization rate for Augustan Italy implied by the 'low' count and conventional assumptions about urban population numbers outside the capital are by no means incompatible with comparative evidence from the same region.[30] Perforce only guesstimates are feasible: Morley reckons with 1,325,000 non-metropolitan urban residents outside Rome (about a quarter of the total population outside Rome), similar to Hopkins' guess of a non-agricultural population of 1,300,000, again excluding Rome.[31] It is unclear if the non-farming population exceeded the urban population: if it did, the non-metropolitan urban total need not be put at much more than one million, or twenty to twenty-five per cent of Italy's population outside Rome.[32] In the first half of the sixteenth century, about fifteen per cent of the population of peninsular Italy lived in cities of 5,000 or more.[33] At that time, Naples was the only large capital city in the region, home to some 200,000 people. The addition of 600,000–800,000 urban residents (supported by overseas grain) to simulate the presence of ancient Rome would raise the early modern urbanization Italian rate to Roman levels. Moreover, as many early modern cities would have fallen below the threshold of 5,000, their inclusion would increase the overall mean for that period even further.[34] Alternatively, Hansen's latest estimate that a large proportion of all Greeks — as many as two-thirds in small *poleis*, most of them farmers — resided in urban settlements raises the possibility that even a non-metropolitan urban population in Roman Italy of well over one million would not necessarily translate to a similarly huge non-farming population.[35] Either way, the 'low' count is by no means incompatible with the presence of over 400 cities in the imperial heartland.

Narrow rebuttals of this sort have long been a staple of historical scholarship. While they serve to highlight the weaknesses of rival claims, they do not pre-empt the subsequent restatement of adapted versions of such claims or the introduction of new objections. In the long term, they may well be insufficient to settle a debate in a conclusive fashion. In this particular case, moreover, they merely tend to obscure what must necessarily be the key issue: that for all its real but frequently exaggerated shortcomings, the 'low' count is preferable simply because of the ineluctable logical implications of the alternative scenario. The lowest and most credible recorded result of the citizen census of A.D. 47 is 5,984,072.[36] Even at a risibly low undercount of five per cent that would be the envy of many developing countries today, the 'high' count turns this figure into a grand total of twenty million citizens. Barring otherwise unknown mass enfranchisement of millions of provincials under Tiberius, Caius, and Claudius, at least

[27] Lo Cascio, op. cit. (n. 12), 124–5, 137. City-states are different creatures: see in general H. Spruyt, *The Sovereign State and its Competitors* (1996), 130–50; M. H. Hansen (ed.), *A Comparative Study of Thirty City-State Cultures* (2000).

[28] cf. now N. Rosenstein, 'Marriage and manpower in the Hannibalic War: *assidui*, *proletarii* and Livy 24.18.7–8', *Historia* 51 (2002), 163–91, for a new and convincing explanation of how it was possible that, in 214 B.C., only 2,000 *iuniores* who could not claim a legitimate exemption had not yet served in the army.

[29] J. M. McPherson, *Battle Cry of Freedom* (1998), 306 n. 41; M. R. Haines, 'Estimated life tables for the United States, 1850–1910', *Historical Methods* 31 (1998), 149–69.

[30] Lo Cascio, op. cit. (n. 8, 1994a), 164–5. See below, Section IV, for a rebuttal of a related objection.

[31] N. Morley, *Metropolis and Hinterland* (1996), 182; K. Hopkins, *Conquerors and Slaves* (1978), 68–9.

[32] See below, nn. 83–4, for a rejection of Lo Cascio's argument for a substantially larger urban population.

[33] M. Ginatempo and L. Sandri, *L'Italia delle città* (1990), 148–9, 190–1, 227; A. Bellettini, *La popolazione italiana* (1987), 25.

[34] For the share of cities of under 5,000 in the total urban population, cf. J. de Vries, *European Urbanization 1500–1800* (1984), 49–77.

[35] M. H. Hansen, 'The concept of the consumption city applied to the Greek *polis*', in T. H. Nielsen (ed.), *Once Again: Studies in the Ancient Greek Polis* (2004), at 11–16. I am grateful to M. H. Hansen for this reference.

[36] Tac., *Ann.* 11.25, with Beloch, op. cit. (n. 6), 371–2.

three-quarters of these individuals must have lived in Italy.[37] Allowing for slaves and aliens, and given that growth could not suddenly have stopped in A.D. 47, there is no real alternative to the assumption that at some point in the late first or early second century A.D. the gross population of Italy approached twenty million. This number is equivalent to one-third of the peak census population of Han China in A.D. 2 (a region about fifteen times the size of Italy); three to four times the probable population of Roman Egypt; the population of France in 1600 (a region more than twice as large as Italy); or the population of mainland Italy in 1840. More importantly, since even in 1800, after centuries of disproportionately strong development in the north, fifty-four per cent of the mainland Italian population lived in the peninsula,[38] an even larger proportion must have done so in antiquity. Thus, even if we very generously crammed forty per cent, or eight million people, into northern Italy — equivalent to the population of England in the 1790s, a country the same size as northern Italy — we would still need to accommodate twelve million in the peninsula, a population this region did not attain until about 1880 when the demographic boom that caused the number of Italians to double between 1810 and 1910 was already well underway.[39]

As Morley has tried to show, it may conceivably be possible to devise a scenario in which early imperial Italy subsisted entirely on barley produced by farmers who had partly abandoned fallowing (but, as he neglects to add, also somehow contrived to prevent poor harvests and spoilage of stored crops), and might therefore have been able to support this many people.[40] In the real world, crop storage losses range from five to thirty per cent, and an all-barley Italy has no basis in the textual or archaeobotanical evidence.[41] Yet what matters most is not some notional carrying capacity but the logic of the argument *for the Empire as a whole*. If we accept that Roman imperial Italy eventually came to support twenty million people, we are compelled to choose one of several equally implausible options.

If Italy was uniquely densely populated among Mediterranean regions with comparable ecological conditions, about one-quarter of the population of the Empire would have been concentrated in one-sixteenth of its territory, and the population of Italy would have equalled that of Spain, Gaul, and half of the Maghreb combined.[42] This raises the question why Italians were able to go forth and multiply without restraint whereas neighbouring populations failed to follow suit even after centuries of Roman rule. There is no obvious way in which political privilege could account for this slanted outcome: while inflows of taxes and rents may well have precipitated urbanization, it is not at all clear how some fifteen million Italian farmers could have been showered with benefits that were so potent and pervasive that they caused their demographic regime (and eventually their consumption patterns) to be completely different from everybody else's in the ancient Mediterranean.[43] Then again, if all the other provinces experienced a similar demographic boom, the Roman Empire ought to have comprised upwards of

[37] A 10 per cent undercount would translate to 6.6 million adult men or 21 million altogether, non-coverage of 20 per cent of all citizens to 7.5 and 24 million, respectively. My very generous assumption of 5 million citizens in the provinces is more than two and a half times as high as the corresponding tally for A.D. 14 posited by Brunt, op. cit. (n. 6), 265.

[38] Bellettini, op. cit. (n. 33), 35.

[39] ibid., 176. Cf. L. Del Panta, 'L'Italie', in J.-P. Bardet and J. Dupâquier (eds), *Histoire des populations de l'Europe II* (1998), 513–16.

[40] Morley, op. cit. (n. 8), 56–9, esp. 59 n. 64: 17 million Italians could have been fed by planting 80 per cent of the arable with barley and 20 per cent with grain, and by suppressing fallow on one-third of the land. 19 million consumers outside Rome would require a switch to 100 per cent barley.

[41] D. L. Proctor, *Grain Storage Techniques* (1994); www.cropstorage.com (storage losses); M. S. Spurr, *Arable Cultivation in Roman Italy c.200 B.C.–c.A.D. 100* (1986), 10–17, who points out that barley was so unpopular that it was distributed as punishment rations in the army; fed to slaves; and grown either as a back-up crop or as animal fodder (14–15). See also L. Casteletti, 'Contributo alla ricerche paleobotaniche in Italia', *RIL* 106 (1972), 331–74. Morley, op. cit. (n. 8), 56, acknowledges that Italy's wheat could not feed nearly as many people; see Scheidel, op. cit. (n. 22), 54 n. 216 for independent confirmation.

[42] cf. Frier, op. cit. (n. 7), 814.

[43] Vague allusions to the 'posizione di primato dell'economia italica nell'ambito del Mediterraneo' and 'la posizione di primato politico dell'Italia' in Lo Cascio, op. cit. (n. 8, 1994b), 119–20, do nothing to explain Italy's presumed *demographic* exceptionalism.

150 million people,[44] an aggregate population this region as a whole did not attain until the mid-nineteenth century, and substantially more than the Chinese Song empire which in the eleventh century A.D. maintained a standing army of over a million soldiers.[45] That, even in times of need, the Roman state was unable to marshal more than a modest fraction of these resources logically implies an extremely low tax rate that seems incompatible with what is known from empirical data.[46] Moreover, a universal population explosion of this kind would put thirteen million people into Egypt, a total not reached until the 1920s and completely irreconcilable with known density figures.[47] Unfortunately, an intermediate scenario in which only the less developed Western provinces expanded in the same way as Italy while the East had already exhausted most of its potential for demographic growth would merely create new problems. In that case, up to four-fifths of the total population would have resided in the Latin half of the Empire, an imbalance that would make it extremely difficult to account for the divergent fortunes of these regions in Late Antiquity.[48] But if we tried to solve this problem by assuming that the population of the non-Italian regions in the West grew much less strongly than in Italy, we would merely be pushed back towards the initial option of inexplicable Italian exceptionalism. Hence, no matter how we tweak and twist our assumptions, there is no escape from the extreme logical consequences of the 'high' count.

