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.\(^2\)

**Introduction**

The aim of this article is to address a straightforward numerical question. How many immigrants were living in the city of Rome under the Principate? If we could at any moment in time dissect Rome’s population, how many of the city’s inhabitants were born elsewhere?

The question is as simple as it is important. Admittedly numbers are but one aspect of migration studies, and migration is by its very nature a fluid phenomenon that is not easy to quantify. But to dispense with figures altogether seems cavalier: just as is the case with demography, migration without numbers is a waffle.

The city of Rome forms a good point to begin the inquiry. In many respects Rome formed the apex of the migration system of the Roman empire. There is of course no guarantee that it contained a higher proportion of immigrants than some other cities, but it would certainly help to have an immigration figure for the capital.

However, the equally simple answer to the straightforward question how many immigrants lived in Rome is that we do not know. Some guesses and calculations have

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\(^1\) Draft as of 27/4/2012, for the Moving Romans conference, Leiden 1/6/2012. Not to be cited or circulated further without written permission of the author. My thanks to Miriam Groen-Vallinga for helpful comments.

been made in the past, but not with much result. No doubt the answer should be located somewhere between the 90% of the population that was tainted by Oriental blood in Tenney Frank’s now infamous racist interpretation and Noy’s cautious estimate of 5% for free foreigners, but that is a wide spectrum of possibilities indeed.\(^3\) Scheidel has offered an important quantitative analysis of human mobility in Roman Italy, but his calculations were based on the radically different situation connected to growth of the Roman empire under the Republic and are only indirectly relevant for understanding the composition of the city of Rome under the empire.\(^4\)

Nor does comparative evidence of other pre-industrial cities help. The problem is that there are no natural ceilings to immigration: there is nothing in pre-industrial cities that places theoretical limits on the influx of newcomers. Moreover, the use of comparative figures is methodologically difficult because these data are normally adduced to support the claim that Rome was a unique city. The choice of what is considered a proper comparandum is therefore hardly a neutral decision. The very high figures that are sometimes cited for other cities establish little beyond the fact that high levels of immigration were possible.

It is not that there are no possibilities at all to estimate immigrant numbers in Rome. There are certainly data that are relevant to the issue. Firstly, there are grain dole figures that allow to estimate which part of the population was entitled to grain and which part was not. To some extent these two groups can be equated with home-born people and newcomers. Secondly, there are estimates for numbers of slaves, a part of whom were imported. Thirdly, there are calculations based on urban graveyard models that help to estimate the amount of immigration required to keep the population at a stable size. Fourthly, there are figures derived from isotopic studies of skeletal material that allow to estimate the proportion of immigrants in specific graveyard populations. Fifthly, there are estimates available of sizes of particular groups of migrants living in Rome, for example the Jewish community.

\(^3\) Frank (1916); Noy (2000) 15-29. Note that part of the divergence is caused by the fact that different definitions of foreignness are used.

However, all methods have major flaws. Calculations based on the grain dole figures produce wide margins of error and are only indirectly relevant for immigrant numbers. The slave estimates are hardly precise and only pertain to a part of the immigrant population, as they exclude voluntary forms of migration. Isotopic analysis produces figures that are not as exact as they may seem at first sight, and that are difficult to extrapolate to the general population. Urban graveyard effects can be calculated with some precision, but the calculations are based on proxy data taken over from outside the Roman world. Of some immigrant groups estimates can be made, but this hardly applies to all identifiable immigrants. None of the calculations is on its own bound to produce a trustworthy figure for Rome’s immigrant population. At best the calculations amount to controlled speculation; at worst they merely form numerical expressions of presumptions that we already decided to believe.

However, I believe that there is a way out. It is one of deliberate crudeness, at the sacrifice of sophistication. Rather than focusing very hard on a single method that is bound to remain imperfect no matter how much energy we invest in it, we can use all types of evidence, make back-of-envelope type of calculations and see what our conventions imply for immigration. One of the major advantages is that all methods operate independently of each other. All five methods produce broad bands of possibilities rather than single figures, and the question then is to what extent these bands overlap, and what that implies.

In what follows, I will offer such an attempt. I discuss each type of method in turn and focus on the logic of each calculation: the question is how each method works and what range of plausible figures is suggested by it, not which exact outcome is the most reliable. In doing so, the focus is squarely on immigrant number. I simply want to know how many immigrants were living at Rome on average. Questions of age distribution, gender composition, marital patterns, reproduction, and geographical origin of the immigrants are deliberately ignored: not because they are unimportant, but because they would complicate rather than add our understanding. Simplicity is the key.
I define immigrants as people who are born outside the city and reside in Rome. The focus is thus on first-generation immigrants, not on their descendants. For purposes of definition, legal status is of no concern: some immigrants were free, some belonged to the servile population. The question of whether the immigrants lived permanently or temporarily in Rome is also left out of consideration.

In what follows I will also operate on the assumption that the total size of the population of Rome was between 800,000 and 1,000,000 persons. This is the conventional estimate for the population at the time of Augustus,\(^5\) and there seems little reason to contest it. It is the product of a balancing act: on the one hand we know that the population numbered in the hundreds of thousands, on the other hand caution is warranted because the implied population densities easily become unrealistic.

**Calculation 1. Grain dole figures**

The inquiry starts at a familiar place: the figures for the grain dole.

The figures of recipients of the grain dole reported in literary sources have always held pride of place in estimates of Rome’s population size. These figures are indirectly also important for calculating numbers of immigrants. As we will see, the grain recipients may to some extent be equated with the home-born population and those who were excluded from the dole to some extent with immigrants.

The grain dole figures cover a period from 46 B.C. to 14/15 A.D. The series starts with a reduction from an earlier figure of 320,000 to 150,000 by Caesar and varies subsequently between 150,000 to 250,000 recipients, in more or less random fluctuation. In addition, there are some comparable figures for cash-handouts (*congiaria*) from the same period. They show similar fluctuations, this time between 150,000 and 320,000. Though the

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congiaria were one-time events and might not in all cases have been given to the same part of the population that received grain, there is a clear connection between the two. The congiaria-figures should therefore be taken into account as well. The figures have been listed in the table.