To make matters worse, all of these scenarios entail dramatic population losses between the early Empire and the early Middle Ages of the order of two-thirds to three-quarters. This demographic collapse would be as inexplicable as the centuries-long build-up that ought to have preceded it.[49] Other paradoxical implications of the 'high' count include the notion that judging by shifts in the geographical origin of legionaries recorded in epitaphs, the barley-fed men of Italy lost interest in army service at the very time when it would have provided the only release from their increasingly miserable existence in a country whose population was straining against the limits imposed by agricultural output.[50] More generally, one wonders why in the late Republic, when this boom already had to be in full swing, rich Romans bothered to buy large numbers of slaves when they could have drawn on the services of millions of impoverished compatriots who could be employed without any capital outlay and for bare subsistence. Stodgy conservatives might even go so far as to question the wisdom of discarding much of what Morley labels the 'archetypal tragic narrative' of late Republican history that can be found in ancient authors.[51]

I see no merit in prolonging this exercise in counterfactual history. While Morley concedes that he is 'not . . . wholly convinced' by the 'high' count, he nevertheless deems the ancient evidence 'compatible' with either reading of the imperial census

[44] 20 million Italians equals 2.6 times Frier's estimate for A.D. 164. Applied to the entire Empire, this multiplier yields a grand total of 160 million. Extrapolation from comparative data suggests an even higher total. The ratio of the French to the Italian population from 1300 to 1800 is usually put at a stable value of 1.5–1.6 to 1; if this multiplier is applied to the Roman period, 20 million Italians imply 30–32 million Gauls (compared to 23 million according to the Frier multiplier), equivalent to the population of that region around 1800. Roman Spain ought to have been inhabited by 12–15 million, just as in the first half of the nineteenth century.

[45] C. McEvedy and R. Jones, *Atlas of World Population History* (1978); M. Elvin, *The Pattern of the Chinese Past* (1973), 84.

[46] Neesen, op. cit. (n. 24), esp. 68–70, 128, 137–9. Cf. K. Hopkins, 'Rome, taxes, rents and trade', *Kodai* 6/7 (1995/6), 46–7, with Scheidel, op. cit. (n. 22), 76.

[47] For the latter, see D. W. Rathbone, 'Villages, land and population in Graeco-Roman Egypt', *PCPS* 36 (1990), 134. E. Lo Cascio, 'La popolazione dell'Egitto romano', *Studi Storici* 40 (1999), 425–47, assigns some 9 million people to Roman Egypt, compared to Frier's 5 million. If we multiply Frier's other estimates for the Roman East by 1.8, Roman population number in Anatolia and Syria reaches mid-twentieth-century levels.

[48] Extrapolated from Frier, op. cit. (n. 7), 814: 2.6 times 38.2 million in the 'Latin' West versus 23.1 million in the 'Greek' East.

[49] I know of no historical parallels for contraction on this scale in large populations outside the Americas after 1492 whose previous isolation from Eurasia had rendered them exceptionally vulnerable to new infectious diseases. For population fluctuations in China, cf. Scheidel, op. cit. (n. 22), 69 n. 284.

[50] G. Forni, *Il reclutamento delle legioni da Augusto a Diocleziano* (1953), with W. Scheidel, *Measuring Sex, Age and Death in the Roman Empire* (1996), 95–6 n. 18. Roman soldiers ate better: A. C. King, 'Animal bones and the dietary identity of military and civilian groups in Roman Britain, Germany and Gaul', in T. Blagg and A. King (eds), *Military and Civilian in Roman Britain* (1984), 187–217.

[51] Morley, op. cit. (n. 8), 52 n. 14, employing Hayden White's once-trendy taxonomy.

figures and claims that 'the outside authorities of comparative history and demography are equally unable to decide' between them.[52] This relativistic stance strikes me as mistaken to the extent to which the 'high' count requires us to view Italy in isolation from the ancient and pre-modern Mediterranean as a whole to remain an acceptable alternative. As soon as this broader context is taken into account, this particular case of 'alternative history' rapidly loses its appeal.[53] In spite of Lo Cascio's and Morley's arguments, the only realistic counter-narrative entails the discarding of the Roman census figures as irremediably flawed and misleading artifacts of Roman literary construction and government propaganda. Short of resorting to this (in Brunt's words) 'counsel of despair', the 'low' count remains the only viable interpretation of the demography of ancient Italy: the worst solution, perhaps — except for all the others.

If we follow Brunt in allowing for a twenty to twenty-five per cent undercount in the Augustan census figures, we arrive at approximate totals of 5.1–5.4 million citizens in 28 B.C., 5.3–5.6 million in 8 B.C., and 6.2–6.6 million in A.D. 14. With an estimated 1.2 and 1.8 million citizens residing overseas in 28 B.C. and A.D. 14, respectively, this leaves 3.9–4.2 million citizens in Italy in 28 B.C. and 4.4–4.8 million in A.D. 14.[54] The much more substantial increase between 8 B.C. and A.D. 14 may reflect higher rates of undercounting in 28 and 8 B.C. Various factors support this interpretation. The state-inflicted depredations and exactions of the second triumviral period were hardly conducive to diligent self-declaration of property status in 28 B.C. or perhaps even twenty years later.[55] If the census returns of Roman Egypt are anything to go by, the inclusion of women and children may well have prompted selective under-reporting.[56] In addition, the Italian citizen population from the 40s through the 10s B.C. had been temporarily reduced by Caesar's relocation of part of the metropolitan population and the triumviral and early Augustan provincial levies and provincial colonization programmes (see below, Sections III and IV). For all these reasons, there is no good reason to believe that the free population of Italy ever dropped below four million. For computational purposes, I will use this figure as a mean for the first century B.C.[57]

A final word of caution. My choice of four million as a defensible approximation of the size of the free population of Italy in both the late third and the late first centuries B.C. is primarily meant to establish a plausible context for my assessment of migration rates and should not be construed as an argument for rigid stability over time. The very considerable uncertainties surrounding any estimate for the beginning of this period and — to a lesser extent — the temporary demographic impact of the dislocations near its end forestall any direct comparisons over time. Nevertheless, as I argue in the following sections, the known extent of outward migration, the probable absorption of natural growth by urbanization, and the influx of slaves allow for a substantial expansion of the gross population of Italy as well as for significant intrinsic growth among the Roman citizenry.

[52] ibid., 62.

[53] Contrary to Morley's contention that the 'high' count offers the best explanation for conflict over land in the late Republic (op. cit. (n. 8), 61), L. de Ligt shows in a forthcoming paper that even if we reject Brunt's inflated slave numbers (see Scheidel, op. cit. (n. 1)), the 'low' scenario is perfectly compatible with increased demand for land.

[54] Brunt, op. cit. (n. 6), 116, 262–5. Brunt's somewhat lower totals are marred by his arbitrary assumptions about the proportion of adult males in the total population.

[55] ibid., 115.

[56] *Contra* Lo Cascio, op. cit. (n. 12), 120–1. See Bagnall and Frier, op. cit. (n. 24), 334 for partial neglect of young girls in the Egyptian census declarations.

[57] The total of 900,000–910,000 reported for 69 B.C. is compatible with this figure. Brunt's (highly) conjectural analysis yields a presumptive total of 1,155,000 adult men (21 per cent of whom went uncounted), for a total of 3.7 million (op. cit. (n. 6), 97). A somewhat lower undercount of 15 per cent would yield 1,070,000, or 3.4 million. If the enfranchisement of the Transpadana generated an additional 950,000 citizens in Italy, between 250,000 and 750,000 Italian citizens of old stock would have been lost between 69 and 28 B.C. This tallies well with the transfer of some 250,000–300,000 adult settlers and soldiers to the provinces from the 40s to the 20s B.C. (see below, Section III), and makes it unnecessary to posit any significant natural decrease in this period (*contra* Lo Cascio, op. cit. (n. 8, 1994a), 37).

III. CENTRIFUGAL POPULATION TRANSFERS

In this section, I assess the scale of the three largest state-sponsored re-settlement programmes in Roman history through three kinds of comparisons: with one another; with developments in other periods; and with private migratory flows. In order to ensure proper comparability, I use a simple means of quantifying the relative weight of different migration events called the 'Net Rate of Migration' or 'NRM'. This measurement is of no particular significance *per se* but allows us to draw direct comparisons between episodes of mass resettlement that vary in terms of duration or catchment area. NRM is derived from three variables: the size of the base population (usually adult males aged 17+) in the areas affected by each programme (P); the total number of adult male settlers who were Roman citizens (and, in the third case, of Italian origin) (p); and the length of each episode (t). NRM is the average annual incidence of relocations (net of counterflows) relative to the size of the base population expressed in per cent (i.e., p/t/(P/100)). Since the time-spans of the four episodes are of a similar order of magnitude (viz., 76, 24, 54, and 35 years), the annual means provide a reasonably standardized proxy index of the intensity of geographical mobility. I also compute 'NROM', the 'Net Rate of Out-Migration', which measures outflows from a particular region in the same way (where P is the source population).

The 'Four Migrations'

Between 338 and 263 B.C., the Roman state arranged for the creation of nineteen 'Latin' colonies in central Italy and the resettlement of a considerable number of Roman citizens in defeated communities. Extrapolating from some reported tallies in Livy, Afzelius and Cornell estimate that some 70,000 adult male settlers were sent to those colonies, most of them established in or close to the solid block of Roman territory between the Tyrrhenian and the Adriatic Seas.[58] An additional 20,000 to 30,000 adult male Roman settlers may have been resettled in conquered territories.[59] Since the share of Roman citizens in the original population of the colonies is unknown, the overall demographic impact of these transfers can only be established within broad margins of uncertainty. Brunt's assumption that three-quarters of new settlers were Romans is a mere guess (apparently derived from the probable ratio of Romans to Latins in 338 B.C.) and neglects the possibility that non-Latin allies may also have participated in these programmes.[60] If we assume more conservatively that Romans would not normally constitute a minority in newly-founded colonies and *may* conceivably have accounted for as many as three-quarters of the total, we reach an aggregate tally of 60,000 to 80,000 citizen settlers. Given a base population that rose from perhaps 110,000 to 280,000 in the same period, relocations on that scale yield a NROM of 0.4–0.5 per cent (i.e., an average of 4 or 5 annual relocations per 1,000 adult men in central peninsular Italy). While it goes without saying that the underlying figures cannot be more than rough approximations, here and in the following I am only interested in the probable order of magnitude. Dramatically different and inherently implausible estimates would be required to produce significantly divergent NROMs.

In 200 and 199 B.C., up to 40,000 veterans were voted viritane land allotments in Samnium and Apulia.[61] Eight small citizen colonies were established in 194 B.C., followed by two larger settlements in 184 B.C., three in 183 B.C., another three in 181 B.C., and one in 177 B.C. 'Latin' colonies were established in 193, 192, and 189 B.C., and

[58] T. J. Cornell, *The Beginnings of Rome* (1995), 381 tab. 9, adapted from Afzelius, op. cit. (n. 13), 133.

[59] Cornell, op. cit. (n. 58), 380. Only a small proportion of them were settled in the six to eight citizen colonies founded in that period: cf. E. T. Salmon, *Roman Colonization under the Republic* (1970), 70–81.

[60] Brunt, op. cit. (n. 6), 29; compare Cornell, op. cit. (n. 58), 367.

[61] Brunt, op. cit. (n. 6), 70 n. 1, 279.

we know of four existing colonies which received reinforcements between 199 and 184 B.C.[62] For this period, a maximum of 75,000 relocations yields a NROM for Romans of close to 1 per cent, and even if Romans accounted for merely half of all colonists and just half of all entitled veterans took over new land in 200 and 199 B.C., NROM for the citizenry cannot have fallen much short of 0.6 per cent. The overall NRM of around 0.2 per cent obscures the focus on Samnium, Apulia, and the Po Valley.

The half-century from Sulla's restoration onwards witnessed renewed population movement on a grand scale. For the sake of consistency, I follow Brunt's calculations of Italian manpower in that period. Once more, disagreements over details would be of no relevance to my reconstruction. According to Brunt, between 81 and 28 B.C., some 250,000 adult male citizens were relocated within Italy.[63] Reckoning with a base population of some 3.8 million citizens (halfway between 3.4 and 3.7 million for 69 B.C. and 3.9 and 4.2 million for 28 B.C.), or 1.2 million adult men, we arrive at a NRM of close to 0.4 per cent for Italy as a whole.

Caesar and Augustus launched massive colonization programmes in provincial areas that had thus far been almost completely untouched by organized resettlements. Brunt reports the creation of ninety-six provincial colonies between 48 and 14 B.C.[64] Most of these colonies were newly-founded or re-established settlements formed around Italian settlers (albeit with a frequent admixture of locals).[65] Three-quarters of these colonies were set up in the Western ('Latin') provinces of the Empire — in Spain, Gaul, Dalmatia, Africa, and the western islands. During the same period, and largely as a consequence of these foundations, the number of Roman citizens residing outside Italy rose rapidly: from an estimated 150,000 adult men in 49 B.C. to 375,000 in 28 B.C. (255,000 of whom were of Italian extraction), and 575,000 (with 350,000 Italians) in 8 B.C.[66] Twenty-eight legions accounted for another 125,000 to 140,000 men, perhaps two-thirds of whom would have been drafted in Italy. This adds up to some 290,000 'new' adult male Italians in the provinces. A base population of up to forty million implies a NRM of 0.06–0.07 per cent for the years from 48 to 14 B.C.[67] Most of these flows were directed to the western half of the Empire. If we somewhat schematically assume that the percentage of new settlers in the Western provinces was roughly equivalent to the percentage of colonies founded in these regions, the number of adult male citizens of Italian origin in the Western provinces would have increased by 150,000 between 48 and 8 B.C. In addition, twenty legions were permanently deployed in these provinces, including at least 60,000 men of Italian origin. A grand total of at least 210,000 'new' adult male Italians in the Western provinces in a base population of about twenty-three million people yields a NRM of 0.08 per cent in the same period.

[62] Salmon, op. cit. (n. 59), 95–111.

[63] Brunt, op. cit. (n. 6), 342. Salmon, op. cit. (n. 59), 161–3 lists forty-six certain and thirty probable colonies in Italy founded from Sulla to Augustus.

[64] Brunt, op. cit. (n. 6), 589–601. Cf. R. MacMullen, *Romanization in the Time of Augustus* (2000) for updated totals.

[65] Brunt, op. cit. (n. 6), 244–61. Colonies based on existing *conventus* of Roman citizens were rare (6 out of 106), and those wholly comprised of enfranchised *peregrini* even rarer (at best 2 or 3, if any): ibid., 244, 246.

[66] ibid., 262–5.

[67] For legionary deployments in A.D. 14, see B. Campbell, *War and Society in Imperial Rome 31 BC–AD 284* (2002), 19 (plus the three Varian legions prior to A.D. 9). For the provenance of legionaries in this period, see above, n. 50. Base population: Frier, op. cit. (n. 7), 812, for 25.1 million in the West and 45.5 million in the entire Empire in A.D. 14. I adjust his guesstimates for intervening growth between 48–14 B.C. and A.D. 14.

TABLE 1: THE SCALE OF THE MAIN ROMAN COLONIZATION PROGRAMMES

	Central Italy 338–263 B.C.	**Italy 200–177 B.C.**	**Italy 81–28 B.C.**	**Empire ['Latin' part] 48–14 B.C.**
Source population*	110–280,000	250–300,000	1–1,250,000	1,250,000
Affected population*	>400,000	(1,250,000)	1,250,000	12,500,000 [7,250,000]
Roman settlers	60–80,000	40–65,000	250,000	290,000 [210,000]
Duration (years)	76	24	54	35
NROM	*c.*0.4–0.5	0.6–1	0.4	0.7
NRM	<0.4	(0.2)	0.4	0.06–0.07 [0.08]

* Adult men

We can create a composite measure of Italian mobility in much of the first century B.C. by combining all relocation totals from 81 to 14 B.C. Each year, on average, approximately 0.65 per cent of adult men resettled either within or outside Italy in direct consequence of army service or participation in a colonization programme.[68] Together, these four episodes involved the permanent relocation of at least 640,000 adult male Romans of Italian extraction, or in theory up to two million persons including women and children. Even if children were primarily born after relocation, and some wives were locals, the actual total may well have exceeded one million migrants.

Other Means of Centrifugal Population Transfer

I argue that these four episodes of state-sponsored resettlement of citizens stand out in terms of scale. This claim can be falsified in two ways: by showing that the attested rates of relocation are not unique to these periods; or that private migration involved transfers on a comparable scale. I deal with each of these possibilities in turn.

Concerning the first point, it is easy to show that the four selected episodes lack further parallels. Public relocation programmes were markedly less frequent from 262 to 201 and from 176 to 82 B.C. In peninsular Italy, two 'Latin' and two or three Roman colonies were founded in the 240s B.C. No further 'Latin' colonies were subsequently created in this region. Two more Latin colonies date from 218 B.C. After 177 B.C., Aquileia received reinforcements in 169 B.C., and a few new colonies were created in the 120s B.C.[69] No more than 33,000 adult male citizens and Latins appear to have been settled in colonies in these two periods, at a NRM of less than 0.02 per cent. The extent of the initial Gracchan land distribution is impossible to ascertain but unlikely to have been huge.[70] Even if we were to double the documented numbers of citizen settlers to allow for the Gracchan programme and any other efforts, NRM would not rise much above 0.03 per cent, which is still only a minute fraction of the rates for any of the four episodes.

In the provinces, the fourth episode was not preceded or followed by any even remotely comparable resettlement programmes. Only a tiny number of colonies had been founded outside Italy prior to Caesar's coup. While Brunt *guesses* that at that time, as many as 150,000 adult male citizens already lived overseas, most of them were scattered across the provinces, often in small communities or in *conventus* set up within larger cities.[71] Thus, the Caesarean-triumviral-Augustan programmes transformed the traditional pattern of Roman settlement in the provinces by concentrating large numbers of citizens in a large number of purpose-built colonies.

After 14 B.C., these efforts slowed very considerably. Only a single colony may have been founded between 14 B.C. and A.D. 14, and later emperors never revived the frantic

[68] Given a mean life expectancy of about thirty-three years at age seventeen, this implies a mean lifetime probability of relocation of 20 per cent. Cf. below, Sections IV and V.

[69] Salmon, op. cit. (n. 59), 79–81, 112–25.

[70] cf. Brunt, op. cit. (n. 6), 78–81.

[71] ibid., 233 for the total (italics in the original), 209–24 for settlement patterns. The Mithridatian casualty figures are doubtless hugely inflated (224–7).

pace of the Augustan programme. As a result, NRM for the Western provinces dropped to a small fraction of the corresponding rate for the years from 48 to 14 B.C. In the first century A.D. some 350,000 recruits of Italian origin may have joined the army, for a NROM of 0.25 per cent and a NRM of 0.02 per cent.[72] For all these reasons, the null hypothesis that the four main migration episodes were not unusual can safely be rejected.

As for the second objection, private emigration does not seem to have occurred on a comparably massive scale. The extent of transfers to the provinces can be derived from Brunt's guess that by 49 B.C. 150,000 adult male citizens lived in the provinces. As some of them would have been veterans, this might be regarded as a high figure for private emigration. Assuming schematically that all these citizens were of Italian extraction and had moved to the provinces between 200 and 50 B.C., NROM amounts to 0.1 per cent for Italy as a whole, or one-quarter of the lowest rates for any of the 'four migrations'.[73] Assuming that private migration targeted the same areas as the later colonization programmes, NRM would be only one-eighth or so of the corresponding rate for the fourth great migration episode. In any case, however we manipulate the figures, there can be no doubt that private migration had much less demographic impact on current and future provinces than later state-sponsored programmes. Within Italy, private centrifugal migration (i.e., from central western Italy to more peripheral regions) seems impervious to quantification. However, the huge scale of centripetal migration to Rome and other Italian cities (see below, Section IV) suggests that there would have been little room for much private centrifugal movement.

Table 2 shows a clear differentiation of migration flows. NROMs for the 'four migrations' range from 0.4 to 1 per cent, compared to 0.03 to 0.08 per cent for other periods, while NRM reaches 0.2–0.4 per cent for Italy and 0.06–0.07 per cent for the provinces as opposed to 0.01–0.03 and 0.008–0.02, respectively. Hence, state-run settlement programmes on average raised departure and relocation rates by an entire order of magnitude for Italy, and by about half as much for the provinces. In view of the approximate character of the underlying calculations, the strength and consistency of this trend afford much-needed reassurance: the demographic effect of the four relocation programmes is so massive that no conceivable amount of quibbling over details could make a real difference to these findings.