<table>
<thead>
<tr>
<th>Date</th>
<th>Recipients</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>46 B.C.</td>
<td>320,000 of grain reduced to:</td>
<td>Plut., <em>Caes.</em> 55.3</td>
</tr>
<tr>
<td>45 B.C.</td>
<td>150,000 of grain</td>
<td>Dio 43.21.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suet., <em>Divus Iulius</em> 41.3</td>
</tr>
<tr>
<td>46 B.C.</td>
<td>(implied) 150,000, 400 HS each</td>
<td>Dio 43.21.3</td>
</tr>
<tr>
<td>44 B.C.</td>
<td>unknown, 300 HS each</td>
<td>R.G. 3.15</td>
</tr>
<tr>
<td>29 B.C.</td>
<td>250,000, 400 HS each</td>
<td>R.G. 3.15</td>
</tr>
<tr>
<td>24 B.C.</td>
<td>250,000 or more, 400 HS pp</td>
<td>R.G. 3.15</td>
</tr>
<tr>
<td>23 B.C.</td>
<td>250,000 or more, of grain</td>
<td>R.G. 3.15</td>
</tr>
<tr>
<td>12 B.C.</td>
<td>250,000 or more, 400 HS each</td>
<td>R.G. 3.15</td>
</tr>
<tr>
<td>5 B.C.</td>
<td>320,000, 240 HS each</td>
<td>R.G. 3.15</td>
</tr>
<tr>
<td>2 B.C.</td>
<td>to those 200,000 (or slightly more) who received grain, 240 HS each</td>
<td>Dio 55.10.1</td>
</tr>
<tr>
<td>A.D. 12</td>
<td>unknown, 300 HS each</td>
<td>Suet., <em>Tib.</em> 20</td>
</tr>
<tr>
<td>A.D. 14 or 15</td>
<td>(implied) 150,000, 260 HS each</td>
<td>Suet, <em>Aug.</em> 101</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tac., <em>Ann.</em> 1.8.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dio 57.14</td>
</tr>
</tbody>
</table>

These figures have been debated over and over again. Attempts to explain the fluctuations between them have met with only limited success. In as much as the ancient sources offer explanations at all, the explanations are contradictory. In the absence of major catastrophes it is hard to believe that fluctuations in the population size itself can account for major changes. As the modern discussions have shown all too clearly, there are many administrative factors that may have influenced the individual figures. The minimum age for eligibility may have changed, residential requirements may have changed, freedmen may have been in- or excluded, and so on.

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6 For congiaria that are explicitly said to be given to the grain receivers, see Dio 43.21.3 (46 B.C.), Dio 55.10.1 (2 B.C.), Dio 50.25.7 (A.D. 45) and, much later, Dio 77.1.1 (202 A.D.). Cf. Dio 55.26 (A.D. 6, additional grain to those who already receive); Philo, *Leg.* 158 (where the reference to monthly distributions of money and grain suggests equal status), *CIL* 6.10228 (testifying to a registration procedure for receiving a congiarium that is analogous to if not the same as the one used for receiving grain), Pl., *Pan.* 25-28 where congiaria and grain distributions seem at times almost interchangeable.

7 Contrast Dio 43.21.4 with Plut., *Caes.* 55.3.

What is however not in doubt is the suggested order of magnitude. In that sense it obviates the need to go into too much detail. At the beginning of the Principate the part of the population receiving grain and cash handouts consisted of 150,000 to 320,000 persons. The problem for further calculations is that the difference between these two figures is rather large. However, this problem is mitigated somewhat once it is realised that by definition the higher figure is simply more inclusive and the lower one more exclusive. This means that the gap between the two need not necessarily to widen further with further multiplications.

The monthly ratio of grain was more than was needed to feed a single person, and was clearly meant to support a wider number of family members. The total sum of this wider *plebs frumentaria* can be calculated by using a multiplier. Normally a multiplier of 2.5 or slightly higher is used. It seems legitimate to use a somewhat lower multiplier of 2.0 for the more inclusive high figure of 320,000 grain recipients. This would result in a wider *plebs frumentaria* of 375,000 to 640,000 persons.

<table>
<thead>
<tr>
<th>Wider Plebs frum. (min):</th>
<th>150,000 * 2.5</th>
<th>=</th>
<th>375,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wider plebs frum. (max):</td>
<td>320,000 * 2.0</td>
<td>=</td>
<td>640,000</td>
</tr>
</tbody>
</table>

The crucial question is how this wider *plebs frumentaria* was composed, and who was by implication excluded from the dole.

It is possible that there was a *numerus fixus*. The sources suggest that at least twice the lists were closed, and that new persons were only admitted when others had died. The problem is that a *numerus fixus* is difficult to reconcile with the fluctuations in the

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10 Cf. Scheidel (2004) 14. Note that if we would dispense with the lower multiplier for the higher figure the arguments presented in the conclusion of this article would remain unaffected.
11 Suet., *Divus Iulius* 41.3 with Rickman (1980) 177-179; Dio 55.10.1.
attested figures. If there was a closed register, the group of persons who were eligible for the grain dole is likely to have been larger than the *plebs frumentaria* proper.12

Although it is clear that the dole was directed at the masses, poverty formed no criterion in itself. In fact, eligibility was irrespective of wealth. At the other side of the economic spectrum, there is no evidence that the elite participated in the dole. It may be that aristocrats were barred officially,13 but it is just as likely that they chose not to enlist for the handouts.

There can be little doubt that Roman citizenship was a condition for receiving grain. This will have led to a dual exclusion: both slaves and *peregrini* could not participate, no matter how long they had lived in Rome. It is debated whether the freedmen who obtained Roman citizenship upon manumission could be included; some scholars argue that the large fluctuations in the numbers of recipients can only be explained by the in- and exclusion of this sizable group.14 It seems certain that those freedmen who did not obtain Roman citizenship and became Iunian Latins instead were excluded.

As citizenship was widely distributed over the whole of the Roman world, some requirement must have been formulated in addition to citizenship. Recipients must certainly have been physically present when the distributions took place, and this will have limited the recipients to those living on a more or less permanent basis in Rome. Physical presence and temporary inability to attend certainly form an issue for imperial policy.15 It is likely that there was a further formalisation in a requirement of actual

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14 They were sometimes included in the gifts of money: Suet., *Aug*. 42.2 (where Augustus removes them from the lists). Morley (1996) 36-38, following Virlouvet (1991), assumes they had been removed when the dole was reformed in 46 B.C. Whittaker (1993) 21 remarks that those who had been removed will at any rate have been freedmen, ‘if only because they were the majority of those eligible’.
15 In various ways: see Suet., *Aug*. 40.2 (Augustus does not want the recipients to be frequently absent from their work to receive their ratio’s); Philo, *Leg.* 23 (158) (Jews unable to
residence. This might be the background of the way revisions of the lists were made by Caesar: the lists were compiled street by street and with the help of the owners of *insulae*. The requirement may have been formulated in legal terms as one of *domicilium*: a place of residence that was officially entered in the registers.