TABLE 2: ORDERS OF MAGNITUDE OF CENTRIFUGAL POPULATION FLOWS (IN PER CENT)

	NROM	NRM
Central Italy 338–263 B.C.	*c*.0.4–0.5	<0.4
Italy 262–201 B.C.	0.08	0.03
Italy 200–177 B.C.	0.6–1	(0.2)
Italy 176–82 B.C.	>0.03	>0.01
Italy 81–14 B.C.	0.65	0.4
Italy: within Italy 81–28 B.C.	0.4	
Italy: to provinces 48–14 B.C.	0.7	
Italy: to provinces first century A.D.	0.25	
Empire 200–49 B.C.		0.008
Empire 48–14 B.C.		0.06–0.07
Empire first century A.D.		0.02
Western Empire 48–14 B.C.		0.08
Western Empire first century A.D.		0.02

[72] For the ratio of recruits to soldiers, see Scheidel, op. cit. (n. 50), 117–24; for their provenance, 95–6 n. 18.

[73] Frank's rival 'high count' guess of 400,000 adult males outside peninsular Italy in 90 B.C. (op. cit. (n. 8), 333) produces a NROM of 0.4 per cent for that region for the years from 200 to 90 B.C. if we accept the 'low' count scenario, but drops to 0.2 per cent in the context of Frank's own 'high' count of 1.6 million adult male citizens in Italy at that time.

IV. CENTRIPETAL POPULATION TRANSFERS

Urban Growth

Any attempt to measure townward migration in Roman Italy entails serious difficulties and wide margins of error. Unlike relevant information on colonization programmes, quantifiable evidence for private population transfers is almost completely unavailable. As a result, we cannot hope to advance beyond simplifying parametric models. The only relevant numerical data consist of a handful of reported tallies of the recipients of free grain in the city of Rome. Unfortunately, our ignorance of which segments of the metropolitan populace received such handouts at different points in time makes it difficult to relate these figures to the total size of the underlying population.[74] The recorded maximum of 320,000 recipients under Clodius stands in stark contrast to Caesar's reduction of eligibility to 150,000 individuals, a quota that Augustus subsequently revised to 200,000.[75] The scale of the problem is made clear by the fact that if only male citizens from the age of ten had drawn benefits in the 50s B.C., a normal age and sex distribution would imply the presence of as many as 800,000 Romans in the capital. However, we cannot tell if certain women (for instance those *sui iuris*) were also included, and Caesar's sharp cut suggests the possibility of widespread fraud and corruption in previous years. Moreover, children and perhaps even adult women may have been under-represented in the urban population. For all these reasons, we cannot convert the Clodius figure into a meaningful population total. If we take Caesar's and Augustus' recipients to represent men over age ten only, we arrive at a population of between 375,000 and 500,000, minus any skewing of the age and sex distribution. We do not know if this *plebs frumentaria* was co-extensive with the entire metropolitan population of citizen status. In the second part of this study, I argue for the presence in the capital of some 200,000–300,000 slaves and a significantly smaller number of first-generation ex-slaves.[76] In what is now the most detailed discussion of (free) foreigners in Rome, Noy argues that they may have made up around five per cent of the total population.[77] Together, these groups add up to some 700,000 to 1,000,000 people. In the present context, the number of 'core' citizens of Italian descent matters most. Even before Caesar's removal of 70,000 proletarians, their numbers were unlikely to have exceeded 500,000 to 600,000. I will adopt 600,000 as a notional maximum for the mid-first century B.C.

We can only guess how the metropolitan population increased over time. The expansion of citizenship across Italy and the introduction of food subsidies in the first century B.C. probably had the effect of accelerating migration to the capital. In the following, I assume very schematically that Rome's freeborn population of Italian origin grew twice as fast between 100 and 50 B.C. as in the second century B.C., and hence rose from 150,000 in 200 B.C. to 375,000 in 100 B.C., and 600,000 in 50 B.C.[78] Following the Caesarian reduction, I reckon either with a total of 500,000 or with an increase from 500,000 to 600,000 in the second half of the first century B.C.[79] Plausible alternatives would have little impact on average growth and migration rates.

The aggregate size of the freeborn citizen population of the more than 400 cities of Roman Italy is completely unknown. As noted above, Hopkins and Morley speculatively

[74] The literature is large and repetitive. See now E. Lo Cascio, 'Le procedure di *recensus* dalla tarda repubblica al tardo antico e il calcolo della popolazione di Roma', in *La Rome impériale: démographie et logistique* (1997), 3–76, for the most detailed recent discussion.

[75] e.g., G. Rickman, *The Corn Supply of Ancient Rome* (1980), 157–97.

[76] Scheidel, op. cit. (n. 1), Section I.

[77] D. Noy, *Foreigners at Rome* (2000), 15–29.

[78] This is broadly in line with existing guesses: e.g., Brunt, op. cit. (n. 6), 384; Morley, op. cit. (n. 31), 39.

[79] Rome may not have grown much further during the Principate: comparative evidence for the expansion of other pre-modern capital cities often points to a limited growth spurt followed by stagnation; see W. Scheidel, 'Creating a metropolis: a comparative demographic perspective', in W. V. Harris (ed.), *Ancient Alexandria* (forthcoming).

assign some 1.3 million to the free non-farming or urban sector outside the capital.[80] Apart from a few dozen major centres, most towns appear to have been rather small.[81] This is well brought out by a comparison with Roman Egypt: endowed with a similarly sized population, that region contained no more than fifty 'cities' alongside numerous 'villages', the largest of which could house several thousands.[82] The main difference between the urban systems of Italy and Egypt is one of definition: in Italy settlements that were as large as the most substantial Egyptian villages regularly enjoyed urban status. Epigraphic records of cash-handouts to the members of Italian communities are usually ambiguous but do not openly conflict with this notion.[83] An inscription from the Roman colony of Saturnia in Etruria provides the only instance in which the attested amount of largesse can be used to estimate the probable size of the *plebs urbana*: the inferred total of between 1,000 and 2,000 is in line with the assumption of an overall mean of fewer than 2,000 free residents in the urban cores of most Italian communities.[84] As a consequence, it is not necessary to assume that the urban residents in Italy outside Rome significantly outnumbered the metropolitan population. This high degree of urban primacy may seem surprising but has a more reliably documented parallel in seventeenth-century England, where London accounted for up to 70 per cent of the aggregate population of towns with 5,000 or more inhabitants.[85] For computational purposes, I use target figures of 600,000 Italian-born free citizens, up to 300,000 slaves, 50,000–100,000 ex-slaves, and 50,000 aliens, and very simplistically reckon with steady growth from 300,000 freeborn in 200 B.C. to 600,000 in 1 B.C.[86] Once again, reasonable alternative rates of change would not greatly affect my overall results.

Urban Attrition

Next to net urban growth, the 'urban graveyard effect' is a major determinant of the overall volume of city-bound migration. Despite continuing uncertainties about the precise causes of this phenomenon (viz., higher mortality and/or lower fertility), there is now broad agreement that large pre-twentieth-century cities often experienced a structural deficit of deaths over births and resultant natural decrease that had to be

[80] See above, n. 31.

[81] Morley, op. cit. (n. 31), 182.

[82] Bagnall and Frier, op. cit. (n. 24), 55; Rathbone, op. cit. (n. 47), 124–37.

[83] R. Duncan-Jones, *The Economy of the Roman Empire* (2nd edn, 1982), 262–77. Lo Cascio, op. cit. (n. 8, 1999), 165 is wrong to claim that these records indicate a significantly larger urban population than that proposed by Hopkins and Morley (above, n. 31): in most cases, it is simply impossible to know if these benefactions were restricted to urban residents. Most texts vaguely refer to *municipes* or *populus*, whereas only one text specifies *universus populus*, two others *plebs urbana* (see below). There is nothing to suggest that free farmers were commonly excluded from the *populus*, and that *universus populus* was therefore not just an embellishment of this term.

[84] *CIL* XI.2650 (A.D. 234), with Duncan-Jones, op. cit. (n. 83), 272. A colonial foundation with a sizeable territory, Saturnia was by no means one of the smallest Italian communities. The Younger Pliny's donation of HS1,866,666 in support of 100 of his freedmen that after their death was to fund a feast for the *plebs urbana* of Comum (*CIL* V.5262 = *ILS* 2927) cannot be used to calculate the size of the latter for the simple reason that the per capita allocation is unknown. Duncan-Jones' suggestion of HS20 yields 4,200–5,000 adult men, for a total of 13–16,000. However, documented per capita rates for 'the people' (as opposed to magistrates) could reach as high as HS200 (ibid., 142). More importantly, Duncan-Jones' guess is compatible with Comum's status as one of the 'major' Italian cities with a mean (gross) population of 15,000 (Morley, op. cit. (n. 31), 182) but has no bearing on estimates concerning the large majority of towns in Italy.

[85] E. A. Wrigley, *People, Cities and Wealth* (1987), 162: 60% *c.*1600, 70% *c.*1670, and 68% *c.*1700. The inclusion of smaller towns might reduce this proportion to a value closer to one-half. In the late seventeenth century, London was about twenty times as populous as the next-largest city, Norwich (ibid., 160). Rome's unique status appears to have produced a similarly lopsided pattern in Italy.