A last criterion that has been adduced in the past is that in addition to domicile *origo* was required: people had to be born in the city. If correct, this would be a severe restriction of the grain-recipient. There are however no sources that support such a notion, and in consequence the theory is nowadays abandoned.

It is thus quite clear that a significant part of the population was excluded from the grain dole, but little is known about the numbers of each category. The only group we know something about is numerically insignificant: the elite. The number of people who were eligible for the grain dole but did not receive it could have been relatively small. There may have been a sizeable group of Iunian latins, but estimates depend largely on the contested issue of Roman manumission practices, especially with regard to frequency and age at manumission. The number of *peregrini* (free foreigners) is simply a guess.

This may seem an insurmountable obstacle to any further calculation. However, what is important for our purposes is that the calculation works on the basis of a well-defined core (the *plebs frumentaria*) and a less-clearly defined remainder of the population. It seems roughly analogous to the model developed by Sharlin for the cities of early modern Europe of a resident core and a transient envelope population. If we transpose this idea to Rome, the number of immigrants is easy to calculate: it is the total population minus the *plebs frumentaria*. If we ignore for simplicity’s sake the people who were eligible for receiving grain but did not receive it, the calculation is:

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receive grain on the Sabbath); Pl., *Pan*. 25.3-4 (Trajan’s *liberalitas* is shown by the fact that those who are unable to be present are nevertheless allowed to obtain their share later).

17 van Berchem (1939).
\[
\begin{array}{ccc}
I(\text{max}): & 1,000,000 - 375,000 & = & 625,000 & (62.5\%) \\
I(\text{min}): & 800,000 - 640,000 & = & 160,000 & (20.0\%)
\end{array}
\]

Although the range of 20 - 62.5% is still considerable, it is smaller than the one we started with (5 – 90%). In that sense the calculation would represent at least some improvement. Unfortunately, the calculation requires serious modification. The problem is that unless one supposes that *origo* was a criterion for eligibility (as we saw an idea that is nowadays no longer maintained) the grain-receiving core and the non-grain receiving envelope only correspond to some extent to the home-born and the immigrant population.

The envelope consisted only partly of immigrants in the definition used here. Only a part of the slave population will have been born outside Rome. A part of the *peregrini* will no doubt have consisted of immigrants, but it will also have comprised of free persons without Roman citizenship who lived in Rome for many generations. It is also possible that a part of the core population consisted of migrants. The extent to which this was the case depends on the rate of admission of outsiders into the *plebs frumentaria*, which in turn depends on the criteria for eligibility that as we saw above are only imperfectly known. Free Roman citizens might have been moving to Rome in significant numbers – one need to think only of the many Italians from outside Rome. Furthermore, manumitted slaves (many of them born outside Rome) also may have entered the core population.

At first sight these objections seem to damage the calculation beyond repair. But it can be salvaged. On any interpretation it seems legitimate to assume that at least a majority of the grain-receiving core consisted of home-born people, and that at least a majority of the envelope consisted of immigrants. In order to explore the band of possibilities, we may as a simplifying assumption assume that the core consists for 75% of home-born people, and the envelope of 75% immigrants. The underlying idea is that the presence of immigrants in the core and the presence of home-born people in the envelop will have compensated each other, at least to some extent. With 75% the calculation would become:
All this is extremely crude and speculative. However, the crucial point is that the outcome remains more or less within the same range. In fact, in this particular case the range is narrowed down rather than expanded. It takes quite extreme assumptions to push the figures outside the initially established range of 20 to 62.5%.

If both the grain dole figures and the conventional estimates for the total population size of Rome are accepted, it is likely that the number of immigrants falls between 20% and 62.5% of the total population. This is of course still a very wide range, and it should be realised that any figure within the range remains defensible. But it does provide at least a starting point.

**Calculation 2. The servile population**

A second calculation concerns the number of slaves and freedmen in Rome. Although this topic has a clear relation with our understanding of the size of the group that was excluded from the grain dole, it merits separate treatment, as estimates of the servile population are made in an independent way. The subject is also crucial to our understanding of the importance of forced relative to voluntary migration. In order to know the number of imported slaves and freedmen, there are three major issues to be addressed: the size of the slave population, the proportion of imported relative to home-born slaves, and the size of the freedman population. Unsurprisingly, all subjects present major obstacles, but we can establish rough orders of magnitude.

What is quite certain is that the city of Rome comprised a high number of slaves. Roman Italy was a slave society, and Rome formed its apex. Roman literature suggests that
slaves and freedmen abounded in the city,\textsuperscript{22} and the occasional figures for individual cases show that at least some aristocrats owned hundreds of slaves.

The problem is that we do not know how large large is. Estimates run from 100,000 up to 35\% on a population of 1 million.\textsuperscript{23} Some caution is warranted;\textsuperscript{24} one thing to keep in mind is that freedmen have to be added to the slave numbers. Although there is no natural or logical ceiling to the estimates, ultimately we have to fit in the slaves and the freedmen into the total population of Rome. The fact that in the census population of Roman Egypt only some 10 to 15\% were slave warns against too high estimates.

The estimates for Rome’s slave numbers are made in two steps: first a figure for the elite is calculated, then a figure for the remainder of the slave-owning population.