[86] For the servile element, see Scheidel, op. cit. (n. 1), Section I; for aliens, above, n. 78. Morley, op. cit. (n. 31), 159–83, and K. Lomas, 'Roman imperialism and the city in Italy', in R. Laurence and J. Berry (eds), *Cultural Identity in the Roman Empire* (1998), 64–78, deal with different aspects of Italian urbanization.

compensated for by inward migration from the countryside.[87] City size, settlement density, and the disposition of the local microfauna are the main variables. Borrowing Wrigley's guesstimate for early modern London, Jongman and Morley reckon with an annual shortfall of 10 per 1,000 in imperial Rome. While Jongman opts for a more conservative mean of 5 per 1,000 for the other cities, Morley most recently boosted migration rates by summarily extending his earlier metropolitan rate of 1 per cent to all Italian cities.[88] Precision is clearly impossible. If anything, the actual range of variation was probably greater than previously appreciated, and rates may have changed over time. Owing to pervasive infestation with falciparian malaria, the capital may well have been worse off than early modern London, as were other similarly afflicted communities.[89] At the same time, it is not at all obvious that a small and generously laid-out town of 1,000 or 2,000 ought to have experienced any natural decrease at all. To some extent, these deviations tend to cancel each other out: thus, annual trend rates of loss of 1 per cent for 600,000 residents of Rome and 0.5 per cent for the same number of people in other towns equal alternative sets of rates such as 1.5 per cent for Rome and 0 per cent for other cities, or 1.25 per cent for Rome, 0.5 per cent for 300,000 in major cities, and 0 per cent for 300,000 in small towns. For the sake of simplicity, I will assume averages of 1 per cent for the capital and 0.5 per cent for the other cities, albeit on the understanding that this is merely shorthand for a more complex situation and that aggregate excess mortality may well have been more heavily concentrated in the capital. In the following calculations, these rates account for a substantial share of all townward migration; thus, the absence of any significant amount of urban excess mortality would approximately halve overall relocation rates. However, I should stress that in view of strong comparative evidence of the 'urban graveyard effect', I consider this a purely counterfactual scenario that is highly unlikely to reflect reality.[90]

Existing attempts to estimate the scale of rural population transfers to the cities of Roman Italy and their impact on the countryside are marred by serious computational deficiencies. For instance, the source population did not remain stable but expanded over time, especially as immigration by formerly non-Latin allies must have picked up after the Social War. In the second century B.C., the primary source population for migration to the capital was much smaller than the total rural population of Italy. This means that in this period lower metropolitan growth could have placed a heavier burden on the rural source population than in the first century. Moreover, in terms of total demands on the rural population, the second half of the first century B.C. differed significantly from the first half because the massive resettlement programmes of the former period would temporarily raise rural departure rates beyond long-term trends. Most importantly, however, Jongman and Morley advance greatly inflated estimates of the number of migrants that were required to maintain and expand the aggregate urban population. The shortfall of births relative to deaths is conventionally expressed as the annual amount of decrease per 1,000 population. Thus, an intrinsic rate of loss of 10 per 1,000 means that, in the absence of immigration, the population shrinks by 1 per cent per year, and implies an imbalance between the annual number of births and deaths of

[87] For a judicious discussion, see esp. de Vries, op. cit. (n. 34), 175–98. *Annales de Démographie Historique* 1990, 5–151 includes several more recent contributions. For older references, see Scheidel, op. cit. (n. 22), 28 n. 1 → C. Galley, 'A model of early modern urban demography', *Economic History Review* 48 (1995), 448–69, stresses the crucial role of the sex ratio and fertility in smaller English cities but allows for substantial excess mortality in London. His finding that low urban sex ratios can cause natural decrease may be relevant here in so far as cities in late Republican Italy attracted women who had lost male relatives: see J. K. Evans, *War, Women and Children in Ancient Rome* (1991), 114–44.

[88] Wrigley, op. cit. (n. 85), 134–7; W. Jongman, 'Slavery and the growth of Rome. The transformation of Italy in the second and first centuries BCE', in C. Edwards and G. Woolf (eds), *Rome the Cosmopolis* (2003), 100–22, at 106–9; Morley, op. cit. (n. 31), 43–4, 49–50, and op. cit. (n. 8), 53.

[89] W. Scheidel, 'Germs for Rome', in Edwards and Woolf, op. cit. (n. 88), 158–76; R. Sallares, *Malaria and Rome* (2002), 201–34 (Rome), cf. 264–7 (on the relocation of the town of Salapia in Apulia because of malaria).

[90] Lo Cascio's polemic against the notion of urban excess mortality in Roman cities in 'Condizioni igienico-sanitarie e dinamica della popolazione della città di Roma dall'età tardorepubblicana at tardoantico', in J.-N. Corvisier *et al.* (eds), *Thérapies, médecine et démographie antiques* (2001), 37–70, and 'La population', *Pallas* 55 (2001), 179–98, fails to appreciate the probable role of endemic infectious disease. I note in passing that lower urban excess mortality would make it even *easier* to defend the 'low' count attacked by Lo Cascio.

(say) 30 and 40 per 1,000, respectively. Both Jongman and Morley compensate for this loss with a matching number of migrants (i.e., 10 immigrants to offset a surplus of 10 deaths per 1,000), and (on the reasonable assumption that migrants tended to be young adults and thus the survivors of a much larger birth cohort) roughly double the number of migrants to establish the number of newborns who were (eventually) transferred to the cities.[91] This procedure is inadmissible: since the reproductive capacity of the average young adult is twice that of a newborn (given that half of all newborns would die before reaching full sexual maturity), the annual injection of (say) 500 male and 500 female young adults into a population of 100,000 that suffers from an annual shortfall of 10 births per 1,000 would overcompensate by 100 per cent. In fact, 500 adults (who in terms of reproductive capacity equal 1,000 newborns) are sufficient to counterbalance a deficit of 1,000 births in this population.[92] As a result, Jongman and Morley arrive at rates of departure from the countryside that are about twice as high as necessary. We must bear in mind that the actual number of relocations required to absorb a particular degree of urban decrease is impossible to determine unless the sex and age composition of all migrants is known. All we can hope to measure is the rate of transfer of live births, which is a mathematical construct that does not match but exceeds the corresponding volume of actual migration.[93] The following calculations represent the first attempt to take proper account of all these factors.

The Scale of Centripetal Migration

During the second century B.C., the majority of Italians who moved to Rome would have been Roman citizens or Latins. Reckoning with between 1 and 1.3 million rural Romans and Latins and a metropolitan starting population of 150,000 freeborn residents, a share of two-thirds (four-fifths) of Romans and Italians in the total number of Italian immigrants translates to the transfer of the equivalent of 150,000 (180,000) live births in this group to sustain net growth and of another 175,000 (210,000) to compensate for excess mortality. The resultant total of 325,000 (390,000) implies an annual rate of relocation of 0.28–0.33 per cent for the Roman-Latin source population. If Romans and Latins also accounted for one-third (one-half) of migration to other cities, we need to add a further 50,000 (75,000) transfers for net growth and 62,500 (93,750) for natural decrease. The grand total of 440,000 to 560,000 transfers equals an annual relocation rate of 0.38 to 0.48 per cent of that source population.

Between 100 and 50 B.C., Italian migration to Rome amounted to 225,000 transfers for net growth and 243,750 to maintain the growing population, for a total of 468,750, or 0.44 per cent p.a. of an expanded peninsular rural source population of about 2.1 million. Other cities would draw a total of close to 200,000 transfers from a rural source population of 2.9 million, or 0.14 per cent p.a., for a peninsular mean of 0.58 per cent p.a. For the next fifty years, the picture is rather different. Rome would require at least 250,000 transfers just to maintain its 'core' while the other cities absorbed another 215,000, for a total of 465,000 or 0.32 per cent of the source population. Possible catch-up growth in Rome after Caesar's relocations (say, of 100,000 by 1 B.C.) would have raised the total to 590,000, or 0.4 per cent p.a. In the same period, over 300,000 adult men permanently left Italy. Excluding the 70,000 proletarians who have already been counted, this yields a minimum of about a quarter of a million men or, in theory, up to 800,000 persons including family members. 250,000 to 500,000 actual migrants equal about twice as many births/transfers, for an aggregate total of between one and one-and-a-half million transfers, or 0.7 to 1 per cent p.a. At this rate, the drain of emigration

[91] Morley, op. cit. (n. 31), 49–50; Jongman, op. cit. (n. 88), 107–8.

[92] See already Lo Cascio, op. cit. (n. 12), 117–18.

[93] For the annual number of migrants to equal the annual number of transferred live births, the age and sex structure of all migrants would need to be a representative cross-sample of the total population. On the other hand, if all migrants were twenty year olds, their number would be about half that of the underlying number of births. Actual ratios must have fallen in between these extremes.

could not have been offset by natural growth: a temporary contraction of the Italian citizenry was the most likely result.[94]

In the eighteenth century, Italy's annual growth rate averaged 0.37 per cent.[95] Allowing for some compensation for urban excess mortality, the intrinsic growth rate must have been somewhat higher, of the order of 0.4–0.45 per cent, at a time before 'modern' demographic growth had commenced and mean life expectancy was still close to ancient levels.[96] Excluding net emigration from Italy in the third quarter of the first century B.C., the proposed mean transfer rates for Roman Italy of between 0.38 and 0.58 per cent are broadly consistent with the eighteenth-century trend rate of growth: the overall average from 200 to 1 B.C. is 0.45 per cent for Romans and Latins but considerably lower (*c.* 0.35 per cent) for all freeborn Italians.[97] Thus, if the rural population of Italy had, on average, experienced an annual intrinsic growth rate of around 0.35 per cent, it could have supported urbanization without any demographic contraction in the countryside. However, the 'low' count scenario envisions a reduction of the free rural population at a mean rate of approximately 0.1 per cent p.a. Given the strains of warfare and consequent dislocations, it is easy to see why capacity for natural growth in the late Republican period should have fallen short of eighteenth-century levels. In any case, the margins of uncertainty built into my working assumptions are such that we cannot meaningfully distinguish between means of 0.3, 0.4. or 0.5 per cent. All we can say is that, as far as townward migration flows within Italy are concerned, the deduced rates invariably fall inside a band of probability that also accommodates pertinent comparative evidence.

One might object that emigration from Italy and military fatalities among young men throughout this period (which might be classified as a special category of permanent relocations) would have depressed fertility further than suggested.[98] Yet it would not take much to control for any such shortfall. Over the course of two centuries, even a moderately elevated secondary (i.e., birth) sex ratio of 110 (instead of 105) — i.e., an annual surplus of male births of not more than 1 per 1,000 population — could have produced 400,000 additional young men, enough to compensate for loss in warfare and perhaps even some of the provincial colonization programmes.[99] As I argue elsewhere, minor adjustments of this kind are both perfectly plausible and well attested for populations that regularly experience a high incidence of violent death among young males.[100]

It is important to be precise about the purpose of this probabilistic reconstruction. It certainly cannot tell us what really happened. What it does show is that the basic assumptions of the 'low' count scenario do not entail any extreme and overtly implausible logical corollaries: within the parameters of this model, the empirically attested features of strong urbanization, massive war losses, and intermittent emigration are fully compatible with our modern notion that the overall size of the free population of Italy fluctuated only moderately during the last two centuries B.C. My model works despite the assumption that the number of first-generation ex-slaves in the cities corresponded to no more than 10 or 15 per cent of the freeborn urban population of Italian extraction. This refutes Jongman's recent claim that massive inflows of slaves were *necessary* to populate the cities of Roman Italy.[101] This is not to say that manumitted slaves could not have accounted for a significantly larger share of free city-dwellers: it simply means that there is no compelling reason to believe that this must have been the case.

[94] See above, n. 57.

[95] Del Panta, op. cit. (n. 39), 515.

[96] e.g., P. R. Galloway, 'A reconstruction of the population of North Italy from 1650 to 1881 using annual inverse projection comparisons to England, France, and Sweden', *European Journal of Population* 10 (1994), 223–74. The motley sample of historical growth rates in Morley, op. cit. (n. 8), 53 is of questionable relevance; cf. W. Scheidel, 'The Greek demographic expansion: models and comparisons', *JHS* 123 (2003), 120–40, esp. 127–8.

[97] This is because in the second century B.C. transfer rates were much lower (*c.* 0.15–0.2 per cent p.a.) for rural non-Roman/Latin Italians.

[98] For the latter, see now N. Rosenstein, *Rome at War* (2004).

[99] In addition, the latter may arguably have triggered a modest and temporary contraction of the free population of Italy: see above, n. 57.

[100] W. Scheidel, 'Sex ratios and femicide in the ancient Mediterranean world' (in preparation).

[101] Jongman, op. cit. (n. 88), 109.

This model revolves around two pivotal variables: the intrinsic capacity for growth of the free rural population of Italy, and the average rate of urban excess mortality. These factors determine the relative contributions of the freeborn and of ex-slaves to urban growth. If rural fertility was significantly lower or the 'urban graveyard effect' much stronger than I have allowed for, the importation of slaves would have been the only way to expand and maintain Italian urbanism. Barring either of these alternatives, the Italian peasantry would have been fully capable of shouldering the demographic burden imposed by Roman imperialism.

Based on the above estimates, the last two centuries B.C. would have witnessed the permanent transfer of the equivalent of some 1.8 to 2.2 million live births to the cities. Assuming that young adults dominated this movement, the actual number of migrants would surely have reached one million but need not have surpassed this number by a very wide margin. This approximate total is broadly similar to that of close to 700,000 adult men plus an unknowable but limited complement of family members involved in state-sponsored relocation programmes during the same period. The cumulative permanent relocation of perhaps 1.2 million adult men translates to an annual mean of 0.5 per cent for the whole period, although the first-century average is higher at about 0.6 per cent p.a., and higher still for rural men (*c.* 0.7 per cent p.a.), as well as in the third quarter of the first century.[102] A NROM of 0.6 per cent implies a lifetime probability of permanent relocation of approximately 20 per cent for an average twenty-year-old man.[103] Between 50 and 1 B.C., over 600,000 adult male Romans may have resettled outside their native communities. This total yields a mean NROM of around 1 per cent, for an average lifetime probability of one-third for young men.

If correct, these findings throw new light on the pervasive impact of imperialism on the lives of ordinary Romans (see below, Section V). The proposed model offers what is arguably the most economical reconstruction of the demographic development of Roman Italy in that it presumes neither enormous intrinsic growth rates in the countryside nor the economically nonsensical indiscriminate manumission of expensive slaves to prop up urban population numbers.[104] Nor does it necessarily imply widespread rural misery. As Jongman has shown, the new 'pull' factor of imperial wealth may well be the best explanation for urban growth.[105] Besides, the gradual shift of demographic resources from the countryside to the cities would have created new opportunities for the remaining agricultural population and permitted a limited expansion of slave-based plantation farming that did not inevitably occasion aggressive dispossession of smallholders.

V. THE SIGNIFICANCE OF ROMAN MOBILITY

Patterns of Movement

(Even) more so than conventional reconstructions of the demographic dimension of Roman colonization, my estimates of private migration to the cities of Italy and — in next year's paper — the volume of the slave trade inevitably involve a considerable amount of conjecture. Nevertheless, the relative scale of each of these categories of movement can be established with some confidence. In the last two centuries B.C., perhaps one to one and a quarter million people were re-settled in colonies or on viritane allotments while another one to one and a quarter million moved from the Italian countryside to Rome and over 400 other cities. During the same period, as I argue in the sequel to this article, anywhere between two and four million slaves may have arrived in

[102] See below, Section V, fig. 1.
[103] cf. also below, Section V.
[104] Contrast Morley, op. cit. (n. 8), 53, for a growth rate of 0.8 per cent required by 'high' count conditions, and Jongman, op. cit. (n. 88), 118, on manumission.
[105] Jongman, op. cit. (n. 88), 106 and *passim*.

the heartland of the Empire.[106] If ex-slaves had accounted for a larger share of the urban population than predicted in my model, slave transfers would have been even more substantial. Any realistic adjustments to these estimates would fail to undermine the prominent position of coerced population transfers.

Two main conclusions follow. Many, perhaps most, people who moved in this period did so against their will. And most of those who did move freely did so because they were Roman citizens: migration to Rome, the colonies, and many Italian cities was disproportionately strongly associated with citizenship status. In his well-known book on the world of the Roman citizen in Republican Rome, Nicolet poses a crucial question: 'What was the actual day-to-day substance of Roman citizenship, its existential content'?[107] In this study, I have tried to establish that one of the most essential characteristics of Roman citizenship was *mobility*. I briefly consider four spheres: the military, colonization, private migration to cities, and the integration of slaves.

(1) If we accept the 'low' count of Roman citizens at the time of Augustus, as I believe we must, military service placed heavy demands on this group. For much of the second century B.C., the majority of young unmarried Roman citizens appear to have spent several years on active duty.[108] The first century B.C. witnessed the rapid transformation of what had long been a means of temporary mobility into one of the most central mechanisms of permanent relocation. The breadth of involvement decreased as the duration of service expanded. By the second half of the reign of Augustus, the Roman war machine absorbed between 15 and 22 per cent of all young men for most of their productive lives.[109] While recruitment in Italy was gradually confined to the Cisalpina,[110] the contribution of the provincial minority of the citizenry increasingly outweighed that of the old core. While it is impossible to undertake precise measurements, we may conjecture that in the first century A.D., approximately 15 to 20 per cent of young citizens outside Italy joined the legions, while the corresponding contribution of Italians dwindled to a few per cent, mostly from the (previously provincial) north.[111] This gradual peripherization of army service prepared the ground for the eventual severing of the nexus between citizenship and the military in the third century A.D. In the most general terms, Roman state formation led to the formal expansion of city-state levels of military mobilization across Italy (from the fourth to the first centuries B.C.) that was followed by an increasing bifurcation into two Roman societies: an increasingly demilitarized core and an expanding periphery that picked up much of the burden (from the late first century B.C. well into the Principate).

(2) From the late fourth to the late first centuries B.C., about three-quarters of a million adult male Romans (and initially Latins) were re-settled in state-sponsored relocation programmes. Even allowing for considerable concurrent displacement of defeated enemies, there can be little doubt that movements affected a much higher proportion of Roman citizens than of their Italian neighbours and, later, provincials.

(3) The third variable, civilian urbanization, confirms this pattern. Given that, prior to the Social War, Romans must on average have been more likely to move to the capital or the numerous cities of Latium and Campania than other Italians, per capita mobility was for a long time largely a function of legal status.

(4) To the extent that they had been born or captured outside Italy, naturalized ex-slaves would further raise average rates of citizen mobility. For example, the annual manumission of 4,000 foreign-source freedmen and freedwomen in Italy would have been enough to boost NRM (for four million Italian citizens) by 0.1 per cent.

As shown by the first of the 'four migrations' in Section III, the practice of large-scale permanent relocation goes back to the beginnings of the Roman imperial state. Over time, private migration to cities came to account for a growing share of citizen mobility until political change once again became its prime motor. Thus, the average frequency of permanent relocation among Roman citizens increased most notably

[106] Scheidel, op. cit. (n. 1), Section III.
[107] C. Nicolet, *The World of the Citizen in Republican Rome* (trans. 1980), 2.
[108] Hopkins, op. cit. (n. 31), 33–5.
[109] Scheidel, op. cit. (n. 50), 93–4.
[110] Brunt, op. cit. (n. 6), 200 n. 1.
[111] Scheidel, op. cit. (n. 50), 95–6 n. 18, based on Forni's study of the provenance of soldiers in epitaphs.

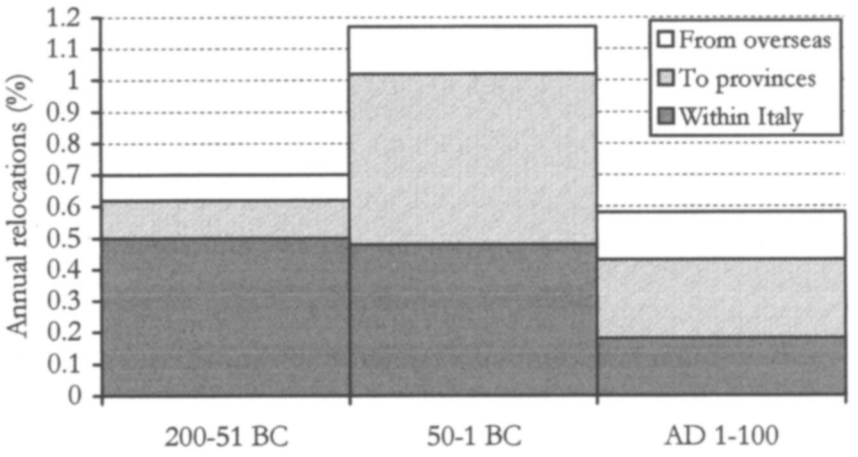

FIG. 1. APPROXIMATE MEAN NET MIGRATION RATES FOR ADULT MALE ROMANS.

during the final stages of the Republic and the beginning of stable monocracy. I conclude with a rough breakdown of permanent relocation rates (Fig. 1).[112]

Whereas the various percentage values cannot be more than very rough estimates, the general pattern is clear. In the second half of the first century B.C., unprecedented levels of migration to the provinces raised the overall incidence of permanent resettlement by about two-thirds. In the early Augustan period, at least 40 per cent of all Roman *seniores* would not have lived in the community where they had been born.[113] In the following century, population transfers within Italy dropped well below Republican levels while emigration remained strong.