Elite households could comprise significant numbers of slaves. Some owners are known to have owned hundreds of slaves, though in our sources it is not always clear if the figures pertain solely to the \textit{familia urbana}, or to the rural slaves as well.\textsuperscript{25} One balancing factor is that some of the known elite \textit{domus} within Rome seem to have been relatively small. Although slaves did not need much space to be housed, cramming a Pompeian-sized house with 400 slaves seems overdoing it.\textsuperscript{26}

Let us start with the assumption of 1,000 elite \textit{domus} in Rome in which senators and wealthier members of the equestrian order lived. Let us further assume that in each lived 100 slaves: some of the wealthier senators will have owned many more, but there will be many with much less slaves. This produces the round figure of 100,000 of slaves working in elite households. In reality the number of elite houses might have been larger, but logic dictates that the higher the number, the lower the average number of slaves will have

\begin{itemize}
\item \textsuperscript{22} E.g. Tac., \textit{Ann.} 4.27 (many slave \textit{familiae}, though with moralizing implications: the free plebs is dwindling).
\item \textsuperscript{23} Noy (2000) 15-16 for an overview.
\item \textsuperscript{24} Scheidel (2005) 65.
\item \textsuperscript{25} The \textit{locus classicus} is the lex Fufia Caninia, for which see Gai., \textit{Inst.} 1.43, where slave owners are categorised; the top of the list is formed by those with 500 and more slaves.
\item \textsuperscript{26} Kolb (1995) 427, pointing both to the relatively modest size of some elite \textit{domus} within the centre, and to variations in size.
\end{itemize}
been. So, Scheidel reckons with an elite in Roman Italy of 500-600 senators (who all lived in Rome) and some 5,000 Roman knights of which a part lived in Rome. He assumes (on average) 20 slaves per equestrian, and 80 per senator. If we would stick to the number of 1,000 elite *domus*, we would obtain a minimum number. However, it is likely that a significantly higher proportion of equestrians will have lived in the city. In order to establish the (implausible) upper limit, we simply assume that all of them did.

| Sl(elite)(min): | (600 * 80) + (400 * 20) | = 56,000 |
| Sl(elite)(interm.): | 1,000 * 100 | = 100,000 |
| Sl(elite) (max): | (600 * 80) + (5,000 * 20) | = 148,000 |

A number of 100,000 slaves in elite households therefore seems a reasonable figure, but for safety’s sake we may use a broader spectrum of (in round figures) 50,000 to 150,000.

We then need to estimate the number of slaves working for owners below the elite. In Egyptian cities one in five households owned slaves. Applying the same ratio to Rome, some 40,000 households would own slaves (population of 1,000,000 – family size of 5). Assigning them on average 2.5 slaves, we obtain again the round number of 100,000 slaves. Although this seems a plausible figure, it will also be immediately apparent that it is hardly more than an educated guess. But the likelihood of both higher number of slave owners *and* a higher average of slaves is not very large: the higher the number of owners, the lower the average becomes. The limits of what seems reasonably possible can be described by combining maximum figures for owners with a maximum average of slaves owned, and doing the same with minimum figures. The outcome suggests that a plausible range for non-elite owned slaves should be 50,000 (as a round figure) to 150,000.

| Sl(non-elite)(max.): | 50,000 * 3.0 = 150,000 |
| Sl(non-elite)(interm.): | 40,000 * 2.5 = 100,000 |
| Sl(non-elite)(min.): | 30,000 * 2.0 = 60,000 |

The slaves owned by the elite and by the non-elite owners surely formed numerically the largest groups. The other known groups of slaves are small in comparison. There is some
evidence for slave gangs used by the state. In the case of the aqueducts, we know that there were two slave gangs employed for maintenance. Such gangs are not attested elsewhere, but may have been employed all the same. The aqueduct gangs could entail a couple of hundred slaves (700 in total). That is in itself a large figure, but the chance that such state-owned slaves numbered more than say 10,000 slaves seems very slight. A similar argument applies to the slaves working in the imperial bureaucracy. They will have constituted a sizeable group, but again they are unlikely to have made a major difference to the calculation. If, say, the imperial household at Rome was staffed by as many as 10,000 slaves, the figure is still relatively small compared to the total number of slaves. Given the wide margins used in the calculations, it seems defensible to ignore such groups.

Thus, a total figure of 200,000 slaves seems reasonable. The margins of error are of course very large. We may say that on the basis of the calculations any figure between 100,000 and 300,000 slaves remains defensible.\(^{27}\)

The next question to consider is what proportion of these slaves were *vernae* and which were obtained from other sources. For present purposes, the former might be considered to be Rome-born, the latter to be immigrants under the definition used here (i.e. born outside Rome and currently residing in the city). In reality the situation is slightly more complex, for both exposed children that were raised as slaves and people selling themselves or their children may not have left their city of birth, whereas home-born slaves might still be sold outside their place of birth. But these academic niceties need not concern us here.

It is clear that a substantial number of slaves came from outside Rome.\(^{28}\) But the question is what their proportion was relative to those of home-born slaves. Manumission patterns of female slaves point to the importance of slave-breeding, as manumission of women normally occurred only after menopause. They first had to produce new slaves. Scheidel

\(^{27}\) Cf. Scheidel (2005) 67, who arrives at a higher range of 220,000 to 440,000.

\(^{28}\) Cf. Noy (2000) 16: ‘the large majority of slaves would not have been born at Rome’. 
has argued that natural reproduction (i.e. slave breeding) must in fact have formed the dominant source of slaves for the simple reason that the capacity to import slaves was limited by the availability of enslaveable persons within and outside the empire.\(^{29}\) There simply was not enough outside supply to meet demand. He concludes that

> for purely statistical reasons, natural reproduction made a greater contribution to the Roman slave supply than child exposure, warfare, and the slave trade taken together and was in all probability several times as important as any other single source.\(^{30}\)

Scheidel’s general argument seems convincing, though some doubts remain. For one thing, the general way *vernae* are encountered in the sources certainly not only suggests that they were highly valued, but also that they were relatively rare. If Scheidel is correct, home-born slaves were not exclusive at all, and we have to assume that the term *verna* was applied in commemorative epigraphy only to a small part of the home-born slaves.

Secondly, Scheidel’s arguments work best at the aggregate level. As Scheidel points out himself, there is certainly some room for fluctuations in subsets of the slave population: some may have comprised more imported slaves than others.\(^{31}\) But it is hard to think of a particular reason why the situation in the city of Rome would be different from the general one. The fact that many imported slaves will have been put on the market in Rome rather than somewhere else is compensated by the fact that the large size of slave *familiae* was conducive to slave breeding. Moreover, as Rome held on any estimate a significant part of the total slave population, the room for manoeuvre is limited.