State Formation and Culture Change

Charles Tilly has argued that state formation is primarily driven by warfare.[114] This proposition, derived from European history in the second millennium A.D., has yet to be systematically applied to the ancient world.[115] The Roman state offers an excellent test case. Both of the major expansions of the citizen body (330s–270s and 90s/80s B.C.) as well as the creation of different sets of political institutions (360s–280s and 40s–30s B.C.) unfolded in the context of large-scale armed conflict. The most substantial population movements were similarly close correlates of war: each of the 'four migrations' was tied to the most intense and disruptive conflicts of the period. It is striking to see that relative to the size of the base population, both the colonization programmes in the late fourth and early third centuries B.C. and state-run resettlement from the 80s to the 20s B.C. were of the same scale. While the former cemented Roman control over the central peninsula, the latter coincided with the incorporation of formerly only weakly integrated parts of Italy into a unified state.[116] The exceptionally

[112] For discussion, see above, Sections III and IV. 200–51 B.C.: ¼ of 330,000–420,000 townward transfers plus 50,000–80,000 adult male colonists and 40,000 emigrants from 200–101 B.C. (assuming a Roman/Latin ratio of 3:1), and ¼ of 670,000 townward transfers, 80,000 colonists, and 50,000 emigrants from 100–51 B.C. 50–1 B.C.: ¼ of 465,000–590,000 townward transfers plus 510,000 colonists and soldiers (340,000 of them emigrants). A.D. 1–100: ¼ of 900,000 townward transfers and 315,000 soldiers. In the category 'from overseas', I add a guesstimate of 2,000 annual manumissions of foreign-born male slaves (for ⅓ to ¼ of all male manumissions: cf. Scheidel, op. cit. (n. 1) for totals) since 50 B.C., and half as many before. The actual rate may well have been significantly higher.

[113] See Fig. 1, assuming that most male migrants were *iuniores*. This estimate does not account for private rural migration and may therefore still be too low.

[114] C. Tilly, *Coercion, Capital, and European States, AD 990–1992* (rev. edn 1992).

[115] I hope to address this deficit in my current project on *Coercion, Capital, and Ancient Mediterranean States*.

[116] cf. H. Mouritsen, *Italian Unification* (1998) for the previous lack of integration.

disruptive Hannibalic War likewise prompted substantial population transfers designed to establish control over an unstable frontier in much the same way as the first of the 'four migrations' had done in central Italy. This process, as well as the fourth major migration episode, created pockets of *Romanitas* outside peninsular Italy that came to underpin the military complex of the early Principate and its monocratic regime. As far as we can tell, all of these mass migration events were preceded by unusually high military mobilization rates that appear to have prepared young men for permanent relocation: in the 210s and 200s, the 90s and 80s, and again in the 40s and 30s B.C.; the same is likely to be true of the late fourth century B.C., even if the evidence is thin. These correlations are too exclusive and consistent to be coincidental: Roman history did not witness truly massive wars without state-sponsored settlement programmes, or vice versa.[117] Massive population transfers were a function of intense war-making and accelerating state formation.

Colonization may also have been causally connected to culture change in general. This takes us into the debate about the nature of 'Romanization', or rather of the complex processes that are being invoked to supplant this increasingly unpopular term. Lack of space forestalls more than a few brief pointers for future discussion. Much recent scholarship on the effects of Roman rule on local culture tends to share two features: dissatisfaction with conventional notions of Italocentric acculturation (as implied in the concept of 'Romanization'), and an emphasis on the complexity and diversity of local experiences as opposed to a coherent one-fits-all meta-narrative of progressive unidirectional change. With regard to the former, definitional critiques ultimately stem from the implicit desire to apply a single label to the sum of all observed outcomes across space and time. This has triggered a stampede away from 'Romanization' (which then seems unduly narrow) to a whole range of often vague and overlapping concepts that are thought to do more justice to the actual character of culture change.[118] However, consequent calls to abandon 'Romanization' altogether confuse two different problems: whether it should be used as a generic umbrella term, which is surely unjustified; and whether it can usefully be employed to describe a particular subset of outcomes, which is open to debate but in any case a separate question. This brings me to the second major staple of current debates — the complexity of cultural change at different times and places. Two phenomena vie for attention: initial and sometimes prolonged diversity and hybridization, and a long-term trend towards increasing uniformity that is unevenly expressed over space and time.[119] In as much as this trend is a manifestation of the replicative emulation of an evolving set of material artifacts and behavioural patterns associated with the ruling classes of the imperial core — a process of emulation (and thus almost inevitably creolization) that in the first instance may have been mediated by local élites in their desire to accumulate symbolic capital and define their position *vis-à-vis* the dual audiences of an increasingly globalized imperial élite and the general population of their own communities — 'Romanization' may well serve as a suitable moniker for any such developments, as long as it is understood that 'Roman-ness' cannot be regarded as a fixed and essentialized property that was not subject to ongoing hybridization and negotiation.[120] From a political science perspective, this kind of 'Romanization' is simply a species of the genus of 'transnational extension' that ranks among the most important preconditions for successful empire-building.[121]

Can the pace or degree of emulative homogenization, from language and élite education to styles in food consumption, dress, entertainment and worship, and on to architectural norms and settlement patterns, firmly be associated with discrete variables?

[117] Marius' attempt to obtain land for his veterans is consistent with the principle. The Gracchan programme need not have been particularly sweeping: see above, n. 70.

[118] J. Mattingly, 'Vulgar and weak "Romanization", or time for a paradigm shift?', *JRA* 15 (2002), 537–8 lists nine different terms that have been used in recent work.

[119] S. Keay and N. Terrenato (eds), *Italy and the West* (2001) is representative.

[120] G. Woolf, *Becoming Roman* (1999) offers the most detailed survey of the numerous facets of emulative culture change in a Roman province. In this context, the notion of a 'complementary' Roman identity is also useful (G. Bradley, *Ancient Umbria* (2000), 268), in that it allows us to speak of 'Romanization' without envisioning it as an exclusive process.

[121] M. W. Doyle, *Empires* (1986), 128–38.

We must ask which factor was most likely to have been endowed with causative agency. It is doubtful that conquest or enfranchisement *per se* (i.e., unmediated by other processes) could greatly have affected local custom. After all, government continued to be a predominantly local affair; for non-metropolitan citizens and provincials, the main areas of contact between local communities and the 'state' were, respectively, conscription and taxation.[122] By contrast, the injection of large numbers of organized privileged settlers into subject territories provides a tangible proximate mechanism for 'Romanization' that is missing from every alternative explanation. 'Packages' of material culture (as opposed to decontextualized elements that acquire new meaning in different contexts, such as the consumption of Italian wine in pre-conquest Gaul) would seem to be most readily preserved, replicated, and disseminated by numerically substantial, formally organized and privileged groups of individuals who had already adopted them and were likely to embrace them even more so as they established new lives in an unfamiliar and latently hostile 'frontier' environment. In economic parlance, centrifugal colonization dramatically reduced information costs: under pre-modern conditions of communication, replicative emulation is *a priori* more likely to unfold over relatively small distances than between a physically remote 'centre' and an intensely fragmented periphery. World history is full of comparable processes. To single out a particularly impressive case, for the past 3,000 years mass migration has been the driving force behind the 'Sinization' of China, an ongoing process of cultural homogenization and state formation that has now reached Xinjiang and Tibet.[123] Mass migration from the Aegean may have been the main driving force behind what is still often styled 'Hellenization' is some parts of the Levant, such as Middle Egypt and (arguably) north-western Syria. A good example of the obverse is provided by the Achaemenid Empire which in the absence of internal colonization coincided with the lack of comparable 'Persization' of a heterogeneous domain. Incidentally, a causal nexus between large-scale population transfers and replicative culture change would also help account for the comparative scarcity of 'Latin'/'Italian' elements in the eastern half of the Roman Empire. Obviating the need for retrograde theories that the Romans valued and did not wish to 'assault' Hellenism,[124] this situation might more mundanely have been a corollary of relatively limited colonization projects sustained by western sources.

From a methodological perspective, the hypothesis that resettlement programmes may be a major determinant of emulative culture change has the advantage of being testable and therefore falsifiable at least in principle, even cross-culturally beyond the sphere of Roman history itself. This distinguishes it from alternative approaches that depend on recourse to unique events (such as the Augustan 'cultural revolution' which for the first time created an elaborate and readily identifiable 'package' of 'Roman' culture that could be adopted and adapted by Rome's subjects) or similarly particularistic assumptions about the resilience of 'Greek' identity.[125] In practice, however, it can be very problematic to assess the cultural impact of Roman colonization and veteran assignations against ancient evidence. At first sight, it is tempting to posit a causal connection between the massive surge in mobility in the mid-first century B.C. and the concurrent concentration of cultural discontinuities in both Italy and the provinces.[126] Comparative analysis poses more serious problems. The first of the 'four migrations' is a case in point. While the physical dimension of colonization in this period has been well explored through excavations of some of the resultant sites, the impact of these 'local

[122] For examples of the scarcity of emulative culture change in several provinces after conquest but before mass colonization, see P. van Dommelen, 'Cultural imaginings: Punic tradition and local identity in Roman Republican Sardinia', in Keay and Terrenato, op. cit. (n. 119), 68–84; S. Keay, 'Romanization and the Hispaniae', ibid., 117–44.

[123] See below, n. 138, and J. Z. Lee and W. Feng, *One Quarter of Humanity* (1999), 117–19.

[124] Thus G. Woolf, 'Becoming Roman, staying Greek: culture, identity and the civilizing process in the Roman East', *PCPS* 40 (1994), 116–43, esp. 131.

[125] A. Wallace-Hadrill, 'Rome's cultural revolution', *JRS* 79 (1989), 157–64; G. Woolf, 'The Roman cultural revolution in Gaul', in Keay and Terrenato, op. cit. (n. 119), 173–86, esp. 175–6.

[126] For the latter, e.g., J. P. Vallat, 'The Romanization of Italy', in Keay and Terrenato, op. cit. (n. 119), 109. Mass enfranchisement was limited to Italy; Spain, Sardinia, and Africa were 'old' provinces, while Gaul was not; colonization may be the only shared variable.

manifestations of a Roman mentality' on the surrounding population is more difficult to discern.[127] For instance, the appearance of Latin inscriptions in this region cannot be taken to signify discontinuity with former customs.[128] Authors of regional studies regularly ascribe considerable consequence to the foundation of colonies in subject territories.[129] At the same time, both the *relative* importance of their existence (compared to other factors) and the mechanisms whereby settlers exerted influence beyond their own communities often remain unexplored. In his study of three different *types* of cities in the same part of Etruria, Terrenato has made some progress in addressing the first of these issues by showing that, depending on their function and precise location, a colony, a port, and an inland site would all develop in very different ways.[130] Even so, more expansive contextualization is required: what we most need to know is how the presence of colonists affected their neighbours.

Needless to say, 'Romanization', however defined, is by no means the only interesting potential correlate of population transfers. To give just one example, high relocation rates must have re-shaped the Roman kinship universe. Remember my estimate that in the early Augustan period, perhaps forty per cent of male Romans over forty-five would have been born in a (significantly) different location from their current place of residence: in a village instead of a city, in Italy instead of a province, in a province or outside the Empire instead of Italy. Few of them may have had access to surviving siblings or cousins. The autonomy of the nuclear family would have been strengthened as extended kin faded from view.[131] In sum, the various implications of high mobility deserve more systematic investigation across different subject matters. It is one thing to accept that Romans moved around a lot; it is another to appreciate what it really meant.

Comparative Perspectives: Greece and China

How does Roman citizen mobility compare to conditions in other ancient empires? Due to constraints of space, I limit myself to two examples: emigration among the Greeks, which is probably of most interest to classicists, and population transfers in Qin and Han China, a system that in many ways provides the closest analogue to the Roman Empire.[132] In the fifth century B.C., imperial Athens may have supplied up to 10,000 households (or anywhere from 5 to 10 per cent of its citizen population) with new land in allied territories, for a NROM of around 0.1 per cent.[133] The overall scale of outward migration after the conquests of Alexander still awaits proper examination. Crude and to my mind overly generous extrapolation from attested Greco-Macedonian settlement figures for the Fayum suggests a maximum of 130,000 adult male immigrants in Ptolemaic Egypt, or a total of up to 400,000 or one-tenth of the population.[134] Given high sex ratios among migrants and assuming that immigration was disproportionately concentrated in the Fayum, the actual total ought to have fallen short of this figure.[135]

[127] E. Curti *et al.*, 'The archaeology of central and southern Roman Italy: recent trends and approaches', *JRS* 86 (1996), 173–5, 185–8 (quote: 186). See also p. 188 on the absence of visible 'Roman' material culture prior to the second century B.C.

[128] E. Benelli, 'The Romanization of Italy through the epigraphic record', in Keay and Terrenato, op. cit. (n. 119), 8.

[129] Most recently, Bradley, op. cit. (n. 120), 193; J. H. C. Williams, *Beyond the Rubicon* (2001), 215–16 (Po valley). MacMullen, op. cit. (n. 64) puts the most emphasis on colonization but does not explicitly argue for a causal connection between settlers and culture change.

[130] N. Terrenato, 'A tale of three cities: the Romanization of northern coastal Etruria', in Keay and Terrenato, op. cit. (n. 119), 54–67.

[131] Proper consideration of mobility may require an adjustment of the kinship simulations in R. P. Saller, *Patriarchy, Property and Death in the Roman Family* (1994), 43–69, to approximate the actual (i.e., lower) accessibility of relatives. Ex-slaves and veterans ought to have been particularly strongly affected.

[132] These similarities will be explored by the Stanford Ancient Chinese and Mediterranean Empires Comparative History Project (www.stanford.edu/~scheidel/acme.htm).

[133] M. I. Finley, *Economy and Society in Ancient Greece* (1981), 51–2; Hansen, op. cit. (n. 26), 14–28 (population). This entails the assumption that all kleruchs physically moved to their new possessions, which may not have been the case.

[134] Rathbone, op. cit. (n. 47), 113.

[135] For sex ratios, see W. Clarysse and D. Thompson, *Counting the People* (in press).

However, even at half as many adult males, and a smaller complement of women and children, it would be hard to go below 100,000 relocations. Reckoning with twice as many again for the much larger Seleucid empire, the total number of departures in the century after Alexander must have amounted to several hundred thousand.[136] In an Aegean source population of perhaps as many as four to five million, 400,000–500,000 relocations would be necessary to reach a NROM of 0.1 per cent. Despite considerable margins of error, it is clear that this rate is much lower than the means of 0.7 per cent for Italy between 48 and 14 B.C. or even of 0.25 per cent for the first century A.D. Unless we believe that well over a million Greeks and Macedonians left home in the late fourth and much of the third century B.C., it seems that the ability of the Roman state to move people at the source significantly exceeded the pull overseas empires were able to exert on prospective migrants: as in Roman society itself, state-sponsored programmes were a more powerful means of mobility than private long-distance migration. Nevertheless, it is instructive to see how in all these cases mobility was bound up with imperial expansion.[137]

In ancient China, mass migration was a direct function of imperial expansion and state formation. In the Western Chou period (1027–771 B.C.), just as in early Republican Rome, migration was often prompted by government-run colonization programmes that sought to enhance control over frontier zones. In later periods, large-scale population transfers were instrumental in integrating newly acquired territories into the Chinese state. Lee's survey of these events tallies the relocation of 900,000 adult men or households between 225 and 100 B.C., during the formative stages of the Qin-Han empire.[138] Relative to a gross population of about fifty million, this yields a NRM of 0.05 per cent for this period. However, the lack of comparable movements later on lowers the mean to about 0.015 per cent for the entire imperial period from 225 B.C. to A.D. 200. Even allowing for wide margins of error, this is an entire order of magnitude lower than the mean rate of about 0.1–0.15 per cent for Italy between 338 and 28 B.C., yet significantly higher than any credible average for the Roman Empire as a whole. In other words, Roman colonization was more narrowly confined to the intensely penetrated core region of the Empire but had less impact on the provinces. To the extent that culture change was mediated by mass migration, this would be compatible with lower levels of cultural homogenization in the Roman Empire than in China.

Mobility and Empire

In *The Corrupting Sea*, Horden and Purcell briefly consider the manifold types and causes of human mobility in the pre-modern Mediterranean. By touching on a variety of features from long-term colonization and short-term 'agricultural mobility' to piracy and the slave trade, they convey a strong sense of the dazzling complexity of real-life population transfers.[139] Yet this can only be a first step. Tentative quantification and a reductive focus on causative mechanisms are essential in identifying meaningful patterns in migratory processes. In this paper, I focus on process and ignore the physical environment. This allows me to make a straightforward case for the interdependence of imperialism and mobility: few of the four to six million people who entered, left, or moved within Italy during the last two centuries B.C. would have done so in the absence

[136] G. M. Cohen, *The Seleucid Colonies* (1978), 14–19 lists *c.* 70 of 'the more important Seleucid settlements'; cf. 30–2 on the ethnic composition of their inhabitants. J. D. Grainger, *The Cities of Seleukid Syria* (1990), 95–100 reckons with a minimum of 60,000 adult male settlers in the ten principal foundations of Seleukos I but allows for an overall total of up to half a million. Cf. R. A. Billows, *Kings and Colonists* (1995) 155, 206–9 for constraints on Macedonian emigration after Alexander.

[137] In op. cit. (n. 96), 131–5, I estimate a NROM of about 0.05–0.1 per cent for mainland Greek overseas settlement from 750 to 600 B.C. The overall mean for the entire Aegean would be much lower.

[138] J. Lee, 'Migration and expansion in Chinese history', in W. H. McNeill and R. S. Adams (eds), *Human Migration* (1978), 20–43, esp. 21–5.

[139] P. Horden and N. Purcell, *The Corrupting Sea* (2000), 377–91.

of Roman state formation and its socio-economic consequences. No plausible counterfactual that omits imperialism could account for the shipment of millions of slaves to Italy or the permanent transfer of hundreds of thousands of men to other parts of the Mediterranean in the same period. More than anything else, the Chinese experience justifies detachment from geographical context: for three millennia, Chinese governments have successfully shown that massive relocation programmes do not require a corrupting sea.[140] Assyria's deportations and Russia's colonization of Siberia offer further corroboration. Coercive capacity is the crucial variable. In the Roman case, successful imperialism opened up farmland for expropriation; created a need for frontier control and integration, and thus inducements to organized resettlement; provided the muscle and cash for the creation and acquisition of millions of foreign slaves; and encouraged the growth of urban populations that was parasitical on non-reciprocal inflows of tribute and rents. In as much as these events unfolded independently of a particular configuration of ecological factors,[141] imperial war-making and state-building were the ultimate causes of all these population flows. At the same time, these movements increasingly transformed the geographical core of the state that had unleashed them. Historians of Rome have only begun to appreciate to what extent demographic fundamentals such as high mortality and fertility affected the workings of social, economic, cultural, and political institutions, and shaped the way in which Romans experienced life. Yet short lives were common to all pre-modern populations. By contrast, physical mobility far beyond one's native environment was a much more specific and culturally contingent determinant of what it meant to be 'Roman'. It deserves more attention.

Stanford University

scheidel@stanford.edu

[140] See above, at n. 123.

[141] J. Diamond, *Guns, Germs and Steel* (1997) shows that overall levels of civilizational development are contingent on ecological conditions. However, the gradual extension of imperial state formation from the Fertile Crescent to the west and north-west suggests that there was nothing essentially 'Mediterranean' about the Roman Empire: large territorial states could emerge anywhere in the temperate zones of Eurasia.