Scheidel’s central point thus seems sound. It requires quite extreme assumptions to alter his basic finding that it is demographically impossible that most slaves came from external sources. For our purposes, an additional argument of Scheidel is also important. We have seen that the number of slaves at Rome can be estimated within a range of 100,000 to 300,000 persons. However, the larger we postulate that the slave population

\(^{29}\) Scheidel (1997).
\(^{30}\) Scheidel (2005) 71-73.
\(^{31}\) Scheidel (1997) 165-166.
was, the more difficult for external supply to meet this demand.\textsuperscript{32} The implication is that the higher our estimate for the total slave population, the smaller the percentage of imports. Scheidel does not given many percentages, but seems to consider a ratio of 1/6 (i.e. 16.7\%) of imported slaves high already. In the calculation that follows I have remained on the high side of this figure. What the calculation shows is that firstly the size of the group of imported slaves is more or less a given, independent of the size of the total number of slaves, and secondly that even with the slightly higher percentages used here its size is bound to remain relatively small.

\begin{align*}
&\text{I(slave)(max):} \quad 300,000 \times 15.0\% \quad \Rightarrow \quad 45,000 \\
&\text{I(slave)(intermediate):} \quad 200,000 \times 20.0\% \quad \Rightarrow \quad 40,000 \\
&\text{I(slave)(min):} \quad 100,000 \times 25.0\% \quad \Rightarrow \quad 25,000
\end{align*}

In order to know the total number of immigrants among the servile population, the freedmen have to be added to the number of slaves. Scholars occasionally seem to have ignored the obvious fact that freedmen belonged to the same biological cohort as the slaves: the one thing that distinguished them from slaves was their legal status. As (equally obvious) enslavement always preceded manumission the age composition of freedmen was different: they will have formed the older part of the cohort. For present purposes, the question is what multiplier should be used to find the number of freedmen. This depends on the age composition of the slaves, and patterns of manumission.

In his study of natural reproduction of slaves, Scheidel sketched three scenarios based on different manumission rates of female slaves. He advocated using a model of a constant and low manumission rate of 10\%, starting at age 30. Of a cohort of female slaves those that reach age 30, 10\% is manumitted; of the remainder that reaches 35, another 10\% is manumitted, and again so at 40, 45 and so on. Scheidel was not interested in patterns of manumission per se, but rather in the effects of manumission on the fertility of slaves. His argument was that the reduction of female slave fertility through manumission could not have been too large, for otherwise already large slave imports would be unable to

\textsuperscript{32} Scheidel (1997) 158.
meet demand. This argument is in itself convincing, but the manumission pattern that he
used was unrealistic. It flies flat in the face of the Roman practice to manumit slaves after
they had been productive. In the case of women this was often upon menopause, in the
case of men earlier. Independent of the question of exactly how frequent such
manumissions occurred, it is entirely possible that Scheidel’s low manumission rate in
the earlier phases of a slave’s life would go hand in hand with much more frequent
manumission at later stages. In theory even universal manumission would still be
reconcilable with Scheidel’s arguments. Universal manumission is in fact the scenario
found in the census population of Roman Egypt. In other words: low fertility reductions
can go along with high manumission rates; it is the age at manumission which is crucial.
In the city of Rome, a scenario of universal manumission at a late age is certainly too
extreme: there are enough cases of early manumission and enough cases of old people
still enslaved to suggest both that manumission started at earlier ages and that it was not
universal.\footnote{33 See for recent discussion Mouritsen (2011) 121-141, arguing that manumission was
frequent, but not universal.}

The rejection of Scheidel’s model of low frequency of manumission and the knowledge
that manumission was not universal brings us back to square one. If the frequency with
which manumission occurred cannot be established, it is difficult to produce a plausible
scenario. What we can do instead is to establish a theoretical maximum on the basis of
the extreme (and surely unrealistic) premise that \textit{all} slaves were manumitted, and were so
at a relatively early age. As we saw, most slaves were home-born. These slaves entered
Rome’s slave population at birth. For the purpose of the present calculation I assume that
the remainder of imported slaves were all imported at age 15 (no doubt there was
significant variation, but 15 seems a good guess for an average). I further assume all
slaves were manumitted at age 35. The benefit of using a single figure for age at
manumission rather than separate ones for men and women is that it helps to bypass the
almost unsolvable question of the gender composition of the slave population. A standard
model life table (West level 3) than allows to calculate the proportions of slave and
freedmen in the cohort. In the case of the home-born group, slaves form the age group of
0-35 and constitutes 67% of the total cohort. In the case of the imported slaves, aged 15-35, they constitute 50.5% of the cohort. Depending on the size of the group of slaves, freedmen that were born outside Rome numbered (in round figures) 25,000 to 45,000 persons.

<table>
<thead>
<tr>
<th>S(total)</th>
<th>S(home-born)</th>
<th>F(home-born)</th>
<th>S(imported)</th>
<th>F(imported)</th>
<th>F(total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100,000</td>
<td>75,000</td>
<td>36,940</td>
<td>25,000</td>
<td>24,500</td>
<td>61,440</td>
</tr>
<tr>
<td>200,000</td>
<td>160,000</td>
<td>78,810</td>
<td>40,000</td>
<td>39,208</td>
<td>118,018</td>
</tr>
<tr>
<td>300,000</td>
<td>255,000</td>
<td>125,597</td>
<td>45,000</td>
<td>44,109</td>
<td>169,706</td>
</tr>
</tbody>
</table>

As it is based on the assumption of universal manumission, the table certainly does not present a realistic situation, but can be used as an absolute ceiling. The table shows two things. Firstly, even under unrealistic assumptions of universal and early manumission the number of freedmen is likely to have been only slightly over half the size of the slave population. In reality it will have been lower. Secondly, the number of immigrant freedmen will at most, and again only under extreme assumptions, have equalled that of immigrant slaves.

What the actual pattern of manumission was is anyone’s guess. As for the immigrants among the servile population, under maximizing assumptions (300,000 slaves, universal manumission) they still consisted of no more than 100,000 persons. A minimum figure might be set at 25,000 (100,000 slaves, of which 25,000 were imported, and no manumission at all). As both figures are produced by highly unrealistic assumptions (universal manumission and no manumission at all, respectively), it seems likely that in reality the figure should be located somewhere in the middle of the range.

**Calculation 3. Urban graveyard effects**
The third calculation is based on urban graveyard theory. According to a famous argument, Early Modern cities must have received streams of migrants to keep their population at a stable size. The explanation for this phenomenon comes in two versions. The classic formulation is based on the idea that cities experienced natural decrease. Urban populations were unable to reproduce themselves because of the very high levels of mortality that prevailed in the cities. According to this argument, cities functioned as urban graveyards, or as population sinks.\textsuperscript{34} The alternative explanation is based on the idea that the fertility of a specific group lagged behind. In this version, a distinction should be drawn between a core population of permanent residents and an envelope of immigrants. Whereas the core population had a normal demographic regime, the immigrant population had a lower rate of marriage and hence a lower rate of fertility. In consequence, it was unable to reproduce itself, but by contrast it did offer a significant contribution to urban mortality.\textsuperscript{35} In both models, large streams of migrants were the result, siphoning off the surplus of the hinterland.

It is important to realise that this model pertains to net immigration. Actual immigration rates may have been higher. The difference between the net migration of the urban graveyard effect and total immigration is compensated by emigration. Urban graveyard theory is thus not able to make predictions about the actual (gross) levels of immigration. but helps in modelling a part of it. This part may or may not be substantial.

There are good grounds to apply the theory to the city of Rome. Rome was densely populated, mortality rates must in any interpretation have been very high, and it seems likely that there existed differences in demographic regimes between Rome and other settlements. The theory has in fact been applied by a number of ancient historians, in particular to analyse the growth of Rome under the Republic. They have mostly followed the classical version of natural decrease, but some have applied the alternative model of

\textsuperscript{34} Wrigley (1967).
\textsuperscript{35} Sharlin (1978).
depressed fertility.\textsuperscript{36} For our purposes this matters little: it is the occurrence of the phenomenon rather than its explanation that counts.

However, what is problematic in the application of the theory is the lack of empirical data. In the application to the cities of early modern Europe, its application is rooted in empirical observations based on specific demographic data of specific cities in specific periods. It will come as no surprise that such data are entirely absent for the city of Rome. Instead, ancient historians have been using proxy data taken over from Early Modern London. Although there are good grounds to believe that these are of the right order of magnitude, there is no guarantee that they are exactly right.

On the basis of the London data, an annual deficit of 10 per 1,000 has been postulated for Rome: the number of deaths per 1,000 per thousand persons was 10 higher than the number of births (say 40 to 30 per 1,000).\textsuperscript{37} On a population of 800,000 to 1,000,000, this would lead to an annual birth deficit of 8,000 to 10,000 persons. If we regard this as an annual cohort of missing people, and apply standard model life tables, the deficit on the total population that is thus created consists of 215,000 to almost 270,000 persons or 27\% of the population.\textsuperscript{38}

How many immigrants would have to come on an \textit{annual} basis to Rome to compensate for this birth deficit depends on their age structure, which is unknown.\textsuperscript{39} However, what is not in doubt is that the total number of urban graveyard immigrants that must have been living in the city to compensate for the missing births is simply the same as the total deficit population. This means we can bypass the difficult question of the composition of the group of immigrants. Irrespective of the question of gender, mortality and fertility regime the total number of immigrants produced by the urban graveyard effect must have consisted of 215,000 to almost 270,000 persons, or 27\% of the total population.

\textsuperscript{36} E.g. LoCascio (2000); Jongman (2003).
\textsuperscript{38} With Model west level 3 females a missing cohort at birth of 8,000-10,000 would result in a missing total population of 215,394-269,242.
Calculation 4. Stable isotopes

The word calculation is somewhat of a misnomer with regard to the fourth subject, that of stable isotopes. The fourth figure is not a calculation but simply the outcome of the analysis of stable isotopes in skeletal material from the vicinity of Rome, which is then extrapolated to the total population.

Analysis of isotopes is based on the principle that during the growth of humans the food and water that is consumed produces a chemical profile that is geographically specific. By comparing ratios of stable isotopes (oxygen or strontium or others) in teeth and bones within a sample it is possible to establish the extent of homogeneity. Individuals with a markedly different profile are assumed to have grown up elsewhere and hence to be immigrants.\(^{40}\) With the help of reference populations (either ancient or modern), it is in some cases possible to determine the actual region of origin of the immigrants.

Isotopic analysis is extremely important, and bound to become ever more prominent in studies of Roman migration. It is exciting, it is new and it seems to work. But it would be naive to expect too much of it and it would be a grave mistake to take it as hard factual evidence that speaks for itself. Quite apart from technical problems in the analyses (some of which are incidentally quite formidable), major interpretative issues are raised.\(^{41}\)

At present there are relatively few isotopic studies available, and only one that is directly relevant for the study of migration to the city of Rome.\(^{42}\) But they increase at such a speed that that problem is likely to be overcome in the near future. What nevertheless cannot be remedied is the scattered nature of the data: all concern very specific samples

\(^{40}\) Killgrove (2010a) 48.

\(^{41}\) I hasten to say that the scholars themselves invariably display a great awareness of the limitations of the research, and tend to address the problems in a rigorous manner. See also Killgrove (2010b) 50: ‘Isotope analysis is not a panacea to the limitations in the archaeological and epigraphical evidence’. The issue is how others make use of the data.

\(^{42}\) Killgrove (2010a).
based on a few dozen of specimens. It therefore remains hazardous to generalize from the samples. Furthermore, the outcome of the technical analyses is not as straightforward as one would think: foreignness turns out to be a matter of degree rather than something absolute. A sample produces a spectrum of isotopic values whose outliers are considered to be immigrants, but this leaves at least potentially room for ambiguous cases. And, as with all studies based on burial sites, cemetery populations show biases (few infants and young children, fewer women than men) of which it is impossible to determine whether they also occurred in the population itself or are the product of culturally determined preferences in burial. Lastly, in the city of Rome under the empire many (most?) people were cremated rather than inhumated.\textsuperscript{43} For example, the \textit{columbaria}-populations that are so well-known from epigraphy, cannot be analysed through isotopes for the simple reason that their remains were cremated.

What isotopic analysis is relatively good at is producing figures for total numbers of migrants within the population under consideration. In that sense it offers the type of quantitative evidence that is so desperately needed. For current purposes one additional benefit is that the migrants these figures refer to are exactly the same migrants as required by the definition used here: first-generation immigrants, independent of legal status. Another benefit is that these data function independent of estimates of total population size.

The results of the isotopic analysis of two burial sites in the vicinity of Rome were published by Killgrove in her 2010 dissertation. The results of the combination of strontium and oxygen isotopic analysis can be seen in the table. The totals for these different burial grounds are reasonably close: 29 and 37\%. A similar figure is produced by the analysis of Isola Sacra at Ostia/Portus. In itself there is no guarantee that the

\begin{footnote}
\textsuperscript{43} The subject would need more research; for some comments see Noy (1998) 75-78 and Hope (2009) 81-82 (shifts from inhumation to cremation (dominant in Rome by 1\textsuperscript{st} cent BC), back to inhumation (from early 2\textsuperscript{nd} cent AD onwards, until it was universal in the Roman empire in the third century.).
\end{footnote}
composition of Ostia would be similar to Rome (which is why the figures are not used here), but it is of some comfort that the figure falls within the same range.\textsuperscript{44}

<table>
<thead>
<tr>
<th></th>
<th>Combined strontium and oxygen immigrants</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casal Bertone</td>
<td>15 (37%)</td>
<td>41</td>
</tr>
<tr>
<td>Castellaccio Europarco</td>
<td>4 (29%)</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>19 (35%)</td>
<td>55</td>
</tr>
</tbody>
</table>

In itself it is quite clear that the dangers of extrapolating the figures to the total population of Rome are large: we are in the world of small-number statistics. When more analyses of burial populations at Rome are conducted (and methods become more refined) it is quite possible that the picture changes. Nevertheless, with all due caution, we may take the figure of 35% migrants as the provisional single figure outcome of the isotopic analysis of the population of Rome. As Killgrove summarises:

Over one-third (34.5\%) of all individuals chemically studied made a journey to the city of Rome sometime after the age of three. If the sample populations from periurban Casal Bertone and suburban Castellaccio Europarco are representative of other non-elite urban burials, it stands to reason that well over one-third of the lower-class population of imperial Rome was not born there.\textsuperscript{45}

On a total population of 800,000-1,000,000 inhabitants, there would be 280,000 to 350,000 immigrants.

**Calculation 5. Counting migrant groups**

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\textsuperscript{45} Killgrove (2010) 279.
A fifth calculation is based on crude quantification on an empirical basis (if empirical is the proper term). Despite appearances, Rome’s migrants were not an amorphous mass. Several groups among them can be distinguished, such as Jews, traders, people travelling on a regular basis from the vicinity to Rome. For some groups attempts at quantification are available in the scholarly literature. Using these, and adding other estimates, we might simply see where it leads us.

The first task is to compile a list of migrant groups. This list can be seen in the second column of the table below. Any such categorisation is bound to remain somewhat arbitrary, but on the other hand it is unlikely that the list omits important groups altogether. It should also be noted that there is some overlap between groups: the categories are not as clear-cut as they may seem.

The second task is to assign figures to each group. In a way, this is a very simple procedure, but it is also a difficult game to play, as it goes against the inbuilt caution of our discipline: it is deliberately highly speculative. In each case it is certainly possible to complicate matters so much that the attempt is rendered hopeless. But that is not the point. The point of the exercise is that we force ourselves to explicate our assumptions. To make the exercise somewhat more palatable (and to capture a bit of the large margins of error involved) I have provided minimum and maximum estimates rather than single figures.

In assigning figures to each group, some factors need to be taken into account.

Many of the groups do not consists only of immigrants (in the definition used here): only a part will have originated from outside Rome. For example, we know that the Jews contained many immigrants, but we also know that many Jewish families lived for generations in Rome. We expect that some of the Christians were migrants, but it seems sensible to suppose that many were not. In consequence, for many groups two separate

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46 This is also implied by the claims of Philo, *Leg.* 23 (155) and 23 (158) that many Jews had obtained Roman citizenship and participated in the grain dole.
issues have to be addressed: what is a reasonable estimate for its size, and what is the proportion of first-generation migrants among them?

Secondly, permanency. Some of the groups will not have lived on a permanent basis in Rome. The traders are a case in point. Likewise people coming to Rome in order to settle legal cases, or those on embassies. Even if they remained in the city for prolonged periods, their stays are unlikely to have exceeded a couple of years in the most exceptional cases. So the question is rather how many members could be found in Rome on average at any particular moment in time, independent of the duration of the stay of each individual.

Thirdly, some groups (or the proportion of immigrants among them) will have changed in composition or size over time. Notable cases are senators, whose ever increasing numbers of outsiders can be traced in remarkable detail, and the Christian community, which witnessed a spectacular growth. The averages that are given in the table are notional and refer to an average situation over the course of the first two centuries A.D. It needs to be realised that these averages may not describe an actual situation at any particular moment in time.

<table>
<thead>
<tr>
<th>Type of immigration</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Market mobility from the suburbium</td>
<td>5,000</td>
<td>20,000</td>
</tr>
<tr>
<td>2. Seasonal and temporary labourers</td>
<td>10,000</td>
<td>50,000</td>
</tr>
<tr>
<td>3. Destitute immigrants from Italy</td>
<td>5,000</td>
<td>20,000</td>
</tr>
<tr>
<td>4. Immigrants from the provinces (excl. Jews)</td>
<td>10,000</td>
<td>50,000</td>
</tr>
<tr>
<td>5. Immigrants among the Jewish diaspora community</td>
<td>5,000</td>
<td>10,000</td>
</tr>
<tr>
<td>6. Immigrants among the Christians</td>
<td>1,000</td>
<td>5,000</td>
</tr>
<tr>
<td>7. Immigrants from outside the Roman empire</td>
<td>5,000</td>
<td>20,000</td>
</tr>
<tr>
<td>8. Immigrants among the aristocracy</td>
<td>500</td>
<td>1,000</td>
</tr>
<tr>
<td>9. Embassies etc to Rome from within the empire</td>
<td>100</td>
<td>1,000</td>
</tr>
<tr>
<td>10. Embassies etc to Rome by other states</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>11. Judicial business</td>
<td>100</td>
<td>1,000</td>
</tr>
<tr>
<td>12. Traders</td>
<td>5,000</td>
<td>20,000</td>
</tr>
<tr>
<td>13. Educational mobility</td>
<td>500</td>
<td>5,000</td>
</tr>
<tr>
<td>14. Travelling orators, scholars, etc</td>
<td>100</td>
<td>1,000</td>
</tr>
<tr>
<td>15. Travelling athletes, gladiators etc</td>
<td>100</td>
<td>500</td>
</tr>
<tr>
<td>16. Condemned criminals</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>17. War captives</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>
It is important to understand the dynamic (and the dangers) of the calculation. It will be immediately clear from the table that some groups are numerically insignificant. No matter how we twist the figures for each of these, this will not alter their numerical importance. It is not entirely surprising, though rather sobering, that these are precisely the groups about which we know relatively much, as they are the most visible ones. The corollary is that it is precisely in those categories of immigrants that we know very little about that the numbers start to matter really. These are the people travelling from the suburbium, the destitute people coming from Italy to Rome, the seasonal labourers, the immigrants from the provinces and the immigrants from outside the empire (imported as slaves).

For all its feebleness, when the figures are added up it emerges that something between slightly over 57,000 and 220,000 persons can be considered immigrants. On a population of 800,000 to 1 million they represent 6 to 27% of the population.

**Conclusion**

Each of the five calculations produces ranges rather than single figures. None of them has in itself any claim to accuracy: we are in the realm of probabilities, not facts. However, for all their feebleness, they have one virtue, and that is that they are made independent of each other. This allows comparison to each other.
In a general sense, the ranges show overlap. None of the figures offered seems completely impossible relative to the other ranges. (The fact that the figure for servile immigrants is significantly lower forms no obstacle, as it concerns only a part of the immigrant population). The overlap obviously increases the credibility of each of the calculations. This is important in itself, as in each case the margins of error are very wide. For example in the case of the stable isotope analysis it is tempting to dismiss the estimates as being based on small and potentially highly unrepresentative samples. But they do fit in with the rest of our knowledge, and that is comforting.

In addition, comparing the results to each other enables us to narrow down the various ranges somewhat. It shows which part of each range is the more realistic and suggests in which direction adjustments may be sought.

In the case of the *plebs frumentaria*, estimated at 375,000 to 640,000, the higher part of the range seems less likely because not enough room remains for other groups. Initially, the range seems unproblematic even under maximizing assumptions: in a large population of 1 million a very large number of slaves (300,000) can still coexist with a very large wider *plebs frumentaria* (640,000). But problems arise when the number of immigrants produced by calculations 3 to 5 is taken into account, in combination with Scheidel’s argument discussed at calculation 2 that most slaves were home-born. If all of these are correct, we are almost automatically forced to lower the size of the wider *plebs frumentaria* in order to make room for home-born slaves and non-grain receiving free immigrants.

For similar reasons, the figures cited here also militate against the higher part of the range for the slave population, estimated at 100,000 to 300,000. If most of these slaves are home-born, we have to find space for immigrants stemming from other sources, and this can only be created by choosing the lower part of the slave range. This incidentally shows

<table>
<thead>
<tr>
<th>Table</th>
<th>Range 1</th>
<th>Range 2</th>
<th>Range 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Stable isotopes</td>
<td>280,000</td>
<td>350,000</td>
<td>35</td>
</tr>
<tr>
<td>5. Migrant groups</td>
<td>57,000</td>
<td>220,000</td>
<td>6 – 27</td>
</tr>
</tbody>
</table>
the crucial importance of Scheidel’s argument of the low proportion of slave imports for
the present discussion.

With respect to the urban graveyard theory, 215,000-270,000 immigrants may seem a
plausible outcome compared to the other calculations. However, it needs to be kept in
mind that the figure concerns net rather than gross immigration. The actual immigration
figures are therefore likely to have been higher. Two seemingly paradoxical conclusions
follow. In the first place the figures for excess mortality on which the calculation is based
might need downward adjustment. It needs to be remembered that the calculations are
based on the use of a figure simply taken out of another historical context, so there is no
guarantee that it is realistic. At the same time the calculation shows that urban graveyard
migration is likely to have been of major importance relative to other forms of
immigration, for it would require extreme alterations to change this situation.

In the case of the figures produced by isotopic analysis, it is clear that they are to be
approached by ancient historians with lowered expectations: they produce no hard data
that speak for themselves. Nevertheless, the findings here suggest that the general range
within which they operate is right, though an overall figure of 35% of immigrants seems
on the high side of possibilities.

As for the fifth and last method, putting numbers to specific groups is in itself a rather
speculative venture. However, interestingly enough, as the range that is produced is
significantly lower (6-27%) than that of the other calculations it actually serves as a
check on numerical fantasies. We can not claim very high totals of migrants if we are
unable to allot them space in any specific migrant group. Paradoxically, speculation
fosters realism. At the same time, it shows that we should not be overcautious in our
estimates. We should overcome our natural and understandable inhibitions to remain on
the safe side in assigning figures to groups.

To sum up. If one looks for a single figure of the immigrant population, I suggest taking
25%. But given the fact that we are weighing probabilities, it is much safer to work with
a range, and we might put this at 20 to 30%. Estimates lower than 20% create difficulties with the first four calculations. Estimates higher than 30% would produce figures that are almost impossible to reconcile with the estimates of the fifth calculation. In both cases we would have to make serious adjustments to some of our conventional views.

If 20-30% of Rome’s population consisted of immigrants it has important implications.

The relative high presence of immigrants shows that immigration cannot have been confined to particular status groups. Of course some persons will have been more prone to move than others, but the immigrants were far too numerous to be confined to members of elite groups or to what might be called stake-holders in the empire. In order to make the figures meet, room should be sought among the immigrant groups that matter numerically: among the immigrants from the provinces, the seasonal labourers, the destitute, and not among, say, athletes.

The high figures indicate incidentally what could already be suspected: there exist enormous biases in the epigraphic sources documenting immigration. The inscriptions portray a relatively wide variety of immigrants, but they can hardly be thought to offer a representative selection. Significant parts remain invisible. The high figures suggest also that we should not be overcautious in detecting evidence for migration in inscriptions. The tendency among epigraphers to admit only the 100% certain cases into the discussion is as understandable as it is indefensible.

It follows directly from the second calculation that the proportion of forced to free immigration was low. Forced immigration, to be sure, consisted of more than slaves alone: it also concerns condemned criminals and soldiers stationed in Rome. If Scheidel is even roughly right, the number of immigrant slaves and freedmen was so small that even within the forms of forced migration slavery was not as dominant as one would expect.
The present discussion has of necessity been reductionist in the extreme. The question it addresses is straightforward, and ignores what are otherwise extremely interesting aspects of mobility. In order to make the calculations, I have deliberately avoided otherwise important issues like the age and gender composition of the immigrants. In a sense this type of reductionism points in an acute form to an inherent difficulty. We have placed migration on our research agenda because we like to nuance our rather static understanding of the Roman world, but adding migration immediately adds so much volatility and complexity that we are quickly reaching the limits of our knowledge.
Bibliography


Mouritsen (2011)